

MPMS Chapter 11.1  
Volume XIV  
First Edition, January 1982

## Manual of Petroleum Measurement Standards

Chapter 11.1—Volume Correction Factors  
Volume XIV—Tables 53D and 54D

### ERRATA

*Pages XIV-1, Change the value in Item 5 under Example 2 for corresponding density from 15°C to 68.5°C.*

*Page XIV-1, Change the last line on the page to read, Text continues on page XIV-5, rather than page XIII-5.*

August 1, 1982



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# Manual of Petroleum Measurement Standards

## Chapter 11.1—Volume Correction Factors

### Volume XIV

**TABLE 53D—Generalized Lubricating Oils  
Correction of Observed Density to  
Density at 15°C**

**TABLE 54D—Generalized Lubricating Oils  
Correction of Volume to 15°C Against  
Density at 15°C**

API STANDARD 2540 (1980)  
FIRST EDITION, VOLUME XIV, JANUARY 1982

|                                                                                     |                                          |                 |
|-------------------------------------------------------------------------------------|------------------------------------------|-----------------|
|  | American Petroleum Institute             | API Std 2540    |
|  | Institute of Petroleum                   | IP 200          |
|  | American Society for Testing & Materials | ASTM D1250      |
|   | American National Standards Institute    | ANSI/ASTM D1250 |

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# **Manual of Petroleum Measurement Standards Chapter 11.1—Volume Correction Factors**

## **Volume XIV**

**TABLE 53D—Generalized Lubricating Oils  
Correction of Observed Density  
to Density at 15°C**

**TABLE 54D—Generalized Lubricating Oils  
Correction of Volume to 15°C Against  
Density at 15°C**

**Measurement Coordination Department**

**API STANDARD 2540 (1980)**

**FIRST EDITION, VOLUME XIV, JANUARY 1982**

**American  
Petroleum  
Institute**



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The tables included in this volume and the subroutines from which they were generated are voluntary standards and were developed under the auspices of the joint API/ASTM Committee on Static Petroleum Measurement in part from data generated by a project funded by the American Petroleum Institute at the U.S. National Bureau of Standards, Gaithersburg, Maryland.

Inquiries concerning application of the tables or the computer subroutines should be addressed to:

American Petroleum Institute  
Measurement Coordination Department  
2101 L Street, N.W.  
Washington, D.C. 20037

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### Manual of Petroleum Measurement Standards

#### Chapter 11—Physical Properties Data Section 1—Volume Correction Factors

##### Volume XIV

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Note to User: Both TABLES 53D and 54D are internally numbered beginning with page 1. The actual table begins after the page noted in the contents.

## FOREWORD

### The Objectives

The complete collection of the jointly issued API/ASTM-IP tables of which this volume is a part is the result of close cooperation between the American Petroleum Institute (API), the Institute of Petroleum (London) (IP), and the American Society for Testing and Materials (ASTM). The overall objective of this effort was to meet the worldwide need for a uniform and authoritative publication, based on the most accurate information available. This publication serves as a basis for standardized calculations of measured quantities of petroleum fluids regardless of point of origin, destination, or units of measure used by custom or statute. To meet the objective of worldwide standardized measurement practices, the American National Standards Institute (ANSI) and the British Standards Institute (BSI) have also been closely involved nationally, resulting in the acceptance of the revised tables as an American National Standard and as a British Standard. In addition, in their respective capacities as Secretariat of the International Organization for Standardization TC/28 and of TC/28 SC3, ANSI and BSI have been instrumental in progressing the revised tables towards their adoption as an international standard by the International Organization for Standardization.

### Historical Notes

The present collection supersedes all previous editions of the petroleum measurement Tables ANSI/ASTM D1250, IP200, and API Standard 2540. Action is being taken in ISO/TC 28 for the corresponding tables listed in ISO R91 and the tables in the addendum to R91 to be superseded by the present revised collection.

In view of the progress of metrication in countries formerly using the British system of weights and measures, demand for the revision of the British edition does not justify the considerable work involved. The present edition will therefore be withdrawn on the same date as the corresponding metric and American editions are published and will not be replaced.

For the metric edition the new standard covers products with densities in the range 610.0 to 1076.0 kg/m<sup>3</sup>. The tables for densities below this range, covering liquefied petroleum gases, have not been revised.

The original tables, which were developed in the late 1940s, were based on the 1916 data of Bearce and Pepper (1916) and represent thirty years of evolution. The history of this evolution is summarized by Hall et al. (1975).

### Present Development

Downer and Inkley (1972) demonstrated that the original tables were not satisfactory representations of many petroleum fluids of current importance. In 1974 the American Petroleum Institute (API) and the United States National Bureau of Standards (NBS) initiated a research program funded by the API which intended to provide the solid scientific base for the development of more accurate, consequently more equitable, measurement tables. The result of this program was precise density data on 349 different fluids representing a wide variety of refined products and 66.8 percent of the world crude production in 1974. The completion of this five-year, \$500,000 project in March 1979 opened the way for modernizing the tables. Using the NBS density data and taking advantage of publications of outstanding technical authorities, a Joint API-ASTM Physical Properties Working

Group produced this present collection of the Petroleum Measurement Tables. The development and results of the work are described by Hankinson et al. (1979).

### Conceptual Departure

A major conceptual departure from previous versions is inherent in the recognition of the present and future position of computers in the petroleum industry. The actual Standard represented by this volume and the companion volumes is neither the hardcopy printed tables nor the set of equations used to represent the density data but is an explicit implementation procedure used to develop computer subroutines. The standardization of an implementation procedure implies the standardization of the set of mathematical expressions, including calculational sequence and round-off procedures, used within the computer code. Absolute adherence to the outlined procedures will ensure that all computers and computer codes of the future, meeting the stated specifications and restrictions, will be able to produce identical results. Hence, the published implementation procedures are the primary Standard, the distributed subroutines are the secondary standard, and the published tables are produced for convenience.

### Acknowledgments

The task of completing this project could not have been accomplished without many substantial contributions by a considerable number of individuals and companies. It is impossible to single out any specific individuals for special mention. However, included in the introductory material are lists of the officers of the API's Committee on Petroleum Measurement (COPM), the officers of the Joint API/ASTM Committee on Static Petroleum Measurement (COSM), the major contributors from the Institute of Petroleum, and the members of the COSM Physical Properties Working Group. A special acknowledgment must be given to the Institute of Petroleum (IP) for their work in developing Volumes XI and XII.

### References

- Bearce, H. W., and E. L. Peffer, "Technology Papers of National Bureau of Standards—Density and Thermal Expansion of American Petroleum Oils," GPO, pp. 125–154, Washington, DC, 1916.
- Downer, L., and F. A. Inkley, *Oil and Gas Journal*, Vol. 70, No. 25, p. 52–55, June 19, 1972.
- Hall, A. H., J. A. Simpson, and J. R. Whetstone, "Investigation of Densities and Thermal Expansion Coefficients Applicable to Petroleum Measurement," SP 7, World Petroleum Congress, Tokyo, 1975.
- Hankinson, R. W., R. G. Segers, T. Krolkowski Buck, and F. P. Gielzecki, *Oil and Gas Journal*, Vol. 77, No. 52, p. 66–70, December 24, 1979.
- Hankinson, R. W., T. A. Coker, K. I. West, R. G. Segers, F. P. Gielzecki, and M. A. Plummer, "Volume Correction Factors for Lubricating Oils," *Oil and Gas Journal*, p. 297, September 28, 1981.

## PREFACE

The Petroleum Measurement Tables, Volume Correction Factors (Volumes I through XIV), are, with this edition, incorporated into API's *Manual of Petroleum Measurement Standards*. These tables form Section 1 of Chapter 11, "Physical Properties Data." To simplify the transition from the American Society for Testing and Materials' (ASTM) publication of the original tables to API's publication in 1980, the original ASTM numerical designations have been retained for the individual tables.

The numbering system used throughout Volumes I through XIV corresponds to the numbering system of the *Manual of Petroleum Measurement Standards*. The system consists of a series of fields separated by decimal points. The first two fields (11.1) indicate chapter and section of the manual; the third field gives the ASTM table number. Therefore, although not serial, 11.1.5, 11.1.6, 11.1.23, 11.1.24, 11.1.53, and 11.1.54 are the major headings used. All other headings are subordinate to the three field headings.

Volumes I through IX and Volumes XIII and XIV, which are designed for field use, are arranged on a functional basis rather than on a topical basis.

### First Series—Volumes I, II, and III

These three volumes contain TABLES 5 and 6, the tables for the °API, °F, 60°F base series, plus examples to guide the user. Each volume contains specific data as follows:

- Volume I —Generalized Crude Oils (TABLES 5A and 6A)
- Volume II —Generalized Products (TABLES 5B and 6B)
- Volume III —Individual and Special Applications (TABLE 6C) and an appendix describing the equations and constants used and the densities and coefficients of thermal expansion of each NBS sample.

### Second Series—Volumes IV, V, and VI

These three volumes contain TABLES 23 and 24, the tables for the relative density, °F, 60°F base series, plus examples to guide the user. Each volume contains specific data as follows:

- Volume IV —Generalized Crude Oils (TABLES 23A and 24A)
- Volume V —Generalized Products (TABLES 23B and 24B)
- Volume VI —Individual and Special Applications (TABLE 24C) and an appendix describing the equations and constants used and the densities and coefficients of thermal expansion of each NBS sample.

### Third Series—Volumes VII, VIII, and IX

These three volumes contain TABLES 53 and 54, the tables for the kilogram per cubic metre, °C, 15°C base series, plus examples to guide the user. Each volume contains specific data as follows:

- Volume VII —Generalized Crude Oils (TABLES 53A and 54A)
- Volume VIII—Generalized Products (TABLES 53B and 54B)
- Volume IX —Individual and Special Applications (TABLE 54C) and an appendix describing the equations and constants used and the densities and coefficients of thermal expansion for each NBS sample.

### Background, Development and Program Documentation—Volume X

Volume X provides a complete breakdown of the Petroleum Measurement Tables, Volume Correction Factors, and references appropriate volumes for the location of specific tables. Volume X is the key volume of the entire set and contains the actual

Standard, the implementation procedures, and the instructions for the use of the computer subroutines. The history and development of the project are also included in Volume X under 11.1.6.

#### **Volume XI and XII—Subsidiary Tables**

These tables, which contain conversion factors and other subsidiary data, include TABLES 2, 3, 4, 8, 9, 10, 11, 12, 13, 14, 21, 22, 26, 27, 28, 29, 30, 31, 51, 52, and 58. These tables have been updated to reflect current SI practice, as well as the influence of the new volume correction factor data. Tables 33 and 34 are also included, however, without change. Volumes XI and XII are available only from the American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103.

#### **Volumes XIII and XIV—Lubricating Oils**

The research project that culminated in the volume correction tables for the lubricating oils was carried out over a different timetable than the first ten volumes of Chapter 11.1. Therefore Volume X does not provide a key to Volumes XIII and XIV. Volume XIII would have fallen in the first series, the tables for the °API, °F, 60°F base series, and Volume XIV would have fallen in the third series, the tables for the kilogram per cubic metre, °C, 15°C base series.

Volume XIII and XIV are completely self-contained and cover the following specific data.

Volume XIII—Generalized Lubricating Oils (TABLES 5D and 6D)

Volume XIV—Generalized Lubricating Oils (TABLES 53D and 54D)

The computer subroutines for TABLES 5D and 6D are contained in Volume XIII, and the computer subroutines for TABLES 53D and 54D are contained in Volume XIV. The implementation procedures used to develop the subroutines conform in all respects to the Standard presented in Volume X. The data sources and techniques used to derive the tables are available in Hankinson, et al, "Volume Correction Factors for Lubricating Oils," the last reference listed in the forward in this volume.

Inquiries concerning the application of the tables or the computer subroutines should be addressed to—

American Petroleum Institute  
Measurement Coordination Department  
2101 L Street, N.W.  
Washington, D.C. 20037

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COPM—API Committee on Petroleum Measurement

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ISO—International Organization for Standardization

## Chapter 11—Physical Properties Data

### SECTION 1—VOLUME CORRECTION FACTORS

#### 11.1.53 TABLE 53D—Correction of Observed Density to Density at 15°C

##### 11.1.53.7 TABLE 53D—GENERALIZED LUBRICATING OILS, CORRECTION OF OBSERVED DENSITY TO DENSITY AT 15°C

TABLE 53D gives the value of density in kilogram per cubic metre at 15°C corresponding to a hydrometer reading at observed temperatures other than 15°C. In converting the hydrometer reading at the observed temperature to the corresponding density at 15°C, two corrections are necessary: the first arises from the change in volume of the glass hydrometer with temperature (stem correction) and the second from the change in volume of the lubricating oil with temperature. Both have been applied in the printed table. The values of density at 15°C in this table are the result of a computer procedure which is the Standard (see Appendix A for the TABLE 53D subroutine listing).

The temperature ranges of this table are:

| Density, kg/m <sup>3</sup> | °C         |
|----------------------------|------------|
| 800 to 1164                | -20 to 150 |

The values of density at 15°C given in this table are based on data from the U. S. National Bureau of Standards, Suntech Group of the Sun Refining and Marketing Company, and other published sources. Extension of this table beyond the ranges shown is not recommended.

Increments used in this table for determining density at 15°C are 0.5°C and 2 kg/m<sup>3</sup>. Interpolation with temperature is not intended since there is no practical method of interpolation that will produce the accuracy obtainable from the Standard computer procedure. However, interpolation with density to one additional significant digit can be reasonably made. Interpolation is not required if the TABLE 53D results are to be used as entries to TABLE 54D.

Some countries which have historically used a metric system have retained for field use density units such as g/mL, g/cc, or g/kL. This practice was consistent with previously published API/IP measurement tables which have been replaced by this edition. In these instances where field measurements of density are recorded in g/mL, g/cc, or g/kL, multiply the measurements by 1 000 to obtain kg/m<sup>3</sup> prior to entering TABLE 53D.

This table must be entered with a hydrometer reading measured with a soft glass hydrometer calibrated at 15°C and with an observed temperature.

A correction to the glass hydrometer reading has been incorporated into the table to account for the thermal expansion of glass. The hydrometer constant, as defined in the *Report on the Development, Construction, Calculation, and Preparation of the ASTM-IP Petroleum Measurement Tables* (1960), varies with temperature according to the following:

$$\text{HYC} = 1 - 0.000\,023(t - 15^\circ\text{C}) - 0.000\,000\,02(t - 15^\circ\text{C})^2$$

#### Example 1

If the hydrometer reading for a lubricating oil at 92.5°C is 1 042 kg/m<sup>3</sup>, what is the density of the lubricating oil corrected to 15°C?

Enter the table in the column "Density at Observed Temperature," headed 1042. Read down to an observed "Temperature" of 92.5°C. The corresponding density at 15°C is 1 089.3 kg/m<sup>3</sup>.

#### Example 2

If the observed density of a lubricating oil is 0.8908 kg per litre at 68.5°C, what is the density at 15°C?

1. Convert 0.8908 kg/litre to standard international units  $0.8908 \times 1000 = 890.8 \text{ kg/m}^3$ .
2. Enter the table in the column "Density at Observed Temperature," headed 890.0 and note that against an observed "Temperature" of 68.5°C, the corresponding density at 15°C is 922.8 kg/m<sup>3</sup>.
3. Likewise note that for 892.0 kg/m<sup>3</sup> at 68.5°C the corresponding density at 15°C is 924.8 kg/m<sup>3</sup>.
4. Interpolate on density

$$\begin{aligned} (924.8 - 922.8)/(892.0 - 890.0) &= 1.0 \\ 1.0 \times (890.8 - 890.0) &= 0.8 \end{aligned}$$

5. Then, the density at 15°C corresponding to the density of 890.8 kg/m<sup>3</sup> at 27°C is 822.8 plus 0.8 or 823.6 kg/m<sup>3</sup>.

(Text continues on page XIII-5 following TABLE 53D.)

## SECTION 1—VOLUME CORRECTION FACTORS

XIV-3

## API/ASTM-IP PETROLEUM MEASUREMENT TABLES

## TABLE 53D--GENERALIZED LUBRICATING OILS

## DENSITY CORRECTION TO 15 DEGREES C

THIS TABLE AND THE SUBROUTINE FROM WHICH IT WAS GENERATED IS A VOLUNTARY STANDARD AND WAS DEVELOPED UNDER THE AUSPICES OF THE JOINT API/ASTM COMMITTEE ON STATIC PETROLEUM MEASUREMENT IN PART FROM DATA GENERATED BY A PROJECT FUNDED BY THE AMERICAN PETROLEUM INSTITUTE AT THE U.S. NATIONAL BUREAU OF STANDARDS, GAITHERSBURG, MARYLAND.

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THIS TABLE MUST BE ENTERED WITH DENSITIES MEASURED WITH A SOFT GLASS HYDROMETER OR PYKNOMETER CALIBRATED AT 15 DEGREES C.



TABLE 53D, GENERALIZED LUBRICATING OILS  
DENSITY CORRECTION TO 15 C

| TEMP.<br>C | DENSITY AT OBSERVED TEMPERATURE<br>CORRESPONDING DENSITY AT 15 C |     |     |     |       |       |       |       |       |       | TEMP.<br>C |
|------------|------------------------------------------------------------------|-----|-----|-----|-------|-------|-------|-------|-------|-------|------------|
|            | 800                                                              | 802 | 804 | 806 | 808   | 810   | 812   | 814   | 816   | 818   |            |
| -20.0      | -                                                                | -   | -   | -   | -     | -     | -     | -     | -     | -     | -20.0      |
| -19.5      | -                                                                | -   | -   | -   | -     | -     | -     | -     | -     | -     | -19.5      |
| -19.0      | -                                                                | -   | -   | -   | -     | -     | -     | -     | -     | -     | -19.0      |
| -18.5      | -                                                                | -   | -   | -   | -     | -     | -     | -     | -     | -     | -18.5      |
| -18.0      | -                                                                | -   | -   | -   | -     | -     | -     | -     | -     | -     | -18.0      |
| -17.5      | -                                                                | -   | -   | -   | -     | -     | -     | -     | -     | -     | -17.5      |
| -17.0      | -                                                                | -   | -   | -   | -     | -     | -     | -     | -     | -     | -17.0      |
| -16.5      | -                                                                | -   | -   | -   | -     | -     | -     | -     | -     | -     | -16.5      |
| -16.0      | -                                                                | -   | -   | -   | -     | -     | -     | -     | -     | -     | -16.0      |
| -15.5      | -                                                                | -   | -   | -   | -     | -     | -     | -     | -     | -     | -15.5      |
| -15.0      | -                                                                | -   | -   | -   | -     | -     | -     | -     | -     | -     | -15.0      |
| -14.5      | -                                                                | -   | -   | -   | -     | -     | -     | -     | -     | 800.2 | -14.5      |
| -14.0      | -                                                                | -   | -   | -   | -     | -     | -     | -     | -     | 800.5 | -14.0      |
| -13.5      | -                                                                | -   | -   | -   | -     | -     | -     | -     | -     | 800.8 | -13.5      |
| -13.0      | -                                                                | -   | -   | -   | -     | -     | -     | -     | -     | 801.1 | -13.0      |
| -12.5      | -                                                                | -   | -   | -   | -     | -     | -     | -     | -     | 801.4 | -12.5      |
| -12.0      | -                                                                | -   | -   | -   | -     | -     | -     | -     | -     | 801.7 | -12.0      |
| -11.5      | -                                                                | -   | -   | -   | -     | -     | -     | -     | -     | 802.0 | -11.5      |
| -11.0      | -                                                                | -   | -   | -   | -     | -     | -     | -     | 800.3 | 802.3 | -11.0      |
| -10.5      | -                                                                | -   | -   | -   | -     | -     | -     | -     | 800.6 | 802.6 | -10.5      |
| -10.0      | -                                                                | -   | -   | -   | -     | -     | -     | -     | 800.9 | 802.9 | -10.0      |
| -9.5       | -                                                                | -   | -   | -   | -     | -     | -     | -     | 801.2 | 803.2 | -9.5       |
| -9.0       | -                                                                | -   | -   | -   | -     | -     | -     | -     | 801.5 | 803.5 | -9.0       |
| -8.5       | -                                                                | -   | -   | -   | -     | -     | -     | -     | 801.8 | 803.8 | -8.5       |
| -8.0       | -                                                                | -   | -   | -   | -     | -     | -     | 800.1 | 802.1 | 804.1 | -8.0       |
| -7.5       | -                                                                | -   | -   | -   | -     | -     | -     | 800.4 | 802.4 | 804.4 | -7.5       |
| -7.0       | -                                                                | -   | -   | -   | -     | -     | -     | 800.7 | 802.7 | 804.7 | -7.0       |
| -6.5       | -                                                                | -   | -   | -   | -     | -     | -     | 801.0 | 803.0 | 805.0 | -6.5       |
| -6.0       | -                                                                | -   | -   | -   | -     | -     | -     | 801.3 | 803.3 | 805.3 | -6.0       |
| -5.5       | -                                                                | -   | -   | -   | -     | -     | -     | 801.6 | 803.6 | 805.6 | -5.5       |
| -5.0       | -                                                                | -   | -   | -   | -     | -     | -     | 801.9 | 803.9 | 805.9 | -5.0       |
| -4.5       | -                                                                | -   | -   | -   | -     | -     | -     | 800.2 | 802.2 | 804.2 | -4.5       |
| -4.0       | -                                                                | -   | -   | -   | -     | -     | -     | 800.5 | 802.5 | 804.5 | -4.0       |
| -3.5       | -                                                                | -   | -   | -   | -     | -     | -     | 800.8 | 802.8 | 804.8 | -3.5       |
| -3.0       | -                                                                | -   | -   | -   | -     | -     | -     | 801.1 | 803.1 | 805.1 | -3.0       |
| -2.5       | -                                                                | -   | -   | -   | -     | -     | -     | 801.4 | 803.4 | 805.4 | -2.5       |
| -2.0       | -                                                                | -   | -   | -   | -     | -     | -     | 801.7 | 803.7 | 805.7 | -2.0       |
| -1.5       | -                                                                | -   | -   | -   | -     | -     | -     | 802.0 | 804.0 | 806.0 | -1.5       |
| -1.0       | -                                                                | -   | -   | -   | -     | 800.3 | 802.3 | 804.3 | 806.3 | 808.3 | -1.0       |
| -0.5       | -                                                                | -   | -   | -   | -     | 800.6 | 802.6 | 804.6 | 806.6 | 808.6 | -0.5       |
| 0.0        | -                                                                | -   | -   | -   | -     | 800.9 | 802.9 | 804.9 | 806.9 | 808.9 | 0.0        |
| 0.5        | -                                                                | -   | -   | -   | -     | 801.2 | 803.2 | 805.2 | 807.2 | 809.2 | 0.5        |
| 1.0        | -                                                                | -   | -   | -   | -     | 801.5 | 803.5 | 805.5 | 807.5 | 809.5 | 1.0        |
| 1.5        | -                                                                | -   | -   | -   | -     | 801.8 | 803.8 | 805.8 | 807.8 | 809.8 | 1.5        |
| 2.0        | -                                                                | -   | -   | -   | 800.1 | 802.1 | 804.1 | 806.1 | 808.1 | 810.1 | 2.0        |
| 2.5        | -                                                                | -   | -   | -   | 800.4 | 802.4 | 804.4 | 806.4 | 808.4 | 810.4 | 2.5        |
| 3.0        | -                                                                | -   | -   | -   | 800.7 | 802.7 | 804.7 | 806.7 | 808.7 | 810.7 | 3.0        |
| 3.5        | -                                                                | -   | -   | -   | 801.0 | 803.0 | 805.0 | 807.0 | 809.0 | 811.0 | 3.5        |
| 4.0        | -                                                                | -   | -   | -   | 801.3 | 803.3 | 805.3 | 807.3 | 809.3 | 811.3 | 4.0        |
| 4.5        | -                                                                | -   | -   | -   | 801.6 | 803.6 | 805.6 | 807.6 | 809.6 | 811.6 | 4.5        |
| 5.0        | -                                                                | -   | -   | -   | 801.9 | 803.9 | 805.9 | 807.9 | 809.9 | 811.9 | 5.0        |

OBSERVED DENSITY = 800 TO 818

1

WHEN USING A DENSITY IN G/ML, G/CC, OR KG/L, MULTIPLY BY 1000 BEFORE ENTERING THE ABOVE TABLE

TABLE 53D, GENERALIZED LUBRICATING OILS  
DENSITY CORRECTION TO 15 C

| TEMP.<br>C | DENSITY AT OBSERVED TEMPERATURE<br>CORRESPONDING DENSITY AT 15 C |       |       |       |       |       |       |       |       |       | TEMP.<br>C |
|------------|------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------------|
|            | 800                                                              | 802   | 804   | 806   | 808   | 810   | 812   | 814   | 816   | 818   |            |
| 5.0        | -                                                                | -     | -     | -     | 801.9 | 803.9 | 805.9 | 807.9 | 809.9 | 811.9 | 5.0        |
| 5.5        | -                                                                | -     | -     | 800.2 | 802.2 | 804.2 | 806.2 | 808.2 | 810.2 | 812.2 | 5.5        |
| 6.0        | -                                                                | -     | -     | 800.5 | 802.5 | 804.5 | 806.5 | 808.5 | 810.5 | 812.5 | 6.0        |
| 6.5        | -                                                                | -     | -     | 800.8 | 802.8 | 804.8 | 806.8 | 808.8 | 810.8 | 812.8 | 6.5        |
| 7.0        | -                                                                | -     | -     | 801.1 | 803.1 | 805.1 | 807.1 | 809.1 | 811.1 | 813.1 | 7.0        |
| 7.5        | -                                                                | -     | -     | 801.4 | 803.4 | 805.4 | 807.4 | 809.4 | 811.4 | 813.4 | 7.5        |
| 8.0        | -                                                                | -     | -     | 801.7 | 803.7 | 805.7 | 807.7 | 809.7 | 811.7 | 813.7 | 8.0        |
| 8.5        | -                                                                | -     | 800.0 | 802.0 | 804.0 | 806.0 | 808.0 | 810.0 | 812.0 | 814.0 | 8.5        |
| 9.0        | -                                                                | -     | 800.3 | 802.3 | 804.3 | 806.3 | 808.3 | 810.3 | 812.3 | 814.3 | 9.0        |
| 9.5        | -                                                                | -     | 800.7 | 802.7 | 804.7 | 806.7 | 808.7 | 810.7 | 812.7 | 814.7 | 9.5        |
| 10.0       | -                                                                | -     | 801.0 | 803.0 | 805.0 | 807.0 | 809.0 | 811.0 | 813.0 | 815.0 | 10.0       |
| 10.5       | -                                                                | -     | 801.3 | 803.3 | 805.3 | 807.3 | 809.3 | 811.3 | 813.3 | 815.3 | 10.5       |
| 11.0       | -                                                                | -     | 801.6 | 803.6 | 805.6 | 807.6 | 809.6 | 811.6 | 813.6 | 815.6 | 11.0       |
| 11.5       | -                                                                | -     | 801.9 | 803.9 | 805.9 | 807.9 | 809.9 | 811.9 | 813.9 | 815.9 | 11.5       |
| 12.0       | -                                                                | 800.2 | 802.2 | 804.2 | 806.2 | 808.2 | 810.2 | 812.2 | 814.2 | 816.2 | 12.0       |
| 12.5       | -                                                                | 800.5 | 802.5 | 804.5 | 806.5 | 808.5 | 810.5 | 812.5 | 814.5 | 816.5 | 12.5       |
| 13.0       | -                                                                | 800.8 | 802.8 | 804.8 | 806.8 | 808.8 | 810.8 | 812.8 | 814.8 | 816.8 | 13.0       |
| 13.5       | -                                                                | 801.1 | 803.1 | 805.1 | 807.1 | 809.1 | 811.1 | 813.1 | 815.1 | 817.1 | 13.5       |
| 14.0       | -                                                                | 801.4 | 803.4 | 805.4 | 807.4 | 809.4 | 811.4 | 813.4 | 815.4 | 817.4 | 14.0       |
| 14.5       | -                                                                | 801.7 | 803.7 | 805.7 | 807.7 | 809.7 | 811.7 | 813.7 | 815.7 | 817.7 | 14.5       |
| 15.0       | 800.0                                                            | 802.0 | 804.0 | 806.0 | 808.0 | 810.0 | 812.0 | 814.0 | 816.0 | 818.0 | 15.0       |
| 15.5       | 800.3                                                            | 802.3 | 804.3 | 806.3 | 808.3 | 810.3 | 812.3 | 814.3 | 816.3 | 818.3 | 15.5       |
| 16.0       | 800.6                                                            | 802.6 | 804.6 | 806.6 | 808.6 | 810.6 | 812.6 | 814.6 | 816.6 | 818.6 | 16.0       |
| 16.5       | 800.9                                                            | 802.9 | 804.9 | 806.9 | 808.9 | 810.9 | 812.9 | 814.9 | 816.9 | 818.9 | 16.5       |
| 17.0       | 801.2                                                            | 803.2 | 805.2 | 807.2 | 809.2 | 811.2 | 813.2 | 815.2 | 817.2 | 819.2 | 17.0       |
| 17.5       | 801.5                                                            | 803.5 | 805.5 | 807.5 | 809.5 | 811.5 | 813.5 | 815.5 | 817.5 | 819.5 | 17.5       |
| 18.0       | 801.8                                                            | 803.8 | 805.8 | 807.8 | 809.8 | 811.8 | 813.8 | 815.8 | 817.8 | 819.8 | 18.0       |
| 18.5       | 802.1                                                            | 804.1 | 806.1 | 808.1 | 810.1 | 812.1 | 814.1 | 816.1 | 818.1 | 820.1 | 18.5       |
| 19.0       | 802.4                                                            | 804.4 | 806.4 | 808.4 | 810.4 | 812.4 | 814.4 | 816.4 | 818.4 | 820.4 | 19.0       |
| 19.5       | 802.7                                                            | 804.7 | 806.7 | 808.7 | 810.7 | 812.7 | 814.7 | 816.7 | 818.7 | 820.7 | 19.5       |
| 20.0       | 803.1                                                            | 805.1 | 807.1 | 809.1 | 811.1 | 813.1 | 815.1 | 817.1 | 819.1 | 821.1 | 20.0       |
| 20.5       | 803.4                                                            | 805.4 | 807.4 | 809.4 | 811.4 | 813.4 | 815.4 | 817.4 | 819.4 | 821.4 | 20.5       |
| 21.0       | 803.7                                                            | 805.7 | 807.7 | 809.7 | 811.7 | 813.7 | 815.7 | 817.7 | 819.7 | 821.7 | 21.0       |
| 21.5       | 804.0                                                            | 806.0 | 808.0 | 810.0 | 812.0 | 814.0 | 816.0 | 818.0 | 820.0 | 822.0 | 21.5       |
| 22.0       | 804.3                                                            | 806.3 | 808.3 | 810.3 | 812.3 | 814.3 | 816.3 | 818.3 | 820.3 | 822.3 | 22.0       |
| 22.5       | 804.6                                                            | 806.6 | 808.6 | 810.6 | 812.6 | 814.6 | 816.6 | 818.6 | 820.6 | 822.6 | 22.5       |
| 23.0       | 804.9                                                            | 806.9 | 808.9 | 810.9 | 812.9 | 814.9 | 816.9 | 818.9 | 820.9 | 822.9 | 23.0       |
| 23.5       | 805.2                                                            | 807.2 | 809.2 | 811.2 | 813.2 | 815.2 | 817.2 | 819.2 | 821.2 | 823.2 | 23.5       |
| 24.0       | 805.5                                                            | 807.5 | 809.5 | 811.5 | 813.5 | 815.5 | 817.5 | 819.5 | 821.5 | 823.5 | 24.0       |
| 24.5       | 805.8                                                            | 807.8 | 809.8 | 811.8 | 813.8 | 815.8 | 817.8 | 819.8 | 821.8 | 823.8 | 24.5       |
| 25.0       | 806.1                                                            | 808.1 | 810.1 | 812.1 | 814.1 | 816.1 | 818.1 | 820.1 | 822.1 | 824.1 | 25.0       |
| 25.5       | 806.4                                                            | 808.4 | 810.4 | 812.4 | 814.4 | 816.4 | 818.4 | 820.4 | 822.4 | 824.4 | 25.5       |
| 26.0       | 806.7                                                            | 808.7 | 810.7 | 812.7 | 814.7 | 816.7 | 818.7 | 820.7 | 822.7 | 824.7 | 26.0       |
| 26.5       | 807.0                                                            | 809.0 | 811.0 | 813.0 | 815.0 | 817.0 | 819.0 | 821.0 | 823.0 | 825.0 | 26.5       |
| 27.0       | 807.3                                                            | 809.3 | 811.3 | 813.3 | 815.3 | 817.3 | 819.3 | 821.3 | 823.3 | 825.3 | 27.0       |
| 27.5       | 807.6                                                            | 809.6 | 811.6 | 813.6 | 815.6 | 817.6 | 819.6 | 821.6 | 823.6 | 825.6 | 27.5       |
| 28.0       | 807.9                                                            | 809.9 | 811.9 | 813.9 | 815.9 | 817.9 | 819.9 | 821.9 | 823.9 | 825.9 | 28.0       |
| 28.5       | 808.3                                                            | 810.3 | 812.3 | 814.3 | 816.3 | 818.3 | 820.3 | 822.3 | 824.3 | 826.3 | 28.5       |
| 29.0       | 808.6                                                            | 810.6 | 812.6 | 814.6 | 816.6 | 818.6 | 820.6 | 822.6 | 824.6 | 826.6 | 29.0       |
| 29.5       | 808.9                                                            | 810.9 | 812.9 | 814.9 | 816.9 | 818.9 | 820.9 | 822.9 | 824.9 | 826.9 | 29.5       |
| 30.0       | 809.2                                                            | 811.2 | 813.2 | 815.2 | 817.2 | 819.2 | 821.2 | 823.2 | 825.2 | 827.2 | 30.0       |

OBSERVED DENSITY = 800 TO 818

2

WHEN USING A DENSITY IN G/ML, G/CC, OR KG/L, MULTIPLY BY 1000 BEFORE ENTERING THE ABOVE TABLE

TABLE 53D, GENERALIZED LUBRICATING OILS  
DENSITY CORRECTION TO 15 C

| TEMP.<br>C | DENSITY AT OBSERVED TEMPERATURE<br>CORRESPONDING DENSITY AT 15 C |       |       |       |       |       |       |       |       |       | TEMP.<br>C |
|------------|------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------------|
|            | 800                                                              | 802   | 804   | 806   | 808   | 810   | 812   | 814   | 816   | 818   |            |
| 30.0       | 809.2                                                            | 811.2 | 813.2 | 815.2 | 817.2 | 819.2 | 821.2 | 823.2 | 825.2 | 827.2 | 30.0       |
| 30.5       | 809.5                                                            | 811.5 | 813.5 | 815.5 | 817.5 | 819.5 | 821.5 | 823.5 | 825.5 | 827.5 | 30.5       |
| 31.0       | 809.8                                                            | 811.8 | 813.8 | 815.8 | 817.8 | 819.8 | 821.8 | 823.8 | 825.8 | 827.8 | 31.0       |
| 31.5       | 810.1                                                            | 812.1 | 814.1 | 816.1 | 818.1 | 820.1 | 822.1 | 824.1 | 826.1 | 828.1 | 31.5       |
| 32.0       | 810.4                                                            | 812.4 | 814.4 | 816.4 | 818.4 | 820.4 | 822.4 | 824.4 | 826.4 | 828.4 | 32.0       |
| 32.5       | 810.7                                                            | 812.7 | 814.7 | 816.7 | 818.7 | 820.7 | 822.7 | 824.7 | 826.7 | 828.7 | 32.5       |
| 33.0       | 811.0                                                            | 813.0 | 815.0 | 817.0 | 819.0 | 821.0 | 823.0 | 825.0 | 827.0 | 829.0 | 33.0       |
| 33.5       | 811.3                                                            | 813.3 | 815.3 | 817.3 | 819.3 | 821.3 | 823.3 | 825.3 | 827.3 | 829.3 | 33.5       |
| 34.0       | 811.6                                                            | 813.6 | 815.6 | 817.6 | 819.6 | 821.6 | 823.6 | 825.6 | 827.6 | 829.6 | 34.0       |
| 34.5       | 811.9                                                            | 813.9 | 815.9 | 817.9 | 819.9 | 821.9 | 823.9 | 825.9 | 827.9 | 829.9 | 34.5       |
| 35.0       | 812.2                                                            | 814.2 | 816.2 | 818.2 | 820.2 | 822.2 | 824.2 | 826.2 | 828.2 | 830.2 | 35.0       |
| 35.5       | 812.5                                                            | 814.5 | 816.5 | 818.5 | 820.5 | 822.5 | 824.5 | 826.5 | 828.5 | 830.5 | 35.5       |
| 36.0       | 812.9                                                            | 814.9 | 816.8 | 818.8 | 820.8 | 822.8 | 824.8 | 826.8 | 828.8 | 830.8 | 36.0       |
| 36.5       | 813.2                                                            | 815.2 | 817.2 | 819.2 | 821.2 | 823.2 | 825.2 | 827.2 | 829.2 | 831.2 | 36.5       |
| 37.0       | 813.5                                                            | 815.5 | 817.5 | 819.5 | 821.5 | 823.5 | 825.5 | 827.5 | 829.5 | 831.5 | 37.0       |
| 37.5       | 813.8                                                            | 815.8 | 817.8 | 819.8 | 821.8 | 823.8 | 825.8 | 827.8 | 829.8 | 831.8 | 37.5       |
| 38.0       | 814.1                                                            | 816.1 | 818.1 | 820.1 | 822.1 | 824.1 | 826.1 | 828.1 | 830.1 | 832.1 | 38.0       |
| 38.5       | 814.4                                                            | 816.4 | 818.4 | 820.4 | 822.4 | 824.4 | 826.4 | 828.4 | 830.4 | 832.4 | 38.5       |
| 39.0       | 814.7                                                            | 816.7 | 818.7 | 820.7 | 822.7 | 824.7 | 826.7 | 828.7 | 830.7 | 832.7 | 39.0       |
| 39.5       | 815.0                                                            | 817.0 | 819.0 | 821.0 | 823.0 | 825.0 | 827.0 | 829.0 | 831.0 | 833.0 | 39.5       |
| 40.0       | 815.3                                                            | 817.3 | 819.3 | 821.3 | 823.3 | 825.3 | 827.3 | 829.3 | 831.3 | 833.3 | 40.0       |
| 40.5       | 815.6                                                            | 817.6 | 819.6 | 821.6 | 823.6 | 825.6 | 827.6 | 829.6 | 831.6 | 833.6 | 40.5       |
| 41.0       | 815.9                                                            | 817.9 | 819.9 | 821.9 | 823.9 | 825.9 | 827.9 | 829.9 | 831.9 | 833.9 | 41.0       |
| 41.5       | 816.2                                                            | 818.2 | 820.2 | 822.2 | 824.2 | 826.2 | 828.2 | 830.2 | 832.2 | 834.2 | 41.5       |
| 42.0       | 816.5                                                            | 818.5 | 820.5 | 822.5 | 824.5 | 826.5 | 828.5 | 830.5 | 832.5 | 834.5 | 42.0       |
| 42.5       | 816.9                                                            | 818.8 | 820.8 | 822.8 | 824.8 | 826.8 | 828.8 | 830.8 | 832.8 | 834.8 | 42.5       |
| 43.0       | 817.2                                                            | 819.2 | 821.2 | 823.2 | 825.2 | 827.2 | 829.1 | 831.1 | 833.1 | 835.1 | 43.0       |
| 43.5       | 817.5                                                            | 819.5 | 821.5 | 823.5 | 825.5 | 827.5 | 829.5 | 831.5 | 833.5 | 835.5 | 43.5       |
| 44.0       | 817.8                                                            | 819.8 | 821.8 | 823.8 | 825.8 | 827.8 | 829.8 | 831.8 | 833.8 | 835.8 | 44.0       |
| 44.5       | 818.1                                                            | 820.1 | 822.1 | 824.1 | 826.1 | 828.1 | 830.1 | 832.1 | 834.1 | 836.1 | 44.5       |
| 45.0       | 818.4                                                            | 820.4 | 822.4 | 824.4 | 826.4 | 828.4 | 830.4 | 832.4 | 834.4 | 836.4 | 45.0       |
| 45.5       | 818.7                                                            | 820.7 | 822.7 | 824.7 | 826.7 | 828.7 | 830.7 | 832.7 | 834.7 | 836.7 | 45.5       |
| 46.0       | 819.0                                                            | 821.0 | 823.0 | 825.0 | 827.0 | 829.0 | 831.0 | 833.0 | 835.0 | 837.0 | 46.0       |
| 46.5       | 819.3                                                            | 821.3 | 823.3 | 825.3 | 827.3 | 829.3 | 831.3 | 833.3 | 835.3 | 837.3 | 46.5       |
| 47.0       | 819.6                                                            | 821.6 | 823.6 | 825.6 | 827.6 | 829.6 | 831.6 | 833.6 | 835.6 | 837.6 | 47.0       |
| 47.5       | 819.9                                                            | 821.9 | 823.9 | 825.9 | 827.9 | 829.9 | 831.9 | 833.9 | 835.9 | 837.9 | 47.5       |
| 48.0       | 820.2                                                            | 822.2 | 824.2 | 826.2 | 828.2 | 830.2 | 832.2 | 834.2 | 836.2 | 838.2 | 48.0       |
| 48.5       | 820.6                                                            | 822.5 | 824.5 | 826.5 | 828.5 | 830.5 | 832.5 | 834.5 | 836.5 | 838.5 | 48.5       |
| 49.0       | 820.9                                                            | 822.9 | 824.9 | 826.9 | 828.9 | 830.9 | 832.9 | 834.8 | 836.8 | 838.8 | 49.0       |
| 49.5       | 821.2                                                            | 823.2 | 825.2 | 827.2 | 829.2 | 831.2 | 833.2 | 835.1 | 837.1 | 839.1 | 49.5       |
| 50.0       | 821.5                                                            | 823.5 | 825.5 | 827.5 | 829.5 | 831.5 | 833.5 | 835.5 | 837.5 | 839.5 | 50.0       |
| 50.5       | 821.8                                                            | 823.8 | 825.8 | 827.8 | 829.8 | 831.8 | 833.8 | 835.8 | 837.8 | 839.8 | 50.5       |
| 51.0       | 822.1                                                            | 824.1 | 826.1 | 828.1 | 830.1 | 832.1 | 834.1 | 836.1 | 838.1 | 840.1 | 51.0       |
| 51.5       | 822.4                                                            | 824.4 | 826.4 | 828.4 | 830.4 | 832.4 | 834.4 | 836.4 | 838.4 | 840.4 | 51.5       |
| 52.0       | 822.7                                                            | 824.7 | 826.7 | 828.7 | 830.7 | 832.7 | 834.7 | 836.7 | 838.7 | 840.7 | 52.0       |
| 52.5       | 823.0                                                            | 825.0 | 827.0 | 829.0 | 831.0 | 833.0 | 835.0 | 837.0 | 839.0 | 841.0 | 52.5       |
| 53.0       | 823.3                                                            | 825.3 | 827.3 | 829.3 | 831.3 | 833.3 | 835.3 | 837.3 | 839.3 | 841.3 | 53.0       |
| 53.5       | 823.6                                                            | 825.6 | 827.6 | 829.6 | 831.6 | 833.6 | 835.6 | 837.6 | 839.6 | 841.6 | 53.5       |
| 54.0       | 824.0                                                            | 825.9 | 827.9 | 829.9 | 831.9 | 833.9 | 835.9 | 837.9 | 839.9 | 841.9 | 54.0       |
| 54.5       | 824.3                                                            | 826.3 | 828.2 | 830.2 | 832.2 | 834.2 | 836.2 | 838.2 | 840.2 | 842.2 | 54.5       |
| 55.0       | 824.6                                                            | 826.6 | 828.6 | 830.6 | 832.6 | 834.6 | 836.6 | 838.6 | 840.5 | 842.5 | 55.0       |

OBSERVED DENSITY = 800 TO 818

3

WHEN USING A DENSITY IN G/ML, G/CC, OR KG/L, MULTIPLY BY 1000 BEFORE ENTERING THE ABOVE TABLE

TABLE 53D, GENERALIZED LUBRICATING OILS  
DENSITY CORRECTION TO 15 C

| TEMP.<br>C | 800   | 802   | 804   | DENSITY AT OBSERVED TEMPERATURE<br>CORRESPONDING DENSITY AT 15 C |       |       |       |       |       |       | TEMP.<br>C |
|------------|-------|-------|-------|------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|------------|
| 55.0       | 824.6 | 826.6 | 828.6 | 830.6                                                            | 832.6 | 834.6 | 836.6 | 838.6 | 840.5 | 842.5 | 55.0       |
| 55.5       | 824.9 | 826.9 | 828.9 | 830.9                                                            | 832.9 | 834.9 | 836.9 | 838.9 | 840.9 | 842.9 | 55.5       |
| 56.0       | 825.2 | 827.2 | 829.2 | 831.2                                                            | 833.2 | 835.2 | 837.2 | 839.2 | 841.2 | 843.2 | 56.0       |
| 56.5       | 825.5 | 827.5 | 829.5 | 831.5                                                            | 833.5 | 835.5 | 837.5 | 839.5 | 841.5 | 843.5 | 56.5       |
| 57.0       | 825.8 | 827.8 | 829.8 | 831.8                                                            | 833.8 | 835.8 | 837.8 | 839.8 | 841.8 | 843.8 | 57.0       |
| 57.5       | 826.1 | 828.1 | 830.1 | 832.1                                                            | 834.1 | 836.1 | 838.1 | 840.1 | 842.1 | 844.1 | 57.5       |
| 58.0       | 826.4 | 828.4 | 830.4 | 832.4                                                            | 834.4 | 836.4 | 838.4 | 840.4 | 842.4 | 844.4 | 58.0       |
| 58.5       | 826.7 | 828.7 | 830.7 | 832.7                                                            | 834.7 | 836.7 | 838.7 | 840.7 | 842.7 | 844.7 | 58.5       |
| 59.0       | 827.0 | 829.0 | 831.0 | 833.0                                                            | 835.0 | 837.0 | 839.0 | 841.0 | 843.0 | 845.0 | 59.0       |
| 59.5       | 827.3 | 829.4 | 831.4 | 833.3                                                            | 835.3 | 837.3 | 839.3 | 841.3 | 843.3 | 845.3 | 59.5       |
| 60.0       | 827.7 | 829.7 | 831.7 | 833.6                                                            | 835.6 | 837.6 | 839.6 | 841.6 | 843.6 | 845.6 | 60.0       |
| 60.5       | 828.0 | 830.0 | 832.0 | 834.0                                                            | 836.0 | 838.0 | 840.0 | 841.9 | 843.9 | 845.9 | 60.5       |
| 61.0       | 828.3 | 830.3 | 832.3 | 834.3                                                            | 836.3 | 838.3 | 840.3 | 842.3 | 844.3 | 846.3 | 61.0       |
| 61.5       | 828.6 | 830.6 | 832.6 | 834.6                                                            | 836.6 | 838.6 | 840.6 | 842.6 | 844.6 | 846.6 | 61.5       |
| 62.0       | 828.9 | 830.9 | 832.9 | 834.9                                                            | 836.9 | 838.9 | 840.9 | 842.9 | 844.9 | 846.9 | 62.0       |
| 62.5       | 829.2 | 831.2 | 833.2 | 835.2                                                            | 837.2 | 839.2 | 841.2 | 843.2 | 845.2 | 847.2 | 62.5       |
| 63.0       | 829.5 | 831.5 | 833.5 | 835.5                                                            | 837.5 | 839.5 | 841.5 | 843.5 | 845.5 | 847.5 | 63.0       |
| 63.5       | 829.8 | 831.8 | 833.8 | 835.8                                                            | 837.8 | 839.8 | 841.8 | 843.8 | 845.8 | 847.8 | 63.5       |
| 64.0       | 830.1 | 832.1 | 834.1 | 836.1                                                            | 838.1 | 840.1 | 842.1 | 844.1 | 846.1 | 848.1 | 64.0       |
| 64.5       | 830.4 | 832.4 | 834.4 | 836.4                                                            | 838.4 | 840.4 | 842.4 | 844.4 | 846.4 | 848.4 | 64.5       |
| 65.0       | 830.8 | 832.8 | 834.8 | 836.7                                                            | 838.7 | 840.7 | 842.7 | 844.7 | 846.7 | 848.7 | 65.0       |
| 65.5       | 831.1 | 833.1 | 835.1 | 837.1                                                            | 839.1 | 841.1 | 843.1 | 845.0 | 847.0 | 849.0 | 65.5       |
| 66.0       | 831.4 | 833.4 | 835.4 | 837.4                                                            | 839.4 | 841.4 | 843.4 | 845.4 | 847.4 | 849.4 | 66.0       |
| 66.5       | 831.7 | 833.7 | 835.7 | 837.7                                                            | 839.7 | 841.7 | 843.7 | 845.7 | 847.7 | 849.7 | 66.5       |
| 67.0       | 832.0 | 834.0 | 836.0 | 838.0                                                            | 840.0 | 842.0 | 844.0 | 846.0 | 848.0 | 850.0 | 67.0       |
| 67.5       | 832.3 | 834.3 | 836.3 | 838.3                                                            | 840.3 | 842.3 | 844.3 | 846.3 | 848.3 | 850.3 | 67.5       |
| 68.0       | 832.6 | 834.6 | 836.6 | 838.6                                                            | 840.6 | 842.6 | 844.6 | 846.6 | 848.6 | 850.6 | 68.0       |
| 68.5       | 832.9 | 834.9 | 836.9 | 838.9                                                            | 840.9 | 842.9 | 844.9 | 846.9 | 848.9 | 850.9 | 68.5       |
| 69.0       | 833.2 | 835.2 | 837.2 | 839.2                                                            | 841.2 | 843.2 | 845.2 | 847.2 | 849.2 | 851.2 | 69.0       |
| 69.5       | 833.6 | 835.6 | 837.5 | 839.5                                                            | 841.5 | 843.5 | 845.5 | 847.5 | 849.5 | 851.5 | 69.5       |
| 70.0       | 833.9 | 835.9 | 837.8 | 839.8                                                            | 841.8 | 843.8 | 845.8 | 847.8 | 849.8 | 851.8 | 70.0       |
| 70.5       | 834.2 | 836.2 | 838.2 | 840.2                                                            | 842.2 | 844.2 | 846.1 | 848.1 | 850.1 | 852.1 | 70.5       |
| 71.0       | 834.5 | 836.5 | 838.5 | 840.5                                                            | 842.5 | 844.5 | 846.5 | 848.5 | 850.5 | 852.5 | 71.0       |
| 71.5       | 834.8 | 836.8 | 838.8 | 840.8                                                            | 842.8 | 844.8 | 846.8 | 848.8 | 850.8 | 852.8 | 71.5       |
| 72.0       | 835.1 | 837.1 | 839.1 | 841.1                                                            | 843.1 | 845.1 | 847.1 | 849.1 | 851.1 | 853.1 | 72.0       |
| 72.5       | 835.4 | 837.4 | 839.4 | 841.4                                                            | 843.4 | 845.4 | 847.4 | 849.4 | 851.4 | 853.4 | 72.5       |
| 73.0       | 835.7 | 837.7 | 839.7 | 841.7                                                            | 843.7 | 845.7 | 847.7 | 849.7 | 851.7 | 853.7 | 73.0       |
| 73.5       | 836.0 | 838.0 | 840.0 | 842.0                                                            | 844.0 | 846.0 | 848.0 | 850.0 | 852.0 | 854.0 | 73.5       |
| 74.0       | 836.3 | 838.3 | 840.3 | 842.3                                                            | 844.3 | 846.3 | 848.3 | 850.3 | 852.3 | 854.3 | 74.0       |
| 74.5       | 836.7 | 838.7 | 840.6 | 842.6                                                            | 844.6 | 846.6 | 848.6 | 850.6 | 852.6 | 854.6 | 74.5       |
| 75.0       | 837.0 | 839.0 | 841.0 | 843.0                                                            | 845.0 | 846.9 | 848.9 | 850.9 | 852.9 | 854.9 | 75.0       |
| 75.5       | 837.3 | 839.3 | 841.3 | 843.3                                                            | 845.3 | 847.3 | 849.3 | 851.3 | 853.2 | 855.2 | 75.5       |
| 76.0       | 837.6 | 839.6 | 841.6 | 843.6                                                            | 845.6 | 847.6 | 849.6 | 851.6 | 853.6 | 855.6 | 76.0       |
| 76.5       | 837.9 | 839.9 | 841.9 | 843.9                                                            | 845.9 | 847.9 | 849.9 | 851.9 | 853.9 | 855.9 | 76.5       |
| 77.0       | 838.2 | 840.2 | 842.2 | 844.2                                                            | 846.2 | 848.2 | 850.2 | 852.2 | 854.2 | 856.2 | 77.0       |
| 77.5       | 838.5 | 840.5 | 842.5 | 844.5                                                            | 846.5 | 848.5 | 850.5 | 852.5 | 854.5 | 856.5 | 77.5       |
| 78.0       | 838.8 | 840.8 | 842.8 | 844.8                                                            | 846.8 | 848.8 | 850.8 | 852.8 | 854.8 | 856.8 | 78.0       |
| 78.5       | 839.1 | 841.1 | 843.1 | 845.1                                                            | 847.1 | 849.1 | 851.1 | 853.1 | 855.1 | 857.1 | 78.5       |
| 79.0       | 839.5 | 841.4 | 843.4 | 845.4                                                            | 847.4 | 849.4 | 851.4 | 853.4 | 855.4 | 857.4 | 79.0       |
| 79.5       | 839.8 | 841.8 | 843.8 | 845.8                                                            | 847.7 | 849.7 | 851.7 | 853.7 | 855.7 | 857.7 | 79.5       |
| 80.0       | 840.1 | 842.1 | 844.1 | 846.1                                                            | 848.1 | 850.1 | 852.1 | 854.0 | 856.0 | 858.0 | 80.0       |

OBSERVED DENSITY = 800 TO 818

4

WHEN USING A DENSITY IN G/ML, G/CC, OR KG/L, MULTIPLY BY 1000 BEFORE ENTERING THE ABOVE TABLE

TABLE 53D, GENERALIZED LUBRICATING OILS  
DENSITY CORRECTION TO 15 C

| TEMP.<br>C | DENSITY AT OBSERVED TEMPERATURE<br>CORRESPONDING DENSITY AT 15 C |       |       |       |       |       |       |       |       |       | TEMP.<br>C |
|------------|------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------------|
|            | 800                                                              | 802   | 804   | 806   | 808   | 810   | 812   | 814   | 816   | 818   |            |
| 80.0       | 840.1                                                            | 842.1 | 844.1 | 846.1 | 848.1 | 850.1 | 852.1 | 854.0 | 856.0 | 858.0 | 80.0       |
| 80.5       | 840.4                                                            | 842.4 | 844.4 | 846.4 | 848.4 | 850.4 | 852.4 | 854.4 | 856.4 | 858.4 | 80.5       |
| 81.0       | 840.7                                                            | 842.7 | 844.7 | 846.7 | 848.7 | 850.7 | 852.7 | 854.7 | 856.7 | 858.7 | 81.0       |
| 81.5       | 841.0                                                            | 843.0 | 845.0 | 847.0 | 849.0 | 851.0 | 853.0 | 855.0 | 857.0 | 859.0 | 81.5       |
| 82.0       | 841.3                                                            | 843.3 | 845.3 | 847.3 | 849.3 | 851.3 | 853.3 | 855.3 | 857.3 | 859.3 | 82.0       |
| 82.5       | 841.6                                                            | 843.6 | 845.6 | 847.6 | 849.6 | 851.6 | 853.6 | 855.6 | 857.6 | 859.6 | 82.5       |
| 83.0       | 841.9                                                            | 843.9 | 845.9 | 847.9 | 849.9 | 851.9 | 853.9 | 855.9 | 857.9 | 859.9 | 83.0       |
| 83.5       | 842.3                                                            | 844.3 | 846.3 | 848.2 | 850.2 | 852.2 | 854.2 | 856.2 | 858.2 | 860.2 | 83.5       |
| 84.0       | 842.6                                                            | 844.6 | 846.6 | 848.5 | 850.5 | 852.5 | 854.5 | 856.5 | 858.5 | 860.5 | 84.0       |
| 84.5       | 842.9                                                            | 844.9 | 846.9 | 848.9 | 850.9 | 852.9 | 854.8 | 856.8 | 858.8 | 860.8 | 84.5       |
| 85.0       | 843.2                                                            | 845.2 | 847.2 | 849.2 | 851.2 | 853.2 | 855.2 | 857.2 | 859.2 | 861.1 | 85.0       |
| 85.5       | 843.5                                                            | 845.5 | 847.5 | 849.5 | 851.5 | 853.5 | 855.5 | 857.5 | 859.5 | 861.5 | 85.5       |
| 86.0       | 843.8                                                            | 845.8 | 847.8 | 849.8 | 851.8 | 853.8 | 855.8 | 857.8 | 859.8 | 861.8 | 86.0       |
| 86.5       | 844.1                                                            | 846.1 | 848.1 | 850.1 | 852.1 | 854.1 | 856.1 | 858.1 | 860.1 | 862.1 | 86.5       |
| 87.0       | 844.4                                                            | 846.4 | 848.4 | 850.4 | 852.4 | 854.4 | 856.4 | 858.4 | 860.4 | 862.4 | 87.0       |
| 87.5       | 844.7                                                            | 846.7 | 848.7 | 850.7 | 852.7 | 854.7 | 856.7 | 858.7 | 860.7 | 862.7 | 87.5       |
| 88.0       | 845.1                                                            | 847.1 | 849.0 | 851.0 | 853.0 | 855.0 | 857.0 | 859.0 | 861.0 | 863.0 | 88.0       |
| 88.5       | 845.4                                                            | 847.4 | 849.4 | 851.4 | 853.4 | 855.3 | 857.3 | 859.3 | 861.3 | 863.3 | 88.5       |
| 89.0       | 845.7                                                            | 847.7 | 849.7 | 851.7 | 853.7 | 855.7 | 857.7 | 859.7 | 861.6 | 863.6 | 89.0       |
| 89.5       | 846.0                                                            | 848.0 | 850.0 | 852.0 | 854.0 | 856.0 | 858.0 | 860.0 | 862.0 | 864.0 | 89.5       |
| 90.0       | 846.3                                                            | 848.3 | 850.3 | 852.3 | 854.3 | 856.3 | 858.3 | 860.3 | 862.3 | 864.3 | 90.0       |
| 90.5       | 846.6                                                            | 848.6 | 850.6 | 852.6 | 854.6 | 856.6 | 858.6 | 860.6 | 862.6 | 864.6 | 90.5       |
| 91.0       | 846.9                                                            | 848.9 | 850.9 | 852.9 | 854.9 | 856.9 | 858.9 | 860.9 | 862.9 | 864.9 | 91.0       |
| 91.5       | 847.2                                                            | 849.2 | 851.2 | 853.2 | 855.2 | 857.2 | 859.2 | 861.2 | 863.2 | 865.2 | 91.5       |
| 92.0       | 847.6                                                            | 849.5 | 851.5 | 853.5 | 855.5 | 857.5 | 859.5 | 861.5 | 863.5 | 865.5 | 92.0       |
| 92.5       | 847.9                                                            | 849.9 | 851.9 | 853.9 | 855.8 | 857.8 | 859.8 | 861.8 | 863.8 | 865.8 | 92.5       |
| 93.0       | 848.2                                                            | 850.2 | 852.2 | 854.2 | 856.2 | 858.2 | 860.1 | 862.1 | 864.1 | 866.1 | 93.0       |
| 93.5       | 848.5                                                            | 850.5 | 852.5 | 854.5 | 856.5 | 858.5 | 860.5 | 862.5 | 864.5 | 866.4 | 93.5       |
| 94.0       | 848.8                                                            | 850.8 | 852.8 | 854.8 | 856.8 | 858.8 | 860.8 | 862.8 | 864.8 | 866.8 | 94.0       |
| 94.5       | 849.1                                                            | 851.1 | 853.1 | 855.1 | 857.1 | 859.1 | 861.1 | 863.1 | 865.1 | 867.1 | 94.5       |
| 95.0       | 849.4                                                            | 851.4 | 853.4 | 855.4 | 857.4 | 859.4 | 861.4 | 863.4 | 865.4 | 867.4 | 95.0       |
| 95.5       | 849.7                                                            | 851.7 | 853.7 | 855.7 | 857.7 | 859.7 | 861.7 | 863.7 | 865.7 | 867.7 | 95.5       |
| 96.0       | 850.0                                                            | 852.0 | 854.0 | 856.0 | 858.0 | 860.0 | 862.0 | 864.0 | 866.0 | 868.0 | 96.0       |
| 96.5       | 850.4                                                            | 852.4 | 854.4 | 856.3 | 858.3 | 860.3 | 862.3 | 864.3 | 866.3 | 868.3 | 96.5       |
| 97.0       | 850.7                                                            | 852.7 | 854.7 | 856.7 | 858.7 | 860.6 | 862.6 | 864.6 | 866.6 | 868.6 | 97.0       |
| 97.5       | 851.0                                                            | 853.0 | 855.0 | 857.0 | 859.0 | 861.0 | 863.0 | 864.9 | 866.9 | 868.9 | 97.5       |
| 98.0       | 851.3                                                            | 853.3 | 855.3 | 857.3 | 859.3 | 861.3 | 863.3 | 865.3 | 867.3 | 869.3 | 98.0       |
| 98.5       | 851.6                                                            | 853.6 | 855.6 | 857.6 | 859.6 | 861.6 | 863.6 | 865.6 | 867.6 | 869.6 | 98.5       |
| 99.0       | 851.9                                                            | 853.9 | 855.9 | 857.9 | 859.9 | 861.9 | 863.9 | 865.9 | 867.9 | 869.9 | 99.0       |
| 99.5       | 852.2                                                            | 854.2 | 856.2 | 858.2 | 860.2 | 862.2 | 864.2 | 866.2 | 868.2 | 870.2 | 99.5       |
| 100.0      | 852.6                                                            | 854.5 | 856.5 | 858.5 | 860.5 | 862.5 | 864.5 | 866.5 | 868.5 | 870.5 | 100.0      |
| 100.5      | 852.9                                                            | 854.9 | 856.9 | 858.9 | 860.8 | 862.8 | 864.8 | 866.8 | 868.8 | 870.8 | 100.5      |
| 101.0      | 853.2                                                            | 855.2 | 857.2 | 859.2 | 861.2 | 863.1 | 865.1 | 867.1 | 869.1 | 871.1 | 101.0      |
| 101.5      | 853.5                                                            | 855.5 | 857.5 | 859.5 | 861.5 | 863.5 | 865.5 | 867.4 | 869.4 | 871.4 | 101.5      |
| 102.0      | 853.8                                                            | 855.8 | 857.8 | 859.8 | 861.8 | 863.8 | 865.8 | 867.8 | 869.8 | 871.7 | 102.0      |
| 102.5      | 854.1                                                            | 856.1 | 858.1 | 860.1 | 862.1 | 864.1 | 866.1 | 868.1 | 870.1 | 872.1 | 102.5      |
| 103.0      | 854.4                                                            | 856.4 | 858.4 | 860.4 | 862.4 | 864.4 | 866.4 | 868.4 | 870.4 | 872.4 | 103.0      |
| 103.5      | 854.7                                                            | 856.7 | 858.7 | 860.7 | 862.7 | 864.7 | 866.7 | 868.7 | 870.7 | 872.7 | 103.5      |
| 104.0      | 855.1                                                            | 857.0 | 859.0 | 861.0 | 863.0 | 865.0 | 867.0 | 869.0 | 871.0 | 873.0 | 104.0      |
| 104.5      | 855.4                                                            | 857.4 | 859.4 | 861.3 | 863.3 | 865.3 | 867.3 | 869.3 | 871.3 | 873.3 | 104.5      |
| 105.0      | 855.7                                                            | 857.7 | 859.7 | 861.7 | 863.7 | 865.6 | 867.6 | 869.6 | 871.6 | 873.6 | 105.0      |

OBSERVED DENSITY = 800 TO 818

5

WHEN USING A DENSITY IN G/ML, G/CC, OR KG/L, MULTIPLY BY 1000 BEFORE ENTERING THE ABOVE TABLE

TABLE 53D, GENERALIZED LUBRICATING OILS  
DENSITY CORRECTION TO 15 C

| TEMP.<br>C | DENSITY AT OBSERVED TEMPERATURE<br>CORRESPONDING DENSITY AT 15 C |       |       |       |       |       |       |       |       |       | TEMP.<br>C |
|------------|------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------------|
|            | 800                                                              | 802   | 804   | 806   | 808   | 810   | 812   | 814   | 816   | 818   |            |
| 105.0      | 855.7                                                            | 857.7 | 859.7 | 861.7 | 863.7 | 865.6 | 867.6 | 869.6 | 871.6 | 873.6 | 105.0      |
| 105.5      | 856.0                                                            | 858.0 | 860.0 | 862.0 | 864.0 | 866.0 | 868.0 | 869.9 | 871.9 | 873.9 | 105.5      |
| 106.0      | 856.3                                                            | 858.3 | 860.3 | 862.3 | 864.3 | 866.3 | 868.3 | 870.3 | 872.3 | 874.2 | 106.0      |
| 106.5      | 856.6                                                            | 858.6 | 860.6 | 862.6 | 864.6 | 866.6 | 868.6 | 870.6 | 872.6 | 874.6 | 106.5      |
| 107.0      | 856.9                                                            | 858.9 | 860.9 | 862.9 | 864.9 | 866.9 | 868.9 | 870.9 | 872.9 | 874.9 | 107.0      |
| 107.5      | 857.2                                                            | 859.2 | 861.2 | 863.2 | 865.2 | 867.2 | 869.2 | 871.2 | 873.2 | 875.2 | 107.5      |
| 108.0      | 857.6                                                            | 859.6 | 861.5 | 863.5 | 865.5 | 867.5 | 869.5 | 871.5 | 873.5 | 875.5 | 108.0      |
| 108.5      | 857.9                                                            | 859.9 | 861.9 | 863.9 | 865.8 | 867.8 | 869.8 | 871.8 | 873.8 | 875.8 | 108.5      |
| 109.0      | 858.2                                                            | 860.2 | 862.2 | 864.2 | 866.2 | 868.2 | 870.1 | 872.1 | 874.1 | 876.1 | 109.0      |
| 109.5      | 858.5                                                            | 860.5 | 862.5 | 864.5 | 866.5 | 868.5 | 870.5 | 872.5 | 874.4 | 876.4 | 109.5      |
| 110.0      | 858.8                                                            | 860.8 | 862.8 | 864.8 | 866.8 | 868.8 | 870.8 | 872.8 | 874.8 | 876.7 | 110.0      |
| 110.5      | 859.1                                                            | 861.1 | 863.1 | 865.1 | 867.1 | 869.1 | 871.1 | 873.1 | 875.1 | 877.1 | 110.5      |
| 111.0      | 859.4                                                            | 861.4 | 863.4 | 865.4 | 867.4 | 869.4 | 871.4 | 873.4 | 875.4 | 877.4 | 111.0      |
| 111.5      | 859.8                                                            | 861.7 | 863.7 | 865.7 | 867.7 | 869.7 | 871.7 | 873.7 | 875.7 | 877.7 | 111.5      |
| 112.0      | 860.1                                                            | 862.1 | 864.1 | 866.0 | 868.0 | 870.0 | 872.0 | 874.0 | 876.0 | 878.0 | 112.0      |
| 112.5      | 860.4                                                            | 862.4 | 864.4 | 866.4 | 868.3 | 870.3 | 872.3 | 874.3 | 876.3 | 878.3 | 112.5      |
| 113.0      | 860.7                                                            | 862.7 | 864.7 | 866.7 | 868.7 | 870.6 | 872.6 | 874.6 | 876.6 | 878.6 | 113.0      |
| 113.5      | 861.0                                                            | 863.0 | 865.0 | 867.0 | 869.0 | 871.0 | 873.0 | 875.0 | 876.9 | 878.9 | 113.5      |
| 114.0      | 861.3                                                            | 863.3 | 865.3 | 867.3 | 869.3 | 871.3 | 873.3 | 875.3 | 877.3 | 879.3 | 114.0      |
| 114.5      | 861.6                                                            | 863.6 | 865.6 | 867.6 | 869.6 | 871.6 | 873.6 | 875.6 | 877.6 | 879.6 | 114.5      |
| 115.0      | 861.9                                                            | 863.9 | 865.9 | 867.9 | 869.9 | 871.9 | 873.9 | 875.9 | 877.9 | 879.9 | 115.0      |
| 115.5      | 862.3                                                            | 864.2 | 866.2 | 868.2 | 870.2 | 872.2 | 874.2 | 876.2 | 878.2 | 880.2 | 115.5      |
| 116.0      | 862.6                                                            | 864.6 | 866.5 | 868.5 | 870.5 | 872.5 | 874.5 | 876.5 | 878.5 | 880.5 | 116.0      |
| 116.5      | 862.9                                                            | 864.9 | 866.9 | 868.9 | 870.9 | 872.8 | 874.8 | 876.8 | 878.8 | 880.8 | 116.5      |
| 117.0      | 863.2                                                            | 865.2 | 867.2 | 869.2 | 871.2 | 873.2 | 875.1 | 877.1 | 879.1 | 881.1 | 117.0      |
| 117.5      | 863.5                                                            | 865.5 | 867.5 | 869.5 | 871.5 | 873.5 | 875.5 | 877.5 | 879.4 | 881.4 | 117.5      |
| 118.0      | 863.8                                                            | 865.8 | 867.8 | 869.8 | 871.8 | 873.8 | 875.8 | 877.8 | 879.8 | 881.8 | 118.0      |
| 118.5      | 864.1                                                            | 866.1 | 868.1 | 870.1 | 872.1 | 874.1 | 876.1 | 878.1 | 880.1 | 882.1 | 118.5      |
| 119.0      | 864.5                                                            | 866.4 | 868.4 | 870.4 | 872.4 | 874.4 | 876.4 | 878.4 | 880.4 | 882.4 | 119.0      |
| 119.5      | 864.8                                                            | 866.8 | 868.8 | 870.7 | 872.7 | 874.7 | 876.7 | 878.7 | 880.7 | 882.7 | 119.5      |
| 120.0      | 865.1                                                            | 867.1 | 869.1 | 871.1 | 873.0 | 875.0 | 877.0 | 879.0 | 881.0 | 883.0 | 120.0      |
| 120.5      | 865.4                                                            | 867.4 | 869.4 | 871.4 | 873.4 | 875.3 | 877.3 | 879.3 | 881.3 | 883.3 | 120.5      |
| 121.0      | 865.7                                                            | 867.7 | 869.7 | 871.7 | 873.7 | 875.7 | 877.7 | 879.6 | 881.6 | 883.6 | 121.0      |
| 121.5      | 866.0                                                            | 868.0 | 870.0 | 872.0 | 874.0 | 876.0 | 878.0 | 880.0 | 882.0 | 883.9 | 121.5      |
| 122.0      | 866.3                                                            | 868.3 | 870.3 | 872.3 | 874.3 | 876.3 | 878.3 | 880.3 | 882.3 | 884.3 | 122.0      |
| 122.5      | 866.6                                                            | 868.6 | 870.6 | 872.6 | 874.6 | 876.6 | 878.6 | 880.6 | 882.6 | 884.6 | 122.5      |
| 123.0      | 867.0                                                            | 869.0 | 870.9 | 872.9 | 874.9 | 876.9 | 878.9 | 880.9 | 882.9 | 884.9 | 123.0      |
| 123.5      | 867.3                                                            | 869.3 | 871.3 | 873.2 | 875.2 | 877.2 | 879.2 | 881.2 | 883.2 | 885.2 | 123.5      |
| 124.0      | 867.6                                                            | 869.6 | 871.6 | 873.6 | 875.5 | 877.5 | 879.5 | 881.5 | 883.5 | 885.5 | 124.0      |
| 124.5      | 867.9                                                            | 869.9 | 871.9 | 873.9 | 875.9 | 877.9 | 879.8 | 881.8 | 883.8 | 885.8 | 124.5      |
| 125.0      | 868.2                                                            | 870.2 | 872.2 | 874.2 | 876.2 | 878.2 | 880.2 | 882.2 | 884.2 | 886.1 | 125.0      |
| 125.5      | 868.5                                                            | 870.5 | 872.5 | 874.5 | 876.5 | 878.5 | 880.5 | 882.5 | 884.5 | 886.5 | 125.5      |
| 126.0      | 868.8                                                            | 870.8 | 872.8 | 874.8 | 876.8 | 878.8 | 880.8 | 882.8 | 884.8 | 886.8 | 126.0      |
| 126.5      | 869.2                                                            | 871.1 | 873.1 | 875.1 | 877.1 | 879.1 | 881.1 | 883.1 | 885.1 | 887.1 | 126.5      |
| 127.0      | 869.5                                                            | 871.5 | 873.5 | 875.4 | 877.4 | 879.4 | 881.4 | 883.4 | 885.4 | 887.4 | 127.0      |
| 127.5      | 869.8                                                            | 871.8 | 873.8 | 875.8 | 877.7 | 879.7 | 881.7 | 883.7 | 885.7 | 887.7 | 127.5      |
| 128.0      | 870.1                                                            | 872.1 | 874.1 | 876.1 | 878.1 | 880.1 | 882.0 | 884.0 | 886.0 | 888.0 | 128.0      |
| 128.5      | 870.4                                                            | 872.4 | 874.4 | 876.4 | 878.4 | 880.4 | 882.4 | 884.4 | 886.3 | 888.3 | 128.5      |
| 129.0      | 870.7                                                            | 872.7 | 874.7 | 876.7 | 878.7 | 880.7 | 882.7 | 884.7 | 886.7 | 888.6 | 129.0      |
| 129.5      | 871.0                                                            | 873.0 | 875.0 | 877.0 | 879.0 | 881.0 | 883.0 | 885.0 | 887.0 | 889.0 | 129.5      |
| 130.0      | 871.4                                                            | 873.3 | 875.3 | 877.3 | 879.3 | 881.3 | 883.3 | 885.3 | 887.3 | 889.3 | 130.0      |

OBSERVED DENSITY = 800 TO 818

6

WHEN USING A DENSITY IN G/ML, G/CC, OR KG/L, MULTIPLY BY 1000 BEFORE ENTERING THE ABOVE TABLE

TABLE 53D, GENERALIZED LUBRICATING OILS  
DENSITY CORRECTION TO 15 C

| TEMP.<br>C | DENSITY AT OBSERVED TEMPERATURE<br>CORRESPONDING DENSITY AT 15 C |       |       |       |       |       |       |       |       |       | TEMP.<br>C |
|------------|------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------------|
|            | 800                                                              | 802   | 804   | 806   | 808   | 810   | 812   | 814   | 816   | 818   |            |
| 130.0      | 871.4                                                            | 873.3 | 875.3 | 877.3 | 879.3 | 881.3 | 883.3 | 885.3 | 887.3 | 889.3 | 130.0      |
| 130.5      | 871.7                                                            | 873.7 | 875.7 | 877.6 | 879.6 | 881.6 | 883.6 | 885.6 | 887.6 | 889.6 | 130.5      |
| 131.0      | 872.0                                                            | 874.0 | 876.0 | 878.0 | 880.0 | 881.9 | 883.9 | 885.9 | 887.9 | 889.9 | 131.0      |
| 131.5      | 872.3                                                            | 874.3 | 876.3 | 878.3 | 880.3 | 882.3 | 884.2 | 886.2 | 888.2 | 890.2 | 131.5      |
| 132.0      | 872.6                                                            | 874.6 | 876.6 | 878.6 | 880.6 | 882.6 | 884.5 | 886.5 | 888.5 | 890.5 | 132.0      |
| 132.5      | 872.9                                                            | 874.9 | 876.9 | 878.9 | 880.9 | 882.9 | 884.9 | 886.9 | 888.9 | 890.8 | 132.5      |
| 133.0      | 873.2                                                            | 875.2 | 877.2 | 879.2 | 881.2 | 883.2 | 885.2 | 887.2 | 889.2 | 891.2 | 133.0      |
| 133.5      | 873.5                                                            | 875.5 | 877.5 | 879.5 | 881.5 | 883.5 | 885.5 | 887.5 | 889.5 | 891.5 | 133.5      |
| 134.0      | 873.9                                                            | 875.9 | 877.8 | 879.8 | 881.8 | 883.8 | 885.8 | 887.8 | 889.8 | 891.8 | 134.0      |
| 134.5      | 874.2                                                            | 876.2 | 878.2 | 880.1 | 882.1 | 884.1 | 886.1 | 888.1 | 890.1 | 892.1 | 134.5      |
| 135.0      | 874.5                                                            | 876.5 | 878.5 | 880.5 | 882.5 | 884.4 | 886.4 | 888.4 | 890.4 | 892.4 | 135.0      |
| 135.5      | 874.8                                                            | 876.8 | 878.8 | 880.8 | 882.8 | 884.8 | 886.8 | 888.7 | 890.7 | 892.7 | 135.5      |
| 136.0      | 875.1                                                            | 877.1 | 879.1 | 881.1 | 883.1 | 885.1 | 887.1 | 889.1 | 891.1 | 893.0 | 136.0      |
| 136.5      | 875.4                                                            | 877.4 | 879.4 | 881.4 | 883.4 | 885.4 | 887.4 | 889.4 | 891.4 | 893.3 | 136.5      |
| 137.0      | 875.8                                                            | 877.7 | 879.7 | 881.7 | 883.7 | 885.7 | 887.7 | 889.7 | 891.7 | 893.7 | 137.0      |
| 137.5      | 876.1                                                            | 878.1 | 880.0 | 882.0 | 884.0 | 886.0 | 888.0 | 890.0 | 892.0 | 894.0 | 137.5      |
| 138.0      | 876.4                                                            | 878.4 | 880.4 | 882.4 | 884.3 | 886.3 | 888.3 | 890.3 | 892.3 | 894.3 | 138.0      |
| 138.5      | 876.7                                                            | 878.7 | 880.7 | 882.7 | 884.7 | 886.6 | 888.6 | 890.6 | 892.6 | 894.6 | 138.5      |
| 139.0      | 877.0                                                            | 879.0 | 881.0 | 883.0 | 885.0 | 887.0 | 888.9 | 890.9 | 892.9 | 894.9 | 139.0      |
| 139.5      | 877.3                                                            | 879.3 | 881.3 | 883.3 | 885.3 | 887.3 | 889.3 | 891.3 | 893.2 | 895.2 | 139.5      |
| 140.0      | 877.6                                                            | 879.6 | 881.6 | 883.6 | 885.6 | 887.6 | 889.6 | 891.6 | 893.6 | 895.5 | 140.0      |
| 140.5      | 878.0                                                            | 879.9 | 881.9 | 883.9 | 885.9 | 887.9 | 889.9 | 891.9 | 893.9 | 895.9 | 140.5      |
| 141.0      | 878.3                                                            | 880.3 | 882.2 | 884.2 | 886.2 | 888.2 | 890.2 | 892.2 | 894.2 | 896.2 | 141.0      |
| 141.5      | 878.6                                                            | 880.6 | 882.6 | 884.5 | 886.5 | 888.5 | 890.5 | 892.5 | 894.5 | 896.5 | 141.5      |
| 142.0      | 878.9                                                            | 880.9 | 882.9 | 884.9 | 886.9 | 888.8 | 890.8 | 892.8 | 894.8 | 896.8 | 142.0      |
| 142.5      | 879.2                                                            | 881.2 | 883.2 | 885.2 | 887.2 | 889.2 | 891.1 | 893.1 | 895.1 | 897.1 | 142.5      |
| 143.0      | 879.5                                                            | 881.5 | 883.5 | 885.5 | 887.5 | 889.5 | 891.5 | 893.5 | 895.4 | 897.4 | 143.0      |
| 143.5      | 879.8                                                            | 881.8 | 883.8 | 885.8 | 887.8 | 889.8 | 891.8 | 893.8 | 895.8 | 897.7 | 143.5      |
| 144.0      | 880.2                                                            | 882.1 | 884.1 | 886.1 | 888.1 | 890.1 | 892.1 | 894.1 | 896.1 | 898.1 | 144.0      |
| 144.5      | 880.5                                                            | 882.5 | 884.4 | 886.4 | 888.4 | 890.4 | 892.4 | 894.4 | 896.4 | 898.4 | 144.5      |
| 145.0      | 880.8                                                            | 882.8 | 884.8 | 886.8 | 888.7 | 890.7 | 892.7 | 894.7 | 896.7 | 898.7 | 145.0      |
| 145.5      | 881.1                                                            | 883.1 | 885.1 | 887.1 | 889.1 | 891.0 | 893.0 | 895.0 | 897.0 | 899.0 | 145.5      |
| 146.0      | 881.4                                                            | 883.4 | 885.4 | 887.4 | 889.4 | 891.4 | 893.4 | 895.3 | 897.3 | 899.3 | 146.0      |
| 146.5      | 881.7                                                            | 883.7 | 885.7 | 887.7 | 889.7 | 891.7 | 893.7 | 895.7 | 897.6 | 899.6 | 146.5      |
| 147.0      | 882.0                                                            | 884.0 | 886.0 | 888.0 | 890.0 | 892.0 | 894.0 | 896.0 | 898.0 | 899.9 | 147.0      |
| 147.5      | 882.4                                                            | 884.3 | 886.3 | 888.3 | 890.3 | 892.3 | 894.3 | 896.3 | 898.3 | 900.3 | 147.5      |
| 148.0      | 882.7                                                            | 884.7 | 886.7 | 888.6 | 890.6 | 892.6 | 894.6 | 896.6 | 898.6 | 900.6 | 148.0      |
| 148.5      | 883.0                                                            | 885.0 | 887.0 | 889.0 | 890.9 | 892.9 | 894.9 | 896.9 | 898.9 | 900.9 | 148.5      |
| 149.0      | 883.3                                                            | 885.3 | 887.3 | 889.3 | 891.3 | 893.3 | 895.2 | 897.2 | 899.2 | 901.2 | 149.0      |
| 149.5      | 883.6                                                            | 885.6 | 887.6 | 889.6 | 891.6 | 893.6 | 895.5 | 897.5 | 899.5 | 901.5 | 149.5      |
| 150.0      | 883.9                                                            | 885.9 | 887.9 | 889.9 | 891.9 | 893.9 | 895.9 | 897.9 | 899.8 | 901.8 | 150.0      |

OBSERVED DENSITY = 800 TO 818

7

WHEN USING A DENSITY IN G/ML, G/CC, OR KG/L, MULTIPLY BY 1000 BEFORE ENTERING THE ABOVE TABLE

TABLE 53D, GENERALIZED LUBRICATING OILS  
DENSITY CORRECTION TO 15 C

| TEMP.<br>C | DENSITY AT OBSERVED TEMPERATURE<br>CORRESPONDING DENSITY AT 15 C |       |       |       |       |       |       |       |       |       | TEMP.<br>C |
|------------|------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------------|
|            | 820                                                              | 822   | 824   | 826   | 828   | 830   | 832   | 834   | 836   | 838   |            |
| -20.0      | -                                                                | 800.9 | 802.9 | 804.9 | 806.9 | 808.9 | 810.9 | 812.9 | 814.9 | 816.9 | -20.0      |
| -19.5      | -                                                                | 801.2 | 803.2 | 805.2 | 807.2 | 809.2 | 811.2 | 813.2 | 815.2 | 817.2 | -19.5      |
| -19.0      | -                                                                | 801.5 | 803.5 | 805.5 | 807.5 | 809.5 | 811.5 | 813.5 | 815.5 | 817.5 | -19.0      |
| -18.5      | -                                                                | 801.8 | 803.8 | 805.8 | 807.8 | 809.8 | 811.8 | 813.8 | 815.8 | 817.8 | -18.5      |
| -18.0      | 800.1                                                            | 802.1 | 804.1 | 806.1 | 808.1 | 810.1 | 812.1 | 814.1 | 816.1 | 818.1 | -18.0      |
| -17.5      | 800.4                                                            | 802.4 | 804.4 | 806.4 | 808.4 | 810.4 | 812.4 | 814.4 | 816.4 | 818.4 | -17.5      |
| -17.0      | 800.7                                                            | 802.7 | 804.7 | 806.7 | 808.7 | 810.7 | 812.7 | 814.7 | 816.7 | 818.7 | -17.0      |
| -16.5      | 801.0                                                            | 803.0 | 805.0 | 807.0 | 809.0 | 811.0 | 813.0 | 815.0 | 817.0 | 819.0 | -16.5      |
| -16.0      | 801.3                                                            | 803.3 | 805.3 | 807.3 | 809.3 | 811.3 | 813.3 | 815.3 | 817.3 | 819.3 | -16.0      |
| -15.5      | 801.6                                                            | 803.6 | 805.6 | 807.6 | 809.6 | 811.6 | 813.6 | 815.6 | 817.6 | 819.6 | -15.5      |
| -15.0      | 801.9                                                            | 803.9 | 805.9 | 807.9 | 809.9 | 811.9 | 813.9 | 815.9 | 817.9 | 819.9 | -15.0      |
| -14.5      | 802.2                                                            | 804.2 | 806.2 | 808.2 | 810.2 | 812.2 | 814.2 | 816.2 | 818.2 | 820.2 | -14.5      |
| -14.0      | 802.5                                                            | 804.5 | 806.5 | 808.5 | 810.5 | 812.5 | 814.5 | 816.5 | 818.5 | 820.5 | -14.0      |
| -13.5      | 802.8                                                            | 804.8 | 806.8 | 808.8 | 810.8 | 812.8 | 814.8 | 816.8 | 818.8 | 820.8 | -13.5      |
| -13.0      | 803.1                                                            | 805.1 | 807.1 | 809.1 | 811.1 | 813.1 | 815.1 | 817.1 | 819.1 | 821.1 | -13.0      |
| -12.5      | 803.4                                                            | 805.4 | 807.4 | 809.4 | 811.4 | 813.4 | 815.4 | 817.4 | 819.4 | 821.4 | -12.5      |
| -12.0      | 803.7                                                            | 805.7 | 807.7 | 809.7 | 811.7 | 813.7 | 815.7 | 817.7 | 819.7 | 821.7 | -12.0      |
| -11.5      | 804.0                                                            | 806.0 | 808.0 | 810.0 | 812.0 | 814.0 | 816.0 | 818.0 | 820.0 | 822.0 | -11.5      |
| -11.0      | 804.3                                                            | 806.3 | 808.3 | 810.3 | 812.3 | 814.3 | 816.3 | 818.3 | 820.3 | 822.3 | -11.0      |
| -10.5      | 804.6                                                            | 806.6 | 808.6 | 810.6 | 812.6 | 814.6 | 816.6 | 818.6 | 820.6 | 822.6 | -10.5      |
| -10.0      | 804.9                                                            | 806.9 | 808.9 | 810.9 | 812.9 | 814.9 | 816.9 | 818.9 | 820.9 | 822.9 | -10.0      |
| -9.5       | 805.2                                                            | 807.2 | 809.2 | 811.2 | 813.2 | 815.2 | 817.2 | 819.2 | 821.2 | 823.2 | -9.5       |
| -9.0       | 805.5                                                            | 807.5 | 809.5 | 811.5 | 813.5 | 815.5 | 817.5 | 819.5 | 821.5 | 823.5 | -9.0       |
| -8.5       | 805.8                                                            | 807.8 | 809.8 | 811.8 | 813.8 | 815.8 | 817.8 | 819.8 | 821.8 | 823.8 | -8.5       |
| -8.0       | 806.1                                                            | 808.1 | 810.1 | 812.1 | 814.1 | 816.1 | 818.1 | 820.1 | 822.1 | 824.1 | -8.0       |
| -7.5       | 806.4                                                            | 808.4 | 810.4 | 812.4 | 814.4 | 816.4 | 818.4 | 820.4 | 822.4 | 824.4 | -7.5       |
| -7.0       | 806.7                                                            | 808.7 | 810.7 | 812.7 | 814.7 | 816.7 | 818.7 | 820.7 | 822.7 | 824.7 | -7.0       |
| -6.5       | 807.0                                                            | 809.0 | 811.0 | 813.0 | 815.0 | 817.0 | 819.0 | 821.0 | 823.0 | 825.0 | -6.5       |
| -6.0       | 807.3                                                            | 809.3 | 811.3 | 813.3 | 815.3 | 817.3 | 819.3 | 821.3 | 823.3 | 825.3 | -6.0       |
| -5.5       | 807.6                                                            | 809.6 | 811.6 | 813.6 | 815.6 | 817.6 | 819.6 | 821.6 | 823.6 | 825.6 | -5.5       |
| -5.0       | 807.9                                                            | 809.9 | 811.9 | 813.9 | 815.9 | 817.9 | 819.9 | 821.9 | 823.9 | 825.9 | -5.0       |
| -4.5       | 808.2                                                            | 810.2 | 812.2 | 814.2 | 816.2 | 818.2 | 820.2 | 822.2 | 824.2 | 826.2 | -4.5       |
| -4.0       | 808.5                                                            | 810.5 | 812.5 | 814.5 | 816.5 | 818.5 | 820.5 | 822.5 | 824.5 | 826.5 | -4.0       |
| -3.5       | 808.8                                                            | 810.8 | 812.8 | 814.8 | 816.8 | 818.8 | 820.8 | 822.8 | 824.8 | 826.8 | -3.5       |
| -3.0       | 809.1                                                            | 811.1 | 813.1 | 815.1 | 817.1 | 819.1 | 821.1 | 823.1 | 825.1 | 827.1 | -3.0       |
| -2.5       | 809.4                                                            | 811.4 | 813.4 | 815.4 | 817.4 | 819.4 | 821.4 | 823.4 | 825.4 | 827.4 | -2.5       |
| -2.0       | 809.7                                                            | 811.7 | 813.7 | 815.7 | 817.7 | 819.7 | 821.7 | 823.7 | 825.7 | 827.7 | -2.0       |
| -1.5       | 810.0                                                            | 812.0 | 814.0 | 816.0 | 818.0 | 820.0 | 822.0 | 824.0 | 826.0 | 828.0 | -1.5       |
| -1.0       | 810.3                                                            | 812.3 | 814.3 | 816.3 | 818.3 | 820.3 | 822.3 | 824.3 | 826.3 | 828.3 | -1.0       |
| -0.5       | 810.6                                                            | 812.6 | 814.6 | 816.6 | 818.6 | 820.6 | 822.6 | 824.6 | 826.6 | 828.6 | -0.5       |
| 0.0        | 810.9                                                            | 812.9 | 814.9 | 816.9 | 818.9 | 820.9 | 822.9 | 824.9 | 826.9 | 828.9 | 0.0        |
| 0.5        | 811.2                                                            | 813.2 | 815.2 | 817.2 | 819.2 | 821.2 | 823.2 | 825.2 | 827.2 | 829.2 | 0.5        |
| 1.0        | 811.5                                                            | 813.5 | 815.5 | 817.5 | 819.5 | 821.5 | 823.5 | 825.5 | 827.5 | 829.5 | 1.0        |
| 1.5        | 811.8                                                            | 813.8 | 815.8 | 817.8 | 819.8 | 821.8 | 823.8 | 825.8 | 827.8 | 829.8 | 1.5        |
| 2.0        | 812.1                                                            | 814.1 | 816.1 | 818.1 | 820.1 | 822.1 | 824.1 | 826.1 | 828.1 | 830.1 | 2.0        |
| 2.5        | 812.4                                                            | 814.4 | 816.4 | 818.4 | 820.4 | 822.4 | 824.4 | 826.4 | 828.4 | 830.4 | 2.5        |
| 3.0        | 812.7                                                            | 814.7 | 816.7 | 818.7 | 820.7 | 822.7 | 824.7 | 826.7 | 828.7 | 830.7 | 3.0        |
| 3.5        | 813.0                                                            | 815.0 | 817.0 | 819.0 | 821.0 | 823.0 | 825.0 | 827.0 | 829.0 | 831.0 | 3.5        |
| 4.0        | 813.3                                                            | 815.3 | 817.3 | 819.3 | 821.3 | 823.3 | 825.3 | 827.3 | 829.3 | 831.3 | 4.0        |
| 4.5        | 813.6                                                            | 815.6 | 817.6 | 819.6 | 821.6 | 823.6 | 825.6 | 827.6 | 829.6 | 831.6 | 4.5        |
| 5.0        | 813.9                                                            | 815.9 | 817.9 | 819.9 | 821.9 | 823.9 | 825.9 | 827.9 | 829.9 | 831.9 | 5.0        |

OBSERVED DENSITY = 820 TO 838

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WHEN USING A DENSITY IN G/ML, G/CC, OR KG/L, MULTIPLY BY 1000 BEFORE ENTERING THE ABOVE TABLE

TABLE 53D, GENERALIZED LUBRICATING OILS  
DENSITY CORRECTION TO 15 C

| TEMP.<br>C | DENSITY AT OBSERVED TEMPERATURE<br>CORRESPONDING DENSITY AT 15 C |       |       |       |       |       |       |       |       |       | TEMP.<br>C |
|------------|------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------------|
|            | 820                                                              | 822   | 824   | 826   | 828   | 830   | 832   | 834   | 836   | 838   |            |
| 5.0        | 813.9                                                            | 815.9 | 817.9 | 819.9 | 821.9 | 823.9 | 825.9 | 827.9 | 829.9 | 831.9 | 5.0        |
| 5.5        | 814.2                                                            | 816.2 | 818.2 | 820.2 | 822.2 | 824.2 | 826.2 | 828.2 | 830.2 | 832.2 | 5.5        |
| 6.0        | 814.5                                                            | 816.5 | 818.5 | 820.5 | 822.5 | 824.5 | 826.5 | 828.5 | 830.5 | 832.5 | 6.0        |
| 6.5        | 814.8                                                            | 816.8 | 818.8 | 820.8 | 822.8 | 824.8 | 826.8 | 828.8 | 830.8 | 832.8 | 6.5        |
| 7.0        | 815.1                                                            | 817.1 | 819.1 | 821.1 | 823.1 | 825.1 | 827.1 | 829.1 | 831.1 | 833.1 | 7.0        |
| 7.5        | 815.4                                                            | 817.4 | 819.4 | 821.4 | 823.4 | 825.4 | 827.4 | 829.4 | 831.4 | 833.4 | 7.5        |
| 8.0        | 815.7                                                            | 817.7 | 819.7 | 821.7 | 823.7 | 825.7 | 827.7 | 829.7 | 831.7 | 833.7 | 8.0        |
| 8.5        | 816.0                                                            | 818.0 | 820.0 | 822.0 | 824.0 | 826.0 | 828.0 | 830.0 | 832.0 | 834.0 | 8.5        |
| 9.0        | 816.3                                                            | 818.3 | 820.3 | 822.3 | 824.3 | 826.3 | 828.3 | 830.3 | 832.3 | 834.4 | 9.0        |
| 9.5        | 816.7                                                            | 818.7 | 820.7 | 822.7 | 824.7 | 826.7 | 828.7 | 830.7 | 832.7 | 834.7 | 9.5        |
| 10.0       | 817.0                                                            | 819.0 | 821.0 | 823.0 | 825.0 | 827.0 | 829.0 | 831.0 | 833.0 | 835.0 | 10.0       |
| 10.5       | 817.3                                                            | 819.3 | 821.3 | 823.3 | 825.3 | 827.3 | 829.3 | 831.3 | 833.3 | 835.3 | 10.5       |
| 11.0       | 817.6                                                            | 819.6 | 821.6 | 823.6 | 825.6 | 827.6 | 829.6 | 831.6 | 833.6 | 835.6 | 11.0       |
| 11.5       | 817.9                                                            | 819.9 | 821.9 | 823.9 | 825.9 | 827.9 | 829.9 | 831.9 | 833.9 | 835.9 | 11.5       |
| 12.0       | 818.2                                                            | 820.2 | 822.2 | 824.2 | 826.2 | 828.2 | 830.2 | 832.2 | 834.2 | 836.2 | 12.0       |
| 12.5       | 818.5                                                            | 820.5 | 822.5 | 824.5 | 826.5 | 828.5 | 830.5 | 832.5 | 834.5 | 836.5 | 12.5       |
| 13.0       | 818.8                                                            | 820.8 | 822.8 | 824.8 | 826.8 | 828.8 | 830.8 | 832.8 | 834.8 | 836.8 | 13.0       |
| 13.5       | 819.1                                                            | 821.1 | 823.1 | 825.1 | 827.1 | 829.1 | 831.1 | 833.1 | 835.1 | 837.1 | 13.5       |
| 14.0       | 819.4                                                            | 821.4 | 823.4 | 825.4 | 827.4 | 829.4 | 831.4 | 833.4 | 835.4 | 837.4 | 14.0       |
| 14.5       | 819.7                                                            | 821.7 | 823.7 | 825.7 | 827.7 | 829.7 | 831.7 | 833.7 | 835.7 | 837.7 | 14.5       |
| 15.0       | 820.0                                                            | 822.0 | 824.0 | 826.0 | 828.0 | 830.0 | 832.0 | 834.0 | 836.0 | 838.0 | 15.0       |
| 15.5       | 820.3                                                            | 822.3 | 824.3 | 826.3 | 828.3 | 830.3 | 832.3 | 834.3 | 836.3 | 838.3 | 15.5       |
| 16.0       | 820.6                                                            | 822.6 | 824.6 | 826.6 | 828.6 | 830.6 | 832.6 | 834.6 | 836.6 | 838.6 | 16.0       |
| 16.5       | 820.9                                                            | 822.9 | 824.9 | 826.9 | 828.9 | 830.9 | 832.9 | 834.9 | 836.9 | 838.9 | 16.5       |
| 17.0       | 821.2                                                            | 823.2 | 825.2 | 827.2 | 829.2 | 831.2 | 833.2 | 835.2 | 837.2 | 839.2 | 17.0       |
| 17.5       | 821.5                                                            | 823.5 | 825.5 | 827.5 | 829.5 | 831.5 | 833.5 | 835.5 | 837.5 | 839.5 | 17.5       |
| 18.0       | 821.8                                                            | 823.8 | 825.8 | 827.8 | 829.8 | 831.8 | 833.8 | 835.8 | 837.8 | 839.8 | 18.0       |
| 18.5       | 822.1                                                            | 824.1 | 826.1 | 828.1 | 830.1 | 832.1 | 834.1 | 836.1 | 838.1 | 840.1 | 18.5       |
| 19.0       | 822.4                                                            | 824.4 | 826.4 | 828.4 | 830.4 | 832.4 | 834.4 | 836.4 | 838.4 | 840.4 | 19.0       |
| 19.5       | 822.7                                                            | 824.7 | 826.7 | 828.7 | 830.7 | 832.7 | 834.7 | 836.7 | 838.7 | 840.7 | 19.5       |
| 20.0       | 823.1                                                            | 825.1 | 827.0 | 829.0 | 831.0 | 833.0 | 835.0 | 837.0 | 839.0 | 841.0 | 20.0       |
| 20.5       | 823.4                                                            | 825.4 | 827.4 | 829.4 | 831.3 | 833.3 | 835.3 | 837.3 | 839.3 | 841.3 | 20.5       |
| 21.0       | 823.7                                                            | 825.7 | 827.7 | 829.7 | 831.7 | 833.7 | 835.7 | 837.7 | 839.7 | 841.7 | 21.0       |
| 21.5       | 824.0                                                            | 826.0 | 828.0 | 830.0 | 832.0 | 834.0 | 836.0 | 838.0 | 840.0 | 842.0 | 21.5       |
| 22.0       | 824.3                                                            | 826.3 | 828.3 | 830.3 | 832.3 | 834.3 | 836.3 | 838.3 | 840.3 | 842.3 | 22.0       |
| 22.5       | 824.6                                                            | 826.6 | 828.6 | 830.6 | 832.6 | 834.6 | 836.6 | 838.6 | 840.6 | 842.6 | 22.5       |
| 23.0       | 824.9                                                            | 826.9 | 828.9 | 830.9 | 832.9 | 834.9 | 836.9 | 838.9 | 840.9 | 842.9 | 23.0       |
| 23.5       | 825.2                                                            | 827.2 | 829.2 | 831.2 | 833.2 | 835.2 | 837.2 | 839.2 | 841.2 | 843.2 | 23.5       |
| 24.0       | 825.5                                                            | 827.5 | 829.5 | 831.5 | 833.5 | 835.5 | 837.5 | 839.5 | 841.5 | 843.5 | 24.0       |
| 24.5       | 825.8                                                            | 827.8 | 829.8 | 831.8 | 833.8 | 835.8 | 837.8 | 839.8 | 841.8 | 843.8 | 24.5       |
| 25.0       | 826.1                                                            | 828.1 | 830.1 | 832.1 | 834.1 | 836.1 | 838.1 | 840.1 | 842.1 | 844.1 | 25.0       |
| 25.5       | 826.4                                                            | 828.4 | 830.4 | 832.4 | 834.4 | 836.4 | 838.4 | 840.4 | 842.4 | 844.4 | 25.5       |
| 26.0       | 826.7                                                            | 828.7 | 830.7 | 832.7 | 834.7 | 836.7 | 838.7 | 840.7 | 842.7 | 844.7 | 26.0       |
| 26.5       | 827.0                                                            | 829.0 | 831.0 | 833.0 | 835.0 | 837.0 | 839.0 | 841.0 | 843.0 | 845.0 | 26.5       |
| 27.0       | 827.3                                                            | 829.3 | 831.3 | 833.3 | 835.3 | 837.3 | 839.3 | 841.3 | 843.3 | 845.3 | 27.0       |
| 27.5       | 827.6                                                            | 829.6 | 831.6 | 833.6 | 835.6 | 837.6 | 839.6 | 841.6 | 843.6 | 845.6 | 27.5       |
| 28.0       | 827.9                                                            | 829.9 | 831.9 | 833.9 | 835.9 | 837.9 | 839.9 | 841.9 | 843.9 | 845.9 | 28.0       |
| 28.5       | 828.2                                                            | 830.2 | 832.2 | 834.2 | 836.2 | 838.2 | 840.2 | 842.2 | 844.2 | 846.2 | 28.5       |
| 29.0       | 828.5                                                            | 830.5 | 832.5 | 834.5 | 836.5 | 838.5 | 840.5 | 842.5 | 844.5 | 846.5 | 29.0       |
| 29.5       | 828.9                                                            | 830.9 | 832.9 | 834.9 | 836.9 | 838.9 | 840.9 | 842.9 | 844.9 | 846.9 | 29.5       |
| 30.0       | 829.2                                                            | 831.2 | 833.2 | 835.2 | 837.2 | 839.2 | 841.2 | 843.2 | 845.2 | 847.2 | 30.0       |

OBSERVED DENSITY = 820 TO 838

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WHEN USING A DENSITY IN G/ML, G/CC, OR KG/L, MULTIPLY BY 1000 BEFORE ENTERING THE ABOVE TABLE

TABLE 53D. GENERALIZED LUBRICATING OILS  
DENSITY CORRECTION TO 15 C

| TEMP.<br>C | DENSITY AT OBSERVED TEMPERATURE<br>CORRESPONDING DENSITY AT 15 C |       |       |       |       |       |       |       |       |       | TEMP.<br>C |
|------------|------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------------|
|            | 820                                                              | 822   | 824   | 826   | 828   | 830   | 832   | 834   | 836   | 838   |            |
| 30.0       | 829.2                                                            | 831.2 | 833.2 | 835.2 | 837.2 | 839.2 | 841.2 | 843.2 | 845.2 | 847.2 | 30.0       |
| 30.5       | 829.5                                                            | 831.5 | 833.5 | 835.5 | 837.5 | 839.5 | 841.5 | 843.5 | 845.5 | 847.5 | 30.5       |
| 31.0       | 829.8                                                            | 831.8 | 833.8 | 835.8 | 837.8 | 839.8 | 841.8 | 843.8 | 845.8 | 847.8 | 31.0       |
| 31.5       | 830.1                                                            | 832.1 | 834.1 | 836.1 | 838.1 | 840.1 | 842.1 | 844.1 | 846.1 | 848.1 | 31.5       |
| 32.0       | 830.4                                                            | 832.4 | 834.4 | 836.4 | 838.4 | 840.4 | 842.4 | 844.4 | 846.4 | 848.4 | 32.0       |
| 32.5       | 830.7                                                            | 832.7 | 834.7 | 836.7 | 838.7 | 840.7 | 842.7 | 844.7 | 846.7 | 848.7 | 32.5       |
| 33.0       | 831.0                                                            | 833.0 | 835.0 | 837.0 | 839.0 | 841.0 | 843.0 | 845.0 | 847.0 | 849.0 | 33.0       |
| 33.5       | 831.3                                                            | 833.3 | 835.3 | 837.3 | 839.3 | 841.3 | 843.3 | 845.3 | 847.3 | 849.3 | 33.5       |
| 34.0       | 831.6                                                            | 833.6 | 835.6 | 837.6 | 839.6 | 841.6 | 843.6 | 845.6 | 847.6 | 849.6 | 34.0       |
| 34.5       | 831.9                                                            | 833.9 | 835.9 | 837.9 | 839.9 | 841.9 | 843.9 | 845.9 | 847.9 | 849.9 | 34.5       |
| 35.0       | 832.2                                                            | 834.2 | 836.2 | 838.2 | 840.2 | 842.2 | 844.2 | 846.2 | 848.2 | 850.2 | 35.0       |
| 35.5       | 832.5                                                            | 834.5 | 836.5 | 838.5 | 840.5 | 842.5 | 844.5 | 846.5 | 848.5 | 850.5 | 35.5       |
| 36.0       | 832.8                                                            | 834.8 | 836.8 | 838.8 | 840.8 | 842.8 | 844.8 | 846.8 | 848.8 | 850.8 | 36.0       |
| 36.5       | 833.2                                                            | 835.2 | 837.1 | 839.1 | 841.1 | 843.1 | 845.1 | 847.1 | 849.1 | 851.1 | 36.5       |
| 37.0       | 833.5                                                            | 835.5 | 837.5 | 839.4 | 841.4 | 843.4 | 845.4 | 847.4 | 849.4 | 851.4 | 37.0       |
| 37.5       | 833.8                                                            | 835.8 | 837.8 | 839.8 | 841.8 | 843.8 | 845.8 | 847.8 | 849.8 | 851.8 | 37.5       |
| 38.0       | 834.1                                                            | 836.1 | 838.1 | 840.1 | 842.1 | 844.1 | 846.1 | 848.1 | 850.1 | 852.1 | 38.0       |
| 38.5       | 834.4                                                            | 836.4 | 838.4 | 840.4 | 842.4 | 844.4 | 846.4 | 848.4 | 850.4 | 852.4 | 38.5       |
| 39.0       | 834.7                                                            | 836.7 | 838.7 | 840.7 | 842.7 | 844.7 | 846.7 | 848.7 | 850.7 | 852.7 | 39.0       |
| 39.5       | 835.0                                                            | 837.0 | 839.0 | 841.0 | 843.0 | 845.0 | 847.0 | 849.0 | 851.0 | 853.0 | 39.5       |
| 40.0       | 835.3                                                            | 837.3 | 839.3 | 841.3 | 843.3 | 845.3 | 847.3 | 849.3 | 851.3 | 853.3 | 40.0       |
| 40.5       | 835.6                                                            | 837.6 | 839.6 | 841.6 | 843.6 | 845.6 | 847.6 | 849.6 | 851.6 | 853.6 | 40.5       |
| 41.0       | 835.9                                                            | 837.9 | 839.9 | 841.9 | 843.9 | 845.9 | 847.9 | 849.9 | 851.9 | 853.9 | 41.0       |
| 41.5       | 836.2                                                            | 838.2 | 840.2 | 842.2 | 844.2 | 846.2 | 848.2 | 850.2 | 852.2 | 854.2 | 41.5       |
| 42.0       | 836.5                                                            | 838.5 | 840.5 | 842.5 | 844.5 | 846.5 | 848.5 | 850.5 | 852.5 | 854.5 | 42.0       |
| 42.5       | 836.8                                                            | 838.8 | 840.8 | 842.8 | 844.8 | 846.8 | 848.8 | 850.8 | 852.8 | 854.8 | 42.5       |
| 43.0       | 837.1                                                            | 839.1 | 841.1 | 843.1 | 845.1 | 847.1 | 849.1 | 851.1 | 853.1 | 855.1 | 43.0       |
| 43.5       | 837.5                                                            | 839.5 | 841.5 | 843.5 | 845.4 | 847.4 | 849.4 | 851.4 | 853.4 | 855.4 | 43.5       |
| 44.0       | 837.8                                                            | 839.8 | 841.8 | 843.8 | 845.7 | 847.7 | 849.7 | 851.7 | 853.7 | 855.7 | 44.0       |
| 44.5       | 838.1                                                            | 840.1 | 842.1 | 844.1 | 846.1 | 848.1 | 850.1 | 852.1 | 854.1 | 856.1 | 44.5       |
| 45.0       | 838.4                                                            | 840.4 | 842.4 | 844.4 | 846.4 | 848.4 | 850.4 | 852.4 | 854.4 | 856.4 | 45.0       |
| 45.5       | 838.7                                                            | 840.7 | 842.7 | 844.7 | 846.7 | 848.7 | 850.7 | 852.7 | 854.7 | 856.7 | 45.5       |
| 46.0       | 839.0                                                            | 841.0 | 843.0 | 845.0 | 847.0 | 849.0 | 851.0 | 853.0 | 855.0 | 857.0 | 46.0       |
| 46.5       | 839.3                                                            | 841.3 | 843.3 | 845.3 | 847.3 | 849.3 | 851.3 | 853.3 | 855.3 | 857.3 | 46.5       |
| 47.0       | 839.6                                                            | 841.6 | 843.6 | 845.6 | 847.6 | 849.6 | 851.6 | 853.6 | 855.6 | 857.6 | 47.0       |
| 47.5       | 839.9                                                            | 841.9 | 843.9 | 845.9 | 847.9 | 849.9 | 851.9 | 853.9 | 855.9 | 857.9 | 47.5       |
| 48.0       | 840.2                                                            | 842.2 | 844.2 | 846.2 | 848.2 | 850.2 | 852.2 | 854.2 | 856.2 | 858.2 | 48.0       |
| 48.5       | 840.5                                                            | 842.5 | 844.5 | 846.5 | 848.5 | 850.5 | 852.5 | 854.5 | 856.5 | 858.5 | 48.5       |
| 49.0       | 840.8                                                            | 842.8 | 844.8 | 846.8 | 848.8 | 850.8 | 852.8 | 854.8 | 856.8 | 858.8 | 49.0       |
| 49.5       | 841.1                                                            | 843.1 | 845.1 | 847.1 | 849.1 | 851.1 | 853.1 | 855.1 | 857.1 | 859.1 | 49.5       |
| 50.0       | 841.5                                                            | 843.5 | 845.5 | 847.4 | 849.4 | 851.4 | 853.4 | 855.4 | 857.4 | 859.4 | 50.0       |
| 50.5       | 841.8                                                            | 843.8 | 845.8 | 847.8 | 849.8 | 851.8 | 853.8 | 855.8 | 857.8 | 859.7 | 50.5       |
| 51.0       | 842.1                                                            | 844.1 | 846.1 | 848.1 | 850.1 | 852.1 | 854.1 | 856.1 | 858.1 | 860.1 | 51.0       |
| 51.5       | 842.4                                                            | 844.4 | 846.4 | 848.4 | 850.4 | 852.4 | 854.4 | 856.4 | 858.4 | 860.4 | 51.5       |
| 52.0       | 842.7                                                            | 844.7 | 846.7 | 848.7 | 850.7 | 852.7 | 854.7 | 856.7 | 858.7 | 860.7 | 52.0       |
| 52.5       | 843.0                                                            | 845.0 | 847.0 | 849.0 | 851.0 | 853.0 | 855.0 | 857.0 | 859.0 | 861.0 | 52.5       |
| 53.0       | 843.3                                                            | 845.3 | 847.3 | 849.3 | 851.3 | 853.3 | 855.3 | 857.3 | 859.3 | 861.3 | 53.0       |
| 53.5       | 843.6                                                            | 845.6 | 847.6 | 849.6 | 851.6 | 853.6 | 855.6 | 857.6 | 859.6 | 861.6 | 53.5       |
| 54.0       | 843.9                                                            | 845.9 | 847.9 | 849.9 | 851.9 | 853.9 | 855.9 | 857.9 | 859.9 | 861.9 | 54.0       |
| 54.5       | 844.2                                                            | 846.2 | 848.2 | 850.2 | 852.2 | 854.2 | 856.2 | 858.2 | 860.2 | 862.2 | 54.5       |
| 55.0       | 844.5                                                            | 846.5 | 848.5 | 850.5 | 852.5 | 854.5 | 856.5 | 858.5 | 860.5 | 862.5 | 55.0       |

OBSERVED DENSITY = 820 TO 838

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WHEN USING A DENSITY IN G/ML, G/CC, OR KG/L, MULTIPLY BY 1000 BEFORE ENTERING THE ABOVE TABLE

TABLE 53D, GENERALIZED LUBRICATING OILS  
DENSITY CORRECTION TO 15 C

| TEMP.<br>C | DENSITY AT OBSERVED TEMPERATURE<br>CORRESPONDING DENSITY AT 15 C |       |       |       |       |       |       |       |       |       | TEMP.<br>C |
|------------|------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------------|
|            | 820                                                              | 822   | 824   | 826   | 828   | 830   | 832   | 834   | 836   | 838   |            |
| 55.0       | 844.5                                                            | 846.5 | 848.5 | 850.5 | 852.5 | 854.5 | 856.5 | 858.5 | 860.5 | 862.5 | 55.0       |
| 55.5       | 844.9                                                            | 846.9 | 848.9 | 850.8 | 852.8 | 854.8 | 856.8 | 858.8 | 860.8 | 862.8 | 55.5       |
| 56.0       | 845.2                                                            | 847.2 | 849.2 | 851.1 | 853.1 | 855.1 | 857.1 | 859.1 | 861.1 | 863.1 | 56.0       |
| 56.5       | 845.5                                                            | 847.5 | 849.5 | 851.5 | 853.5 | 855.5 | 857.5 | 859.5 | 861.4 | 863.4 | 56.5       |
| 57.0       | 845.8                                                            | 847.8 | 849.8 | 851.8 | 853.8 | 855.8 | 857.8 | 859.8 | 861.8 | 863.8 | 57.0       |
| 57.5       | 846.1                                                            | 848.1 | 850.1 | 852.1 | 854.1 | 856.1 | 858.1 | 860.1 | 862.1 | 864.1 | 57.5       |
| 58.0       | 846.4                                                            | 848.4 | 850.4 | 852.4 | 854.4 | 856.4 | 858.4 | 860.4 | 862.4 | 864.4 | 58.0       |
| 58.5       | 846.7                                                            | 848.7 | 850.7 | 852.7 | 854.7 | 856.7 | 858.7 | 860.7 | 862.7 | 864.7 | 58.5       |
| 59.0       | 847.0                                                            | 849.0 | 851.0 | 853.0 | 855.0 | 857.0 | 859.0 | 861.0 | 863.0 | 865.0 | 59.0       |
| 59.5       | 847.3                                                            | 849.3 | 851.3 | 853.3 | 855.3 | 857.3 | 859.3 | 861.3 | 863.3 | 865.3 | 59.5       |
| 60.0       | 847.6                                                            | 849.6 | 851.6 | 853.6 | 855.6 | 857.6 | 859.6 | 861.6 | 863.6 | 865.6 | 60.0       |
| 60.5       | 847.9                                                            | 849.9 | 851.9 | 853.9 | 855.9 | 857.9 | 859.9 | 861.9 | 863.9 | 865.9 | 60.5       |
| 61.0       | 848.3                                                            | 850.3 | 852.2 | 854.2 | 856.2 | 858.2 | 860.2 | 862.2 | 864.2 | 866.2 | 61.0       |
| 61.5       | 848.6                                                            | 850.6 | 852.6 | 854.6 | 856.6 | 858.6 | 860.5 | 862.5 | 864.5 | 866.5 | 61.5       |
| 62.0       | 848.9                                                            | 850.9 | 852.9 | 854.9 | 856.9 | 858.9 | 860.8 | 862.8 | 864.8 | 866.8 | 62.0       |
| 62.5       | 849.2                                                            | 851.2 | 853.2 | 855.2 | 857.2 | 859.2 | 861.2 | 863.2 | 865.2 | 867.2 | 62.5       |
| 63.0       | 849.5                                                            | 851.5 | 853.5 | 855.5 | 857.5 | 859.5 | 861.5 | 863.5 | 865.5 | 867.5 | 63.0       |
| 63.5       | 849.8                                                            | 851.8 | 853.8 | 855.8 | 857.8 | 859.8 | 861.8 | 863.8 | 865.8 | 867.8 | 63.5       |
| 64.0       | 850.1                                                            | 852.1 | 854.1 | 856.1 | 858.1 | 860.1 | 862.1 | 864.1 | 866.1 | 868.1 | 64.0       |
| 64.5       | 850.4                                                            | 852.4 | 854.4 | 856.4 | 858.4 | 860.4 | 862.4 | 864.4 | 866.4 | 868.4 | 64.5       |
| 65.0       | 850.7                                                            | 852.7 | 854.7 | 856.7 | 858.7 | 860.7 | 862.7 | 864.7 | 866.7 | 868.7 | 65.0       |
| 65.5       | 851.0                                                            | 853.0 | 855.0 | 857.0 | 859.0 | 861.0 | 863.0 | 865.0 | 867.0 | 869.0 | 65.5       |
| 66.0       | 851.3                                                            | 853.3 | 855.3 | 857.3 | 859.3 | 861.3 | 863.3 | 865.3 | 867.3 | 869.3 | 66.0       |
| 66.5       | 851.7                                                            | 853.6 | 855.6 | 857.6 | 859.6 | 861.6 | 863.6 | 865.6 | 867.6 | 869.6 | 66.5       |
| 67.0       | 852.0                                                            | 854.0 | 856.0 | 858.0 | 859.9 | 861.9 | 863.9 | 865.9 | 867.9 | 869.9 | 67.0       |
| 67.5       | 852.3                                                            | 854.3 | 856.3 | 858.3 | 860.3 | 862.3 | 864.3 | 866.3 | 868.2 | 870.2 | 67.5       |
| 68.0       | 852.6                                                            | 854.6 | 856.6 | 858.6 | 860.6 | 862.6 | 864.6 | 866.6 | 868.6 | 870.6 | 68.0       |
| 68.5       | 852.9                                                            | 854.9 | 856.9 | 858.9 | 860.9 | 862.9 | 864.9 | 866.9 | 868.9 | 870.9 | 68.5       |
| 69.0       | 853.2                                                            | 855.2 | 857.2 | 859.2 | 861.2 | 863.2 | 865.2 | 867.2 | 869.2 | 871.2 | 69.0       |
| 69.5       | 853.5                                                            | 855.5 | 857.5 | 859.5 | 861.5 | 863.5 | 865.5 | 867.5 | 869.5 | 871.5 | 69.5       |
| 70.0       | 853.8                                                            | 855.8 | 857.8 | 859.8 | 861.8 | 863.8 | 865.8 | 867.8 | 869.8 | 871.8 | 70.0       |
| 70.5       | 854.1                                                            | 856.1 | 858.1 | 860.1 | 862.1 | 864.1 | 866.1 | 868.1 | 870.1 | 872.1 | 70.5       |
| 71.0       | 854.4                                                            | 856.4 | 858.4 | 860.4 | 862.4 | 864.4 | 866.4 | 868.4 | 870.4 | 872.4 | 71.0       |
| 71.5       | 854.8                                                            | 856.8 | 858.8 | 860.7 | 862.7 | 864.7 | 866.7 | 868.7 | 870.7 | 872.7 | 71.5       |
| 72.0       | 855.1                                                            | 857.1 | 859.1 | 861.1 | 863.1 | 865.0 | 867.1 | 869.0 | 871.0 | 873.0 | 72.0       |
| 72.5       | 855.4                                                            | 857.4 | 859.4 | 861.4 | 863.4 | 865.4 | 867.3 | 869.3 | 871.3 | 873.3 | 72.5       |
| 73.0       | 855.7                                                            | 857.7 | 859.7 | 861.7 | 863.7 | 865.7 | 867.7 | 869.7 | 871.7 | 873.7 | 73.0       |
| 73.5       | 856.0                                                            | 858.0 | 860.0 | 862.0 | 864.0 | 866.0 | 868.0 | 870.0 | 872.0 | 874.0 | 73.5       |
| 74.0       | 856.3                                                            | 858.3 | 860.3 | 862.3 | 864.3 | 866.3 | 868.3 | 870.3 | 872.3 | 874.3 | 74.0       |
| 74.5       | 856.6                                                            | 858.6 | 860.6 | 862.6 | 864.6 | 866.6 | 868.6 | 870.6 | 872.6 | 874.6 | 74.5       |
| 75.0       | 856.9                                                            | 858.9 | 860.9 | 862.9 | 864.9 | 866.9 | 868.9 | 870.9 | 872.9 | 874.9 | 75.0       |
| 75.5       | 857.2                                                            | 859.2 | 861.2 | 863.2 | 865.2 | 867.2 | 869.2 | 871.2 | 873.2 | 875.2 | 75.5       |
| 76.0       | 857.6                                                            | 859.6 | 861.5 | 863.5 | 865.5 | 867.5 | 869.5 | 871.5 | 873.5 | 875.5 | 76.0       |
| 76.5       | 857.9                                                            | 859.9 | 861.8 | 863.8 | 865.8 | 867.8 | 869.8 | 871.8 | 873.8 | 875.8 | 76.5       |
| 77.0       | 858.2                                                            | 860.2 | 862.2 | 864.2 | 866.2 | 868.1 | 870.1 | 872.1 | 874.1 | 876.1 | 77.0       |
| 77.5       | 858.5                                                            | 860.5 | 862.5 | 864.5 | 866.5 | 868.5 | 870.5 | 872.5 | 874.4 | 876.4 | 77.5       |
| 78.0       | 858.8                                                            | 860.8 | 862.8 | 864.8 | 866.8 | 868.8 | 870.8 | 872.8 | 874.8 | 876.8 | 78.0       |
| 78.5       | 859.1                                                            | 861.1 | 863.1 | 865.1 | 867.1 | 869.1 | 871.1 | 873.1 | 875.1 | 877.1 | 78.5       |
| 79.0       | 859.4                                                            | 861.4 | 863.4 | 865.4 | 867.4 | 869.4 | 871.4 | 873.4 | 875.4 | 877.4 | 79.0       |
| 79.5       | 859.7                                                            | 861.7 | 863.7 | 865.7 | 867.7 | 869.7 | 871.7 | 873.7 | 875.7 | 877.7 | 79.5       |
| 80.0       | 860.0                                                            | 862.0 | 864.0 | 866.0 | 868.0 | 870.0 | 872.0 | 874.0 | 876.0 | 878.0 | 80.0       |

OBSERVED DENSITY = 820 TO 838

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WHEN USING A DENSITY IN G/ML, G/CC, OR KG/L, MULTIPLY BY 1000 BEFORE ENTERING THE ABOVE TABLE

TABLE 53D, GENERALIZED LUBRICATING OILS  
DENSITY CORRECTION TO 15 C

| TEMP.<br>C | DENSITY AT OBSERVED TEMPERATURE<br>CORRESPONDING DENSITY AT 15 C |       |       |       |       |       |       |       |       |       | TEMP.<br>C |
|------------|------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------------|
|            | 820                                                              | 822   | 824   | 826   | 828   | 830   | 832   | 834   | 836   | 838   |            |
| 80.0       | 860.0                                                            | 862.0 | 864.0 | 866.0 | 868.0 | 870.0 | 872.0 | 874.0 | 876.0 | 878.0 | 80.0       |
| 80.5       | 860.3                                                            | 862.3 | 864.3 | 866.3 | 868.3 | 870.3 | 872.3 | 874.3 | 876.3 | 878.3 | 80.5       |
| 81.0       | 860.6                                                            | 862.6 | 864.7 | 866.6 | 868.6 | 870.6 | 872.6 | 874.6 | 876.6 | 878.6 | 81.0       |
| 81.5       | 861.0                                                            | 863.0 | 865.0 | 866.9 | 869.0 | 870.9 | 872.9 | 874.9 | 876.9 | 878.9 | 81.5       |
| 82.0       | 861.3                                                            | 863.3 | 865.3 | 867.3 | 869.3 | 871.3 | 873.2 | 875.2 | 877.2 | 879.2 | 82.0       |
| 82.5       | 861.6                                                            | 863.6 | 865.6 | 867.6 | 869.6 | 871.6 | 873.6 | 875.6 | 877.6 | 879.5 | 82.5       |
| 83.0       | 861.9                                                            | 863.9 | 865.9 | 867.9 | 869.9 | 871.9 | 873.9 | 875.9 | 877.9 | 879.9 | 83.0       |
| 83.5       | 862.2                                                            | 864.2 | 866.2 | 868.2 | 870.2 | 872.2 | 874.2 | 876.2 | 878.2 | 880.2 | 83.5       |
| 84.0       | 862.5                                                            | 864.5 | 866.5 | 868.5 | 870.5 | 872.5 | 874.5 | 876.5 | 878.5 | 880.5 | 84.0       |
| 84.5       | 862.8                                                            | 864.8 | 866.8 | 868.8 | 870.8 | 872.8 | 874.8 | 876.8 | 878.8 | 880.8 | 84.5       |
| 85.0       | 863.1                                                            | 865.1 | 867.1 | 869.1 | 871.1 | 873.1 | 875.1 | 877.1 | 879.1 | 881.1 | 85.0       |
| 85.5       | 863.5                                                            | 865.5 | 867.4 | 869.4 | 871.4 | 873.4 | 875.4 | 877.4 | 879.4 | 881.4 | 85.5       |
| 86.0       | 863.8                                                            | 865.8 | 867.8 | 869.8 | 871.7 | 873.7 | 875.7 | 877.7 | 879.7 | 881.7 | 86.0       |
| 86.5       | 864.1                                                            | 866.1 | 868.1 | 870.1 | 872.1 | 874.1 | 876.1 | 878.0 | 880.0 | 882.0 | 86.5       |
| 87.0       | 864.4                                                            | 866.4 | 868.4 | 870.4 | 872.4 | 874.4 | 876.4 | 878.4 | 880.4 | 882.4 | 87.0       |
| 87.5       | 864.7                                                            | 866.7 | 868.7 | 870.7 | 872.7 | 874.7 | 876.7 | 878.7 | 880.7 | 882.7 | 87.5       |
| 88.0       | 865.0                                                            | 867.0 | 869.0 | 871.0 | 873.0 | 875.0 | 877.0 | 879.0 | 881.0 | 883.0 | 88.0       |
| 88.5       | 865.3                                                            | 867.3 | 869.3 | 871.3 | 873.3 | 875.3 | 877.3 | 879.3 | 881.3 | 883.3 | 88.5       |
| 89.0       | 865.6                                                            | 867.6 | 869.6 | 871.6 | 873.6 | 875.6 | 877.6 | 879.6 | 881.6 | 883.6 | 89.0       |
| 89.5       | 865.9                                                            | 867.9 | 869.9 | 871.9 | 873.9 | 875.9 | 877.9 | 879.9 | 881.9 | 883.9 | 89.5       |
| 90.0       | 866.3                                                            | 868.3 | 870.3 | 872.2 | 874.2 | 876.2 | 878.2 | 880.2 | 882.2 | 884.2 | 90.0       |
| 90.5       | 866.6                                                            | 868.6 | 870.6 | 872.6 | 874.5 | 876.5 | 878.5 | 880.5 | 882.5 | 884.5 | 90.5       |
| 91.0       | 866.9                                                            | 868.9 | 870.9 | 872.9 | 874.9 | 876.9 | 878.8 | 880.8 | 882.8 | 884.8 | 91.0       |
| 91.5       | 867.2                                                            | 869.2 | 871.2 | 873.2 | 875.2 | 877.2 | 879.2 | 881.2 | 883.2 | 885.2 | 91.5       |
| 92.0       | 867.5                                                            | 869.5 | 871.5 | 873.5 | 875.5 | 877.5 | 879.5 | 881.5 | 883.5 | 885.5 | 92.0       |
| 92.5       | 867.8                                                            | 869.8 | 871.8 | 873.8 | 875.8 | 877.8 | 879.8 | 881.8 | 883.8 | 885.8 | 92.5       |
| 93.0       | 868.1                                                            | 870.1 | 872.1 | 874.1 | 876.1 | 878.1 | 880.1 | 882.1 | 884.1 | 886.1 | 93.0       |
| 93.5       | 868.4                                                            | 870.4 | 872.4 | 874.4 | 876.4 | 878.4 | 880.4 | 882.4 | 884.4 | 886.4 | 93.5       |
| 94.0       | 868.8                                                            | 870.7 | 872.7 | 874.7 | 876.7 | 878.7 | 880.7 | 882.7 | 884.7 | 886.7 | 94.0       |
| 94.5       | 869.1                                                            | 871.1 | 873.1 | 875.0 | 877.0 | 879.0 | 881.0 | 883.0 | 885.0 | 887.0 | 94.5       |
| 95.0       | 869.4                                                            | 871.4 | 873.4 | 875.4 | 877.4 | 879.3 | 881.3 | 883.3 | 885.3 | 887.3 | 95.0       |
| 95.5       | 869.7                                                            | 871.7 | 873.7 | 875.7 | 877.7 | 879.7 | 881.7 | 883.7 | 885.6 | 887.6 | 95.5       |
| 96.0       | 870.0                                                            | 872.0 | 874.0 | 876.0 | 878.0 | 880.0 | 882.0 | 884.0 | 886.0 | 887.9 | 96.0       |
| 96.5       | 870.3                                                            | 872.3 | 874.3 | 876.3 | 878.3 | 880.3 | 882.3 | 884.3 | 886.3 | 888.3 | 96.5       |
| 97.0       | 870.6                                                            | 872.6 | 874.6 | 876.6 | 878.6 | 880.6 | 882.6 | 884.6 | 886.6 | 888.6 | 97.0       |
| 97.5       | 870.9                                                            | 872.9 | 874.9 | 876.9 | 878.9 | 880.9 | 882.9 | 884.9 | 886.9 | 888.9 | 97.5       |
| 98.0       | 871.2                                                            | 873.2 | 875.2 | 877.2 | 879.2 | 881.2 | 883.2 | 885.2 | 887.2 | 889.2 | 98.0       |
| 98.5       | 871.6                                                            | 873.6 | 875.5 | 877.5 | 879.5 | 881.5 | 883.5 | 885.5 | 887.5 | 889.5 | 98.5       |
| 99.0       | 871.9                                                            | 873.9 | 875.9 | 877.9 | 879.8 | 881.8 | 883.8 | 885.8 | 887.8 | 889.8 | 99.0       |
| 99.5       | 872.2                                                            | 874.2 | 876.2 | 878.2 | 880.2 | 882.2 | 884.1 | 886.1 | 888.1 | 890.1 | 99.5       |
| 100.0      | 872.5                                                            | 874.5 | 876.5 | 878.5 | 880.5 | 882.5 | 884.5 | 886.5 | 888.4 | 890.4 | 100.0      |
| 100.5      | 872.8                                                            | 874.8 | 876.8 | 878.8 | 880.8 | 882.8 | 884.8 | 886.8 | 888.8 | 890.8 | 100.5      |
| 101.0      | 873.1                                                            | 875.1 | 877.1 | 879.1 | 881.1 | 883.1 | 885.1 | 887.1 | 889.1 | 891.1 | 101.0      |
| 101.5      | 873.4                                                            | 875.4 | 877.4 | 879.4 | 881.4 | 883.4 | 885.4 | 887.4 | 889.4 | 891.4 | 101.5      |
| 102.0      | 873.7                                                            | 875.7 | 877.7 | 879.7 | 881.7 | 883.7 | 885.7 | 887.7 | 889.7 | 891.7 | 102.0      |
| 102.5      | 874.0                                                            | 876.0 | 878.0 | 880.0 | 882.0 | 884.0 | 886.0 | 888.0 | 890.0 | 892.0 | 102.5      |
| 103.0      | 874.4                                                            | 876.4 | 878.3 | 880.3 | 882.3 | 884.3 | 886.3 | 888.3 | 890.3 | 892.3 | 103.0      |
| 103.5      | 874.7                                                            | 876.7 | 878.7 | 880.7 | 882.7 | 884.6 | 886.6 | 888.6 | 890.6 | 892.6 | 103.5      |
| 104.0      | 875.0                                                            | 877.0 | 879.0 | 881.0 | 883.0 | 885.0 | 887.0 | 888.9 | 890.9 | 892.9 | 104.0      |
| 104.5      | 875.3                                                            | 877.3 | 879.3 | 881.3 | 883.3 | 885.3 | 887.3 | 889.3 | 891.3 | 893.2 | 104.5      |
| 105.0      | 875.6                                                            | 877.6 | 879.6 | 881.6 | 883.6 | 885.6 | 887.6 | 889.6 | 891.6 | 893.6 | 105.0      |

OBSERVED DENSITY = 820 TO 838

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WHEN USING A DENSITY IN G/ML, G/CC, OR KG/L, MULTIPLY BY 1000 BEFORE ENTERING THE ABOVE TABLE

TABLE 53D, GENERALIZED LUBRICATING OILS  
DENSITY CORRECTION TO 15 C

| TEMP.<br>C | DENSITY AT OBSERVED TEMPERATURE<br>CORRESPONDING DENSITY AT 15 C |       |       |       |       |       |       |       |       |       | TEMP.<br>C |
|------------|------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------------|
|            | 820                                                              | 822   | 824   | 826   | 828   | 830   | 832   | 834   | 836   | 838   |            |
| 105.0      | 875.6                                                            | 877.6 | 879.6 | 881.6 | 883.6 | 885.6 | 887.6 | 889.6 | 891.6 | 893.6 | 105.0      |
| 105.5      | 875.9                                                            | 877.9 | 879.9 | 881.9 | 883.9 | 885.9 | 887.9 | 889.9 | 891.9 | 893.9 | 105.5      |
| 106.0      | 876.2                                                            | 878.2 | 880.2 | 882.2 | 884.2 | 886.2 | 888.2 | 890.2 | 892.2 | 894.2 | 106.0      |
| 106.5      | 876.6                                                            | 878.5 | 880.5 | 882.5 | 884.5 | 886.5 | 888.5 | 890.5 | 892.5 | 894.5 | 106.5      |
| 107.0      | 876.9                                                            | 878.9 | 880.9 | 882.8 | 884.8 | 886.8 | 888.8 | 890.8 | 892.8 | 894.8 | 107.0      |
| 107.5      | 877.2                                                            | 879.2 | 881.2 | 883.2 | 885.2 | 887.1 | 889.1 | 891.1 | 893.1 | 895.1 | 107.5      |
| 108.0      | 877.5                                                            | 879.5 | 881.5 | 883.5 | 885.5 | 887.5 | 889.5 | 891.4 | 893.4 | 895.4 | 108.0      |
| 108.5      | 877.8                                                            | 879.8 | 881.8 | 883.8 | 885.8 | 887.8 | 889.8 | 891.8 | 893.8 | 895.7 | 108.5      |
| 109.0      | 878.1                                                            | 880.1 | 882.1 | 884.1 | 886.1 | 888.1 | 890.1 | 892.1 | 894.1 | 896.1 | 109.0      |
| 109.5      | 878.4                                                            | 880.4 | 882.4 | 884.4 | 886.4 | 888.4 | 890.4 | 892.4 | 894.4 | 896.4 | 109.5      |
| 110.0      | 878.7                                                            | 880.7 | 882.7 | 884.7 | 886.7 | 888.7 | 890.7 | 892.7 | 894.7 | 896.7 | 110.0      |
| 110.5      | 879.0                                                            | 881.0 | 883.0 | 885.0 | 887.0 | 889.0 | 891.0 | 893.0 | 895.0 | 897.0 | 110.5      |
| 111.0      | 879.4                                                            | 881.4 | 883.4 | 885.3 | 887.3 | 889.3 | 891.3 | 893.3 | 895.3 | 897.3 | 111.0      |
| 111.5      | 879.7                                                            | 881.7 | 883.7 | 885.7 | 887.7 | 889.6 | 891.6 | 893.6 | 895.6 | 897.6 | 111.5      |
| 112.0      | 880.0                                                            | 882.0 | 884.0 | 886.0 | 888.0 | 890.0 | 892.0 | 893.9 | 895.9 | 897.9 | 112.0      |
| 112.5      | 880.3                                                            | 882.3 | 884.3 | 886.3 | 888.3 | 890.3 | 892.3 | 894.3 | 896.2 | 898.2 | 112.5      |
| 113.0      | 880.6                                                            | 882.6 | 884.6 | 886.6 | 888.6 | 890.6 | 892.6 | 894.6 | 896.6 | 898.6 | 113.0      |
| 113.5      | 880.9                                                            | 882.9 | 884.9 | 886.9 | 888.9 | 890.9 | 892.9 | 894.9 | 896.9 | 898.9 | 113.5      |
| 114.0      | 881.2                                                            | 883.2 | 885.2 | 887.2 | 889.2 | 891.2 | 893.2 | 895.2 | 897.2 | 899.2 | 114.0      |
| 114.5      | 881.6                                                            | 883.6 | 885.5 | 887.5 | 889.5 | 891.5 | 893.5 | 895.5 | 897.5 | 899.5 | 114.5      |
| 115.0      | 881.9                                                            | 883.9 | 885.9 | 887.9 | 889.8 | 891.8 | 893.8 | 895.8 | 897.8 | 899.8 | 115.0      |
| 115.5      | 882.2                                                            | 884.2 | 886.2 | 888.2 | 890.1 | 892.1 | 894.1 | 896.1 | 898.1 | 900.1 | 115.5      |
| 116.0      | 882.5                                                            | 884.5 | 886.5 | 888.5 | 890.5 | 892.5 | 894.5 | 896.4 | 898.4 | 900.4 | 116.0      |
| 116.5      | 882.8                                                            | 884.8 | 886.8 | 888.8 | 890.8 | 892.8 | 894.8 | 896.8 | 898.8 | 900.7 | 116.5      |
| 117.0      | 883.1                                                            | 885.1 | 887.1 | 889.1 | 891.1 | 893.1 | 895.1 | 897.1 | 899.1 | 901.1 | 117.0      |
| 117.5      | 883.4                                                            | 885.4 | 887.4 | 889.4 | 891.4 | 893.4 | 895.4 | 897.4 | 899.4 | 901.4 | 117.5      |
| 118.0      | 883.7                                                            | 885.7 | 887.7 | 889.7 | 891.7 | 893.7 | 895.7 | 897.7 | 899.7 | 901.7 | 118.0      |
| 118.5      | 884.1                                                            | 886.1 | 888.0 | 890.0 | 892.0 | 894.0 | 896.0 | 898.0 | 900.0 | 902.0 | 118.5      |
| 119.0      | 884.4                                                            | 886.4 | 888.4 | 890.4 | 892.3 | 894.3 | 896.3 | 898.3 | 900.3 | 902.3 | 119.0      |
| 119.5      | 884.7                                                            | 886.7 | 888.7 | 890.7 | 892.7 | 894.6 | 896.6 | 898.6 | 900.6 | 902.6 | 119.5      |
| 120.0      | 885.0                                                            | 887.0 | 889.0 | 891.0 | 893.0 | 895.0 | 897.0 | 898.9 | 900.9 | 902.9 | 120.0      |
| 120.5      | 885.3                                                            | 887.3 | 889.3 | 891.3 | 893.3 | 895.3 | 897.3 | 899.3 | 901.3 | 903.2 | 120.5      |
| 121.0      | 885.6                                                            | 887.6 | 889.6 | 891.6 | 893.6 | 895.6 | 897.6 | 899.6 | 901.6 | 903.6 | 121.0      |
| 121.5      | 885.9                                                            | 887.9 | 889.9 | 891.9 | 893.9 | 895.9 | 897.9 | 899.9 | 901.9 | 903.9 | 121.5      |
| 122.0      | 886.3                                                            | 888.2 | 890.2 | 892.2 | 894.2 | 896.2 | 898.2 | 900.2 | 902.2 | 904.2 | 122.0      |
| 122.5      | 886.6                                                            | 888.6 | 890.6 | 892.5 | 894.5 | 896.5 | 898.5 | 900.5 | 902.5 | 904.5 | 122.5      |
| 123.0      | 886.9                                                            | 888.9 | 890.9 | 892.9 | 894.9 | 896.8 | 898.8 | 900.8 | 902.8 | 904.8 | 123.0      |
| 123.5      | 887.2                                                            | 889.2 | 891.2 | 893.2 | 895.2 | 897.2 | 899.1 | 901.1 | 903.1 | 905.1 | 123.5      |
| 124.0      | 887.5                                                            | 889.5 | 891.5 | 893.5 | 895.5 | 897.5 | 899.5 | 901.4 | 903.4 | 905.4 | 124.0      |
| 124.5      | 887.8                                                            | 889.8 | 891.8 | 893.8 | 895.8 | 897.8 | 899.8 | 901.8 | 903.8 | 905.7 | 124.5      |
| 125.0      | 888.1                                                            | 890.1 | 892.1 | 894.1 | 896.1 | 898.1 | 900.1 | 902.1 | 904.1 | 906.1 | 125.0      |
| 125.5      | 888.4                                                            | 890.4 | 892.4 | 894.4 | 896.4 | 898.4 | 900.4 | 902.4 | 904.4 | 906.4 | 125.5      |
| 126.0      | 888.8                                                            | 890.8 | 892.7 | 894.7 | 896.7 | 898.7 | 900.7 | 902.7 | 904.7 | 906.7 | 126.0      |
| 126.5      | 889.1                                                            | 891.1 | 893.1 | 895.1 | 897.0 | 899.0 | 901.0 | 903.0 | 905.0 | 907.0 | 126.5      |
| 127.0      | 889.4                                                            | 891.4 | 893.4 | 895.4 | 897.4 | 899.3 | 901.3 | 903.3 | 905.3 | 907.3 | 127.0      |
| 127.5      | 889.7                                                            | 891.7 | 893.7 | 895.7 | 897.7 | 899.7 | 901.7 | 903.6 | 905.6 | 907.6 | 127.5      |
| 128.0      | 890.0                                                            | 892.0 | 894.0 | 896.0 | 898.0 | 900.0 | 902.0 | 904.0 | 905.9 | 907.9 | 128.0      |
| 128.5      | 890.3                                                            | 892.3 | 894.3 | 896.3 | 898.3 | 900.3 | 902.3 | 904.3 | 906.3 | 908.3 | 128.5      |
| 129.0      | 890.6                                                            | 892.6 | 894.6 | 896.6 | 898.6 | 900.6 | 902.6 | 904.6 | 906.6 | 908.6 | 129.0      |
| 129.5      | 891.0                                                            | 892.9 | 894.9 | 896.9 | 898.9 | 900.9 | 902.9 | 904.9 | 906.9 | 908.9 | 129.5      |
| 130.0      | 891.3                                                            | 893.3 | 895.3 | 897.2 | 899.2 | 901.2 | 903.2 | 905.2 | 907.2 | 909.2 | 130.0      |

OBSERVED DENSITY = 820 TO 838

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WHEN USING A DENSITY IN G/ML, G/CC, OR KG/L, MULTIPLY BY 1000 BEFORE ENTERING THE ABOVE TABLE

TABLE 53D, GENERALIZED LUBRICATING OILS  
DENSITY CORRECTION TO 15 C

| TEMP.<br>C | DENSITY AT OBSERVED TEMPERATURE<br>CORRESPONDING DENSITY AT 15 C |       |       |       |       |       |       |       |       |       | TEMP.<br>C |
|------------|------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------------|
|            | 820                                                              | 822   | 824   | 826   | 828   | 830   | 832   | 834   | 836   | 838   |            |
| 130.0      | 891.3                                                            | 893.3 | 895.3 | 897.2 | 899.2 | 901.2 | 903.2 | 905.2 | 907.2 | 909.2 | 130.0      |
| 130.5      | 891.6                                                            | 893.6 | 895.6 | 897.6 | 899.5 | 901.5 | 903.5 | 905.5 | 907.5 | 909.5 | 130.5      |
| 131.0      | 891.9                                                            | 893.9 | 895.9 | 897.9 | 899.9 | 901.8 | 903.8 | 905.8 | 907.8 | 909.8 | 131.0      |
| 131.5      | 892.2                                                            | 894.2 | 896.2 | 898.2 | 900.2 | 902.2 | 904.2 | 906.1 | 908.1 | 910.1 | 131.5      |
| 132.0      | 892.5                                                            | 894.5 | 896.5 | 898.5 | 900.5 | 902.5 | 904.5 | 906.5 | 908.5 | 910.5 | 132.0      |
| 132.5      | 892.8                                                            | 894.8 | 896.8 | 898.8 | 900.8 | 902.8 | 904.8 | 906.8 | 908.8 | 910.8 | 132.5      |
| 133.0      | 893.2                                                            | 895.1 | 897.1 | 899.1 | 901.1 | 903.1 | 905.1 | 907.1 | 909.1 | 911.1 | 133.0      |
| 133.5      | 893.5                                                            | 895.5 | 897.4 | 899.4 | 901.4 | 903.4 | 905.4 | 907.4 | 909.4 | 911.4 | 133.5      |
| 134.0      | 893.8                                                            | 895.8 | 897.8 | 899.7 | 901.7 | 903.7 | 905.7 | 907.7 | 909.7 | 911.7 | 134.0      |
| 134.5      | 894.1                                                            | 896.1 | 898.1 | 900.1 | 902.1 | 904.0 | 906.0 | 908.0 | 910.0 | 912.0 | 134.5      |
| 135.0      | 894.4                                                            | 896.4 | 898.4 | 900.4 | 902.4 | 904.4 | 906.4 | 908.4 | 910.3 | 912.3 | 135.0      |
| 135.5      | 894.7                                                            | 896.7 | 898.7 | 900.7 | 902.7 | 904.7 | 906.7 | 908.7 | 910.6 | 912.6 | 135.5      |
| 136.0      | 895.0                                                            | 897.0 | 899.0 | 901.0 | 903.0 | 905.0 | 907.0 | 909.0 | 911.0 | 913.0 | 136.0      |
| 136.5      | 895.4                                                            | 897.3 | 899.3 | 901.3 | 903.3 | 905.3 | 907.3 | 909.3 | 911.3 | 913.3 | 136.5      |
| 137.0      | 895.7                                                            | 897.7 | 899.6 | 901.6 | 903.6 | 905.6 | 907.6 | 909.6 | 911.6 | 913.6 | 137.0      |
| 137.5      | 896.0                                                            | 898.0 | 900.0 | 901.9 | 903.9 | 905.9 | 907.9 | 909.9 | 911.9 | 913.9 | 137.5      |
| 138.0      | 896.3                                                            | 898.3 | 900.3 | 902.3 | 904.3 | 906.2 | 908.2 | 910.2 | 912.2 | 914.2 | 138.0      |
| 138.5      | 896.6                                                            | 898.6 | 900.6 | 902.6 | 904.6 | 906.6 | 908.5 | 910.5 | 912.5 | 914.5 | 138.5      |
| 139.0      | 896.9                                                            | 898.9 | 900.9 | 902.9 | 904.9 | 906.9 | 908.9 | 910.8 | 912.8 | 914.8 | 139.0      |
| 139.5      | 897.2                                                            | 899.2 | 901.2 | 903.2 | 905.2 | 907.2 | 909.2 | 911.2 | 913.2 | 915.1 | 139.5      |
| 140.0      | 897.6                                                            | 899.5 | 901.5 | 903.5 | 905.5 | 907.5 | 909.5 | 911.5 | 913.5 | 915.5 | 140.0      |
| 140.5      | 897.8                                                            | 899.9 | 901.8 | 903.8 | 905.8 | 907.8 | 909.8 | 911.8 | 913.8 | 915.8 | 140.5      |
| 141.0      | 898.2                                                            | 900.2 | 902.2 | 904.1 | 906.1 | 908.1 | 910.1 | 912.1 | 914.1 | 916.1 | 141.0      |
| 141.5      | 898.5                                                            | 900.5 | 902.5 | 904.5 | 906.5 | 908.4 | 910.4 | 912.4 | 914.4 | 916.4 | 141.5      |
| 142.0      | 898.8                                                            | 900.8 | 902.8 | 904.8 | 906.8 | 908.7 | 910.7 | 912.7 | 914.7 | 916.7 | 142.0      |
| 142.5      | 899.1                                                            | 901.1 | 903.1 | 905.1 | 907.1 | 909.1 | 911.1 | 913.0 | 915.0 | 917.0 | 142.5      |
| 143.0      | 899.4                                                            | 901.4 | 903.4 | 905.4 | 907.4 | 909.4 | 911.4 | 913.4 | 915.4 | 917.3 | 143.0      |
| 143.5      | 899.8                                                            | 901.7 | 903.7 | 905.7 | 907.7 | 909.7 | 911.7 | 913.7 | 915.7 | 917.7 | 143.5      |
| 144.0      | 900.0                                                            | 902.1 | 904.0 | 906.0 | 908.0 | 910.0 | 912.0 | 914.0 | 916.0 | 918.0 | 144.0      |
| 144.5      | 900.4                                                            | 902.4 | 904.3 | 906.3 | 908.3 | 910.3 | 912.3 | 914.3 | 916.3 | 918.3 | 144.5      |
| 145.0      | 900.7                                                            | 902.7 | 904.7 | 906.6 | 908.6 | 910.6 | 912.6 | 914.6 | 916.6 | 918.6 | 145.0      |
| 145.5      | 901.0                                                            | 903.0 | 905.0 | 907.0 | 909.0 | 911.0 | 912.9 | 914.9 | 916.9 | 918.9 | 145.5      |
| 146.0      | 901.3                                                            | 903.3 | 905.3 | 907.3 | 909.3 | 911.3 | 913.3 | 915.2 | 917.2 | 919.2 | 146.0      |
| 146.5      | 901.6                                                            | 903.6 | 905.6 | 907.6 | 909.6 | 911.6 | 913.6 | 915.6 | 917.5 | 919.5 | 146.5      |
| 147.0      | 901.9                                                            | 903.9 | 905.9 | 907.9 | 909.9 | 911.9 | 913.9 | 915.9 | 917.9 | 919.8 | 147.0      |
| 147.5      | 902.2                                                            | 904.3 | 906.2 | 908.2 | 910.2 | 912.2 | 914.2 | 916.2 | 918.2 | 920.2 | 147.5      |
| 148.0      | 902.6                                                            | 904.5 | 906.5 | 908.5 | 910.5 | 912.5 | 914.5 | 916.5 | 918.5 | 920.5 | 148.0      |
| 148.5      | 902.9                                                            | 904.9 | 906.9 | 908.9 | 910.8 | 912.8 | 914.8 | 916.8 | 918.8 | 920.8 | 148.5      |
| 149.0      | 903.2                                                            | 905.2 | 907.2 | 909.2 | 911.2 | 913.1 | 915.1 | 917.1 | 919.1 | 921.1 | 149.0      |
| 149.5      | 903.5                                                            | 905.5 | 907.5 | 909.5 | 911.5 | 913.5 | 915.5 | 917.4 | 919.4 | 921.4 | 149.5      |
| 150.0      | 903.8                                                            | 905.8 | 907.8 | 909.8 | 911.8 | 913.8 | 915.8 | 917.8 | 919.7 | 921.7 | 150.0      |

OBSERVED DENSITY = 820 TO 838

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WHEN USING A DENSITY IN G/ML, G/CC, OR KG/L, MULTIPLY BY 1000 BEFORE ENTERING THE ABOVE TABLE

TABLE 53D, GENERALIZED LUBRICATING OILS  
DENSITY CORRECTION TO 15 C

| TEMP.<br>C | DENSITY AT OBSERVED TEMPERATURE<br>CORRESPONDING DENSITY AT 15 C |       |       |       |       |       |       |       |       |       | TEMP.<br>C |
|------------|------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------------|
|            | 840                                                              | 842   | 844   | 846   | 848   | 850   | 852   | 854   | 856   | 858   |            |
| -20.0      | 818.9                                                            | 820.9 | 822.9 | 824.9 | 826.9 | 828.9 | 830.9 | 832.9 | 834.9 | 836.9 | -20.0      |
| -19.5      | 819.2                                                            | 821.2 | 823.2 | 825.2 | 827.2 | 829.2 | 831.2 | 833.2 | 835.2 | 837.2 | -19.5      |
| -19.0      | 819.5                                                            | 821.5 | 823.5 | 825.5 | 827.5 | 829.5 | 831.5 | 833.5 | 835.5 | 837.5 | -19.0      |
| -18.5      | 819.8                                                            | 821.8 | 823.8 | 825.8 | 827.8 | 829.8 | 831.8 | 833.8 | 835.8 | 837.8 | -18.5      |
| -18.0      | 820.1                                                            | 822.1 | 824.1 | 826.1 | 828.1 | 830.1 | 832.1 | 834.1 | 836.1 | 838.1 | -18.0      |
| -17.5      | 820.4                                                            | 822.4 | 824.4 | 826.4 | 828.4 | 830.4 | 832.4 | 834.4 | 836.4 | 838.4 | -17.5      |
| -17.0      | 820.7                                                            | 822.7 | 824.7 | 826.7 | 828.7 | 830.7 | 832.7 | 834.7 | 836.7 | 838.7 | -17.0      |
| -16.5      | 821.0                                                            | 823.0 | 825.0 | 827.0 | 829.0 | 831.0 | 833.0 | 835.0 | 837.0 | 839.0 | -16.5      |
| -16.0      | 821.3                                                            | 823.3 | 825.3 | 827.3 | 829.3 | 831.3 | 833.3 | 835.3 | 837.3 | 839.3 | -16.0      |
| -15.5      | 821.6                                                            | 823.6 | 825.6 | 827.6 | 829.6 | 831.6 | 833.6 | 835.6 | 837.6 | 839.6 | -15.5      |
| -15.0      | 821.9                                                            | 823.9 | 825.9 | 827.9 | 829.9 | 831.9 | 833.9 | 835.9 | 837.9 | 839.9 | -15.0      |
| -14.5      | 822.2                                                            | 824.2 | 826.2 | 828.2 | 830.2 | 832.2 | 834.2 | 836.2 | 838.2 | 840.2 | -14.5      |
| -14.0      | 822.5                                                            | 824.5 | 826.5 | 828.5 | 830.5 | 832.5 | 834.5 | 836.5 | 838.5 | 840.5 | -14.0      |
| -13.5      | 822.8                                                            | 824.8 | 826.8 | 828.8 | 830.8 | 832.8 | 834.8 | 836.8 | 838.8 | 840.8 | -13.5      |
| -13.0      | 823.1                                                            | 825.1 | 827.1 | 829.1 | 831.1 | 833.1 | 835.1 | 837.1 | 839.1 | 841.1 | -13.0      |
| -12.5      | 823.4                                                            | 825.4 | 827.4 | 829.4 | 831.4 | 833.4 | 835.4 | 837.4 | 839.4 | 841.4 | -12.5      |
| -12.0      | 823.7                                                            | 825.7 | 827.7 | 829.7 | 831.7 | 833.7 | 835.7 | 837.7 | 839.7 | 841.7 | -12.0      |
| -11.5      | 824.0                                                            | 826.0 | 828.0 | 830.0 | 832.0 | 834.0 | 836.0 | 838.0 | 840.0 | 842.0 | -11.5      |
| -11.0      | 824.3                                                            | 826.3 | 828.3 | 830.3 | 832.3 | 834.3 | 836.3 | 838.3 | 840.3 | 842.3 | -11.0      |
| -10.5      | 824.6                                                            | 826.6 | 828.6 | 830.6 | 832.6 | 834.6 | 836.6 | 838.6 | 840.6 | 842.6 | -10.5      |
| -10.0      | 824.9                                                            | 826.9 | 828.9 | 830.9 | 832.9 | 834.9 | 836.9 | 838.9 | 840.9 | 842.9 | -10.0      |
| -9.5       | 825.2                                                            | 827.2 | 829.2 | 831.2 | 833.2 | 835.2 | 837.2 | 839.2 | 841.2 | 843.2 | -9.5       |
| -9.0       | 825.5                                                            | 827.5 | 829.5 | 831.5 | 833.5 | 835.5 | 837.5 | 839.5 | 841.5 | 843.5 | -9.0       |
| -8.5       | 825.8                                                            | 827.8 | 829.8 | 831.8 | 833.8 | 835.8 | 837.8 | 839.8 | 841.8 | 843.8 | -8.5       |
| -8.0       | 826.1                                                            | 828.1 | 830.1 | 832.1 | 834.1 | 836.1 | 838.1 | 840.1 | 842.1 | 844.1 | -8.0       |
| -7.5       | 826.4                                                            | 828.4 | 830.4 | 832.4 | 834.4 | 836.4 | 838.4 | 840.4 | 842.4 | 844.4 | -7.5       |
| -7.0       | 826.7                                                            | 828.7 | 830.7 | 832.7 | 834.7 | 836.7 | 838.7 | 840.7 | 842.7 | 844.7 | -7.0       |
| -6.5       | 827.0                                                            | 829.0 | 831.0 | 833.0 | 835.0 | 837.0 | 839.0 | 841.0 | 843.0 | 845.0 | -6.5       |
| -6.0       | 827.3                                                            | 829.3 | 831.3 | 833.3 | 835.3 | 837.3 | 839.3 | 841.3 | 843.3 | 845.3 | -6.0       |
| -5.5       | 827.6                                                            | 829.6 | 831.6 | 833.6 | 835.6 | 837.6 | 839.6 | 841.6 | 843.6 | 845.6 | -5.5       |
| -5.0       | 827.9                                                            | 829.9 | 831.9 | 833.9 | 835.9 | 837.9 | 839.9 | 841.9 | 843.9 | 845.9 | -5.0       |
| -4.5       | 828.2                                                            | 830.2 | 832.2 | 834.2 | 836.2 | 838.2 | 840.2 | 842.2 | 844.2 | 846.2 | -4.5       |
| -4.0       | 828.5                                                            | 830.5 | 832.5 | 834.5 | 836.5 | 838.5 | 840.5 | 842.5 | 844.5 | 846.5 | -4.0       |
| -3.5       | 828.8                                                            | 830.8 | 832.8 | 834.8 | 836.8 | 838.8 | 840.8 | 842.8 | 844.8 | 846.8 | -3.5       |
| -3.0       | 829.1                                                            | 831.1 | 833.1 | 835.1 | 837.1 | 839.1 | 841.1 | 843.1 | 845.1 | 847.1 | -3.0       |
| -2.5       | 829.4                                                            | 831.4 | 833.4 | 835.4 | 837.4 | 839.4 | 841.4 | 843.4 | 845.4 | 847.4 | -2.5       |
| -2.0       | 829.7                                                            | 831.7 | 833.7 | 835.7 | 837.7 | 839.7 | 841.7 | 843.7 | 845.7 | 847.7 | -2.0       |
| -1.5       | 830.0                                                            | 832.0 | 834.0 | 836.0 | 838.0 | 840.0 | 842.0 | 844.0 | 846.0 | 848.0 | -1.5       |
| -1.0       | 830.3                                                            | 832.3 | 834.3 | 836.3 | 838.3 | 840.3 | 842.3 | 844.3 | 846.3 | 848.3 | -1.0       |
| -0.5       | 830.6                                                            | 832.6 | 834.6 | 836.6 | 838.6 | 840.6 | 842.6 | 844.6 | 846.6 | 848.6 | -0.5       |
| 0.0        | 830.9                                                            | 832.9 | 834.9 | 836.9 | 838.9 | 840.9 | 842.9 | 844.9 | 846.9 | 848.9 | 0.0        |
| 0.5        | 831.2                                                            | 833.2 | 835.2 | 837.2 | 839.2 | 841.2 | 843.2 | 845.2 | 847.2 | 849.2 | 0.5        |
| 1.0        | 831.5                                                            | 833.5 | 835.5 | 837.5 | 839.5 | 841.5 | 843.5 | 845.5 | 847.5 | 849.5 | 1.0        |
| 1.5        | 831.8                                                            | 833.8 | 835.8 | 837.8 | 839.8 | 841.8 | 843.8 | 845.8 | 847.8 | 849.8 | 1.5        |
| 2.0        | 832.1                                                            | 834.1 | 836.1 | 838.1 | 840.1 | 842.1 | 844.1 | 846.1 | 848.1 | 850.1 | 2.0        |
| 2.5        | 832.4                                                            | 834.4 | 836.4 | 838.4 | 840.4 | 842.4 | 844.4 | 846.4 | 848.4 | 850.4 | 2.5        |
| 3.0        | 832.7                                                            | 834.7 | 836.7 | 838.7 | 840.7 | 842.7 | 844.7 | 846.7 | 848.7 | 850.7 | 3.0        |
| 3.5        | 833.0                                                            | 835.0 | 837.0 | 839.0 | 841.0 | 843.0 | 845.0 | 847.0 | 849.0 | 851.0 | 3.5        |
| 4.0        | 833.3                                                            | 835.3 | 837.3 | 839.3 | 841.3 | 843.3 | 845.3 | 847.3 | 849.3 | 851.3 | 4.0        |
| 4.5        | 833.6                                                            | 835.6 | 837.6 | 839.6 | 841.6 | 843.6 | 845.6 | 847.6 | 849.6 | 851.6 | 4.5        |
| 5.0        | 833.9                                                            | 835.9 | 837.9 | 839.9 | 841.9 | 843.9 | 845.9 | 847.9 | 849.9 | 851.9 | 5.0        |

OBSERVED DENSITY = 840 TO 858

15

WHEN USING A DENSITY IN G/ML, G/CC, OR KG/L, MULTIPLY BY 1000 BEFORE ENTERING THE ABOVE TABLE

TABLE 53D, GENERALIZED LUBRICATING OILS  
DENSITY CORRECTION TO 15 C

| TEMP.<br>C | DENSITY AT OBSERVED TEMPERATURE<br>CORRESPONDING DENSITY AT 15 C |       |       |       |       |       |       |       |       |       | TEMP.<br>C |
|------------|------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------------|
| 5.0        | 833.9                                                            | 835.9 | 837.9 | 839.9 | 841.9 | 843.9 | 845.9 | 847.9 | 849.9 | 851.9 | 5.0        |
| 5.5        | 834.2                                                            | 836.2 | 838.2 | 840.2 | 842.2 | 844.2 | 846.2 | 848.2 | 850.2 | 852.2 | 5.5        |
| 6.0        | 834.5                                                            | 836.5 | 838.5 | 840.5 | 842.5 | 844.5 | 846.5 | 848.5 | 850.5 | 852.5 | 6.0        |
| 6.5        | 834.8                                                            | 836.8 | 838.8 | 840.8 | 842.8 | 844.8 | 846.8 | 848.8 | 850.8 | 852.8 | 6.5        |
| 7.0        | 835.1                                                            | 837.1 | 839.1 | 841.1 | 843.1 | 845.1 | 847.1 | 849.1 | 851.1 | 853.1 | 7.0        |
| 7.5        | 835.4                                                            | 837.4 | 839.4 | 841.4 | 843.4 | 845.5 | 847.4 | 849.4 | 851.4 | 853.4 | 7.5        |
| 8.0        | 835.7                                                            | 837.7 | 839.8 | 841.8 | 843.8 | 845.8 | 847.8 | 849.8 | 851.8 | 853.8 | 8.0        |
| 8.5        | 836.0                                                            | 838.1 | 840.1 | 842.1 | 844.1 | 846.1 | 848.1 | 850.1 | 852.1 | 854.1 | 8.5        |
| 9.0        | 836.4                                                            | 838.4 | 840.4 | 842.4 | 844.4 | 846.4 | 848.4 | 850.4 | 852.4 | 854.4 | 9.0        |
| 9.5        | 836.7                                                            | 838.7 | 840.7 | 842.7 | 844.7 | 846.7 | 848.7 | 850.7 | 852.7 | 854.7 | 9.5        |
| 10.0       | 837.0                                                            | 839.0 | 841.0 | 843.0 | 845.0 | 847.0 | 849.0 | 851.0 | 853.0 | 855.0 | 10.0       |
| 10.5       | 837.3                                                            | 839.3 | 841.3 | 843.3 | 845.3 | 847.3 | 849.3 | 851.3 | 853.3 | 855.3 | 10.5       |
| 11.0       | 837.6                                                            | 839.6 | 841.6 | 843.6 | 845.6 | 847.6 | 849.6 | 851.6 | 853.6 | 855.6 | 11.0       |
| 11.5       | 837.9                                                            | 839.9 | 841.9 | 843.9 | 845.9 | 847.9 | 849.9 | 851.9 | 853.9 | 855.9 | 11.5       |
| 12.0       | 838.2                                                            | 840.2 | 842.2 | 844.2 | 846.2 | 848.2 | 850.2 | 852.2 | 854.2 | 856.2 | 12.0       |
| 12.5       | 838.5                                                            | 840.5 | 842.5 | 844.5 | 846.5 | 848.5 | 850.5 | 852.5 | 854.5 | 856.5 | 12.5       |
| 13.0       | 838.8                                                            | 840.8 | 842.8 | 844.8 | 846.8 | 848.8 | 850.8 | 852.8 | 854.8 | 856.8 | 13.0       |
| 13.5       | 839.1                                                            | 841.1 | 843.1 | 845.1 | 847.1 | 849.1 | 851.1 | 853.1 | 855.1 | 857.1 | 13.5       |
| 14.0       | 839.4                                                            | 841.4 | 843.4 | 845.4 | 847.4 | 849.4 | 851.4 | 853.4 | 855.4 | 857.4 | 14.0       |
| 14.5       | 839.7                                                            | 841.7 | 843.7 | 845.7 | 847.7 | 849.7 | 851.7 | 853.7 | 855.7 | 857.7 | 14.5       |
| 15.0       | 840.0                                                            | 842.0 | 844.0 | 846.0 | 848.0 | 850.0 | 852.0 | 854.0 | 856.0 | 858.0 | 15.0       |
| 15.5       | 840.3                                                            | 842.3 | 844.3 | 846.3 | 848.3 | 850.3 | 852.3 | 854.3 | 856.3 | 858.3 | 15.5       |
| 16.0       | 840.6                                                            | 842.6 | 844.6 | 846.6 | 848.6 | 850.6 | 852.6 | 854.6 | 856.6 | 858.6 | 16.0       |
| 16.5       | 840.9                                                            | 842.9 | 844.9 | 846.9 | 848.9 | 850.9 | 852.9 | 854.9 | 856.9 | 858.9 | 16.5       |
| 17.0       | 841.2                                                            | 843.2 | 845.2 | 847.2 | 849.2 | 851.2 | 853.2 | 855.2 | 857.2 | 859.2 | 17.0       |
| 17.5       | 841.5                                                            | 843.5 | 845.5 | 847.5 | 849.5 | 851.5 | 853.5 | 855.5 | 857.5 | 859.5 | 17.5       |
| 18.0       | 841.8                                                            | 843.8 | 845.8 | 847.8 | 849.8 | 851.8 | 853.8 | 855.8 | 857.8 | 859.8 | 18.0       |
| 18.5       | 842.1                                                            | 844.1 | 846.1 | 848.1 | 850.1 | 852.1 | 854.1 | 856.1 | 858.1 | 860.1 | 18.5       |
| 19.0       | 842.4                                                            | 844.4 | 846.4 | 848.4 | 850.4 | 852.4 | 854.4 | 856.4 | 858.4 | 860.4 | 19.0       |
| 19.5       | 842.7                                                            | 844.7 | 846.7 | 848.7 | 850.7 | 852.7 | 854.7 | 856.7 | 858.7 | 860.7 | 19.5       |
| 20.0       | 843.0                                                            | 845.0 | 847.0 | 849.0 | 851.0 | 853.0 | 855.0 | 857.0 | 859.0 | 861.0 | 20.0       |
| 20.5       | 843.3                                                            | 845.3 | 847.3 | 849.3 | 851.3 | 853.3 | 855.3 | 857.3 | 859.3 | 861.3 | 20.5       |
| 21.0       | 843.7                                                            | 845.7 | 847.7 | 849.7 | 851.7 | 853.7 | 855.7 | 857.7 | 859.7 | 861.7 | 21.0       |
| 21.5       | 844.0                                                            | 846.0 | 848.0 | 850.0 | 852.0 | 854.0 | 856.0 | 858.0 | 860.0 | 862.0 | 21.5       |
| 22.0       | 844.3                                                            | 846.3 | 848.3 | 850.3 | 852.3 | 854.3 | 856.3 | 858.3 | 860.3 | 862.3 | 22.0       |
| 22.5       | 844.6                                                            | 846.6 | 848.6 | 850.6 | 852.6 | 854.6 | 856.6 | 858.6 | 860.6 | 862.6 | 22.5       |
| 23.0       | 844.9                                                            | 846.9 | 848.9 | 850.9 | 852.9 | 854.9 | 856.9 | 858.9 | 860.9 | 862.9 | 23.0       |
| 23.5       | 845.2                                                            | 847.2 | 849.2 | 851.2 | 853.2 | 855.2 | 857.2 | 859.2 | 861.2 | 863.2 | 23.5       |
| 24.0       | 845.5                                                            | 847.5 | 849.5 | 851.5 | 853.5 | 855.5 | 857.5 | 859.5 | 861.5 | 863.5 | 24.0       |
| 24.5       | 845.8                                                            | 847.8 | 849.8 | 851.8 | 853.8 | 855.8 | 857.8 | 859.8 | 861.8 | 863.8 | 24.5       |
| 25.0       | 846.1                                                            | 848.1 | 850.1 | 852.1 | 854.1 | 856.1 | 858.1 | 860.1 | 862.1 | 864.1 | 25.0       |
| 25.5       | 846.4                                                            | 848.4 | 850.4 | 852.4 | 854.4 | 856.4 | 858.4 | 860.4 | 862.4 | 864.4 | 25.5       |
| 26.0       | 846.7                                                            | 848.7 | 850.7 | 852.7 | 854.7 | 856.7 | 858.7 | 860.7 | 862.7 | 864.7 | 26.0       |
| 26.5       | 847.0                                                            | 849.0 | 851.0 | 853.0 | 855.0 | 857.0 | 859.0 | 861.0 | 863.0 | 865.0 | 26.5       |
| 27.0       | 847.3                                                            | 849.3 | 851.3 | 853.3 | 855.3 | 857.3 | 859.3 | 861.3 | 863.3 | 865.3 | 27.0       |
| 27.5       | 847.6                                                            | 849.6 | 851.6 | 853.6 | 855.6 | 857.6 | 859.6 | 861.6 | 863.6 | 865.6 | 27.5       |
| 28.0       | 847.9                                                            | 849.9 | 851.9 | 853.9 | 855.9 | 857.9 | 859.9 | 861.9 | 863.9 | 865.9 | 28.0       |
| 28.5       | 848.2                                                            | 850.2 | 852.2 | 854.2 | 856.2 | 858.2 | 860.2 | 862.2 | 864.2 | 866.2 | 28.5       |
| 29.0       | 848.5                                                            | 850.5 | 852.5 | 854.5 | 856.5 | 858.5 | 860.5 | 862.5 | 864.5 | 866.5 | 29.0       |
| 29.5       | 848.9                                                            | 850.9 | 852.9 | 854.8 | 856.8 | 858.8 | 860.8 | 862.8 | 864.8 | 866.8 | 29.5       |
| 30.0       | 849.2                                                            | 851.2 | 853.2 | 855.1 | 857.1 | 859.1 | 861.1 | 863.1 | 865.1 | 867.1 | 30.0       |

OBSERVED DENSITY = 840 TO 858

16

WHEN USING A DENSITY IN G/ML, G/CC, OR KG/L, MULTIPLY BY 1000 BEFORE ENTERING THE ABOVE TABLE

TABLE 53D, GENERALIZED LUBRICATING OILS  
DENSITY CORRECTION TO 15 C

| TEMP.<br>C                    | DENSITY AT OBSERVED TEMPERATURE |       |       |       |       |       |       |       |       |       | TEMP.<br>C |
|-------------------------------|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------------|
|                               | 840                             | 842   | 844   | 846   | 848   | 850   | 852   | 854   | 856   | 858   |            |
| CORRESPONDING DENSITY AT 15 C |                                 |       |       |       |       |       |       |       |       |       |            |
| 30.0                          | 849.2                           | 851.2 | 853.2 | 855.1 | 857.1 | 859.1 | 861.1 | 863.1 | 865.1 | 867.1 | 30.0       |
| 30.5                          | 849.5                           | 851.5 | 853.5 | 855.5 | 857.5 | 859.5 | 861.5 | 863.5 | 865.5 | 867.5 | 30.5       |
| 31.0                          | 849.8                           | 851.8 | 853.8 | 855.8 | 857.8 | 859.8 | 861.8 | 863.8 | 865.8 | 867.8 | 31.0       |
| 31.5                          | 850.1                           | 852.1 | 854.1 | 856.1 | 858.1 | 860.1 | 862.1 | 864.1 | 866.1 | 868.1 | 31.5       |
| 32.0                          | 850.4                           | 852.4 | 854.4 | 856.4 | 858.4 | 860.4 | 862.4 | 864.4 | 866.4 | 868.4 | 32.0       |
| 32.5                          | 850.7                           | 852.7 | 854.7 | 856.7 | 858.7 | 860.7 | 862.7 | 864.7 | 866.7 | 868.7 | 32.5       |
| 33.0                          | 851.0                           | 853.0 | 855.0 | 857.0 | 859.0 | 861.0 | 863.0 | 865.0 | 867.0 | 869.0 | 33.0       |
| 33.5                          | 851.3                           | 853.3 | 855.3 | 857.3 | 859.3 | 861.3 | 863.3 | 865.3 | 867.3 | 869.3 | 33.5       |
| 34.0                          | 851.6                           | 853.6 | 855.6 | 857.6 | 859.6 | 861.6 | 863.6 | 865.6 | 867.6 | 869.6 | 34.0       |
| 34.5                          | 851.9                           | 853.9 | 855.9 | 857.9 | 859.9 | 861.9 | 863.9 | 865.9 | 867.9 | 869.9 | 34.5       |
| 35.0                          | 852.2                           | 854.2 | 856.2 | 858.2 | 860.2 | 862.2 | 864.2 | 866.2 | 868.2 | 870.2 | 35.0       |
| 35.5                          | 852.5                           | 854.5 | 856.5 | 858.5 | 860.5 | 862.5 | 864.5 | 866.5 | 868.5 | 870.5 | 35.5       |
| 36.0                          | 852.8                           | 854.8 | 856.8 | 858.8 | 860.8 | 862.8 | 864.8 | 866.8 | 868.8 | 870.8 | 36.0       |
| 36.5                          | 853.1                           | 855.1 | 857.1 | 859.1 | 861.1 | 863.1 | 865.1 | 867.1 | 869.1 | 871.1 | 36.5       |
| 37.0                          | 853.4                           | 855.4 | 857.4 | 859.4 | 861.4 | 863.4 | 865.4 | 867.4 | 869.4 | 871.4 | 37.0       |
| 37.5                          | 853.8                           | 855.8 | 857.7 | 859.7 | 861.7 | 863.7 | 865.7 | 867.7 | 869.7 | 871.7 | 37.5       |
| 38.0                          | 854.1                           | 856.1 | 858.1 | 860.1 | 862.1 | 864.0 | 866.0 | 868.0 | 870.0 | 872.0 | 38.0       |
| 38.5                          | 854.4                           | 856.4 | 858.4 | 860.4 | 862.4 | 864.4 | 866.4 | 868.4 | 870.4 | 872.4 | 38.5       |
| 39.0                          | 854.7                           | 856.7 | 858.7 | 860.7 | 862.7 | 864.7 | 866.7 | 868.7 | 870.7 | 872.7 | 39.0       |
| 39.5                          | 855.0                           | 857.0 | 859.0 | 861.0 | 863.0 | 865.0 | 867.0 | 869.0 | 871.0 | 873.0 | 39.5       |
| 40.0                          | 855.3                           | 857.3 | 859.3 | 861.3 | 863.3 | 865.3 | 867.3 | 869.3 | 871.3 | 873.3 | 40.0       |
| 40.5                          | 855.6                           | 857.6 | 859.6 | 861.6 | 863.6 | 865.6 | 867.6 | 869.6 | 871.6 | 873.6 | 40.5       |
| 41.0                          | 855.9                           | 857.9 | 859.9 | 861.9 | 863.9 | 865.9 | 867.9 | 869.9 | 871.9 | 873.9 | 41.0       |
| 41.5                          | 856.2                           | 858.2 | 860.2 | 862.2 | 864.2 | 866.2 | 868.2 | 870.2 | 872.2 | 874.2 | 41.5       |
| 42.0                          | 856.5                           | 858.5 | 860.5 | 862.5 | 864.5 | 866.5 | 868.5 | 870.5 | 872.5 | 874.5 | 42.0       |
| 42.5                          | 856.8                           | 858.8 | 860.8 | 862.8 | 864.8 | 866.8 | 868.8 | 870.8 | 872.8 | 874.8 | 42.5       |
| 43.0                          | 857.1                           | 859.1 | 861.1 | 863.1 | 865.1 | 867.1 | 869.1 | 871.1 | 873.1 | 875.1 | 43.0       |
| 43.5                          | 857.4                           | 859.4 | 861.4 | 863.4 | 865.4 | 867.4 | 869.4 | 871.4 | 873.4 | 875.4 | 43.5       |
| 44.0                          | 857.7                           | 859.7 | 861.7 | 863.7 | 865.7 | 867.7 | 869.7 | 871.7 | 873.7 | 875.7 | 44.0       |
| 44.5                          | 858.1                           | 860.0 | 862.0 | 864.0 | 866.0 | 868.0 | 870.0 | 872.0 | 874.0 | 876.0 | 44.5       |
| 45.0                          | 858.4                           | 860.4 | 862.4 | 864.4 | 866.4 | 868.4 | 870.4 | 872.4 | 874.3 | 876.3 | 45.0       |
| 45.5                          | 858.7                           | 860.7 | 862.7 | 864.7 | 866.7 | 868.7 | 870.7 | 872.7 | 874.6 | 876.6 | 45.5       |
| 46.0                          | 859.0                           | 861.0 | 863.0 | 865.0 | 867.0 | 869.0 | 871.0 | 873.0 | 875.0 | 877.0 | 46.0       |
| 46.5                          | 859.3                           | 861.3 | 863.3 | 865.3 | 867.3 | 869.3 | 871.3 | 873.3 | 875.3 | 877.3 | 46.5       |
| 47.0                          | 859.6                           | 861.6 | 863.6 | 865.6 | 867.6 | 869.6 | 871.6 | 873.6 | 875.6 | 877.6 | 47.0       |
| 47.5                          | 859.9                           | 861.9 | 863.9 | 865.9 | 867.9 | 869.9 | 871.9 | 873.9 | 875.9 | 877.9 | 47.5       |
| 48.0                          | 860.2                           | 862.2 | 864.2 | 866.2 | 868.2 | 870.2 | 872.2 | 874.2 | 876.2 | 878.2 | 48.0       |
| 48.5                          | 860.5                           | 862.5 | 864.5 | 866.5 | 868.5 | 870.5 | 872.5 | 874.5 | 876.5 | 878.5 | 48.5       |
| 49.0                          | 860.8                           | 862.8 | 864.8 | 866.8 | 868.8 | 870.8 | 872.8 | 874.8 | 876.8 | 878.8 | 49.0       |
| 49.5                          | 861.1                           | 863.1 | 865.1 | 867.1 | 869.1 | 871.1 | 873.1 | 875.1 | 877.1 | 879.1 | 49.5       |
| 50.0                          | 861.4                           | 863.4 | 865.4 | 867.4 | 869.4 | 871.4 | 873.4 | 875.4 | 877.4 | 879.4 | 50.0       |
| 50.5                          | 861.7                           | 863.7 | 865.7 | 867.7 | 869.7 | 871.7 | 873.7 | 875.7 | 877.7 | 879.7 | 50.5       |
| 51.0                          | 862.1                           | 864.0 | 866.0 | 868.0 | 870.0 | 872.0 | 874.0 | 876.0 | 878.0 | 880.0 | 51.0       |
| 51.5                          | 862.4                           | 864.4 | 866.4 | 868.4 | 870.4 | 872.3 | 874.3 | 876.3 | 878.3 | 880.3 | 51.5       |
| 52.0                          | 862.7                           | 864.7 | 866.7 | 868.7 | 870.7 | 872.7 | 874.7 | 876.7 | 878.7 | 880.7 | 52.0       |
| 52.5                          | 863.0                           | 865.0 | 867.0 | 869.0 | 871.0 | 873.0 | 875.0 | 877.0 | 879.0 | 881.0 | 52.5       |
| 53.0                          | 863.3                           | 865.3 | 867.3 | 869.3 | 871.3 | 873.3 | 875.3 | 877.3 | 879.3 | 881.3 | 53.0       |
| 53.5                          | 863.6                           | 865.6 | 867.6 | 869.6 | 871.6 | 873.6 | 875.6 | 877.6 | 879.6 | 881.6 | 53.5       |
| 54.0                          | 863.9                           | 865.9 | 867.9 | 869.9 | 871.9 | 873.9 | 875.9 | 877.9 | 879.9 | 881.9 | 54.0       |
| 54.5                          | 864.2                           | 866.2 | 868.2 | 870.2 | 872.2 | 874.2 | 876.2 | 878.2 | 880.2 | 882.2 | 54.5       |
| 55.0                          | 864.5                           | 866.5 | 868.5 | 870.5 | 872.5 | 874.5 | 876.5 | 878.5 | 880.5 | 882.5 | 55.0       |

OBSERVED DENSITY = 840 TO 858

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WHEN USING A DENSITY IN G/ML, G/CC, OR KG/L, MULTIPLY BY 1000 BEFORE ENTERING THE ABOVE TABLE

TABLE 53D, GENERALIZED LUBRICATING OILS  
DENSITY CORRECTION TO 15 C

| TEMP.<br>C | DENSITY AT OBSERVED TEMPERATURE<br>CORRESPONDING DENSITY AT 15 C |       |       |       |       |       |       |       |       |       | TEMP.<br>C |
|------------|------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------------|
|            | 840                                                              | 842   | 844   | 846   | 848   | 850   | 852   | 854   | 856   | 858   |            |
| 55.0       | 864.5                                                            | 866.5 | 868.5 | 870.5 | 872.5 | 874.5 | 876.5 | 878.5 | 880.5 | 882.5 | 55.0       |
| 55.5       | 864.8                                                            | 866.8 | 868.8 | 870.8 | 872.8 | 874.8 | 876.8 | 878.8 | 880.8 | 882.8 | 55.5       |
| 56.0       | 865.1                                                            | 867.1 | 869.1 | 871.1 | 873.1 | 875.1 | 877.1 | 879.1 | 881.1 | 883.1 | 56.0       |
| 56.5       | 865.4                                                            | 867.4 | 869.4 | 871.4 | 873.4 | 875.4 | 877.4 | 879.4 | 881.4 | 883.4 | 56.5       |
| 57.0       | 865.8                                                            | 867.8 | 869.7 | 871.7 | 873.7 | 875.7 | 877.7 | 879.7 | 881.7 | 883.7 | 57.0       |
| 57.5       | 866.1                                                            | 868.1 | 870.1 | 872.0 | 874.1 | 876.1 | 878.0 | 880.0 | 882.0 | 884.0 | 57.5       |
| 58.0       | 866.4                                                            | 868.4 | 870.4 | 872.4 | 874.4 | 876.4 | 878.4 | 880.3 | 882.3 | 884.3 | 58.0       |
| 58.5       | 866.7                                                            | 868.7 | 870.7 | 872.7 | 874.7 | 876.7 | 878.7 | 880.7 | 882.7 | 884.7 | 58.5       |
| 59.0       | 867.0                                                            | 869.0 | 871.0 | 873.0 | 875.0 | 877.0 | 879.0 | 881.0 | 883.0 | 885.0 | 59.0       |
| 59.5       | 867.3                                                            | 869.3 | 871.3 | 873.3 | 875.3 | 877.3 | 879.3 | 881.3 | 883.3 | 885.3 | 59.5       |
| 60.0       | 867.6                                                            | 869.6 | 871.6 | 873.6 | 875.6 | 877.6 | 879.6 | 881.6 | 883.6 | 885.6 | 60.0       |
| 60.5       | 867.9                                                            | 869.9 | 871.9 | 873.9 | 875.9 | 877.9 | 879.9 | 881.9 | 883.9 | 885.9 | 60.5       |
| 61.0       | 868.2                                                            | 870.2 | 872.2 | 874.2 | 876.2 | 878.2 | 880.2 | 882.2 | 884.2 | 886.2 | 61.0       |
| 61.5       | 868.5                                                            | 870.5 | 872.5 | 874.5 | 876.5 | 878.5 | 880.5 | 882.5 | 884.5 | 886.5 | 61.5       |
| 62.0       | 868.8                                                            | 870.8 | 872.8 | 874.8 | 876.8 | 878.8 | 880.8 | 882.8 | 884.8 | 886.8 | 62.0       |
| 62.5       | 869.1                                                            | 871.1 | 873.1 | 875.1 | 877.1 | 879.1 | 881.1 | 883.1 | 885.1 | 887.1 | 62.5       |
| 63.0       | 869.5                                                            | 871.5 | 873.5 | 875.5 | 877.5 | 879.5 | 881.5 | 883.5 | 885.5 | 887.5 | 63.0       |
| 63.5       | 869.8                                                            | 871.8 | 873.8 | 875.8 | 877.8 | 879.8 | 881.8 | 883.8 | 885.8 | 887.8 | 63.5       |
| 64.0       | 870.1                                                            | 872.1 | 874.1 | 876.1 | 878.1 | 880.1 | 882.1 | 884.1 | 886.1 | 888.1 | 64.0       |
| 64.5       | 870.4                                                            | 872.4 | 874.4 | 876.4 | 878.4 | 880.4 | 882.4 | 884.4 | 886.4 | 888.4 | 64.5       |
| 65.0       | 870.7                                                            | 872.7 | 874.7 | 876.7 | 878.7 | 880.7 | 882.7 | 884.7 | 886.7 | 888.7 | 65.0       |
| 65.5       | 871.0                                                            | 873.0 | 875.0 | 877.0 | 879.0 | 881.0 | 883.0 | 885.0 | 887.0 | 889.0 | 65.5       |
| 66.0       | 871.3                                                            | 873.3 | 875.3 | 877.3 | 879.3 | 881.3 | 883.3 | 885.3 | 887.3 | 889.3 | 66.0       |
| 66.5       | 871.6                                                            | 873.6 | 875.6 | 877.6 | 879.6 | 881.6 | 883.6 | 885.6 | 887.6 | 889.6 | 66.5       |
| 67.0       | 871.9                                                            | 873.9 | 875.9 | 877.9 | 879.9 | 881.9 | 883.9 | 885.9 | 887.9 | 889.9 | 67.0       |
| 67.5       | 872.2                                                            | 874.2 | 876.2 | 878.2 | 880.2 | 882.2 | 884.2 | 886.2 | 888.2 | 890.2 | 67.5       |
| 68.0       | 872.6                                                            | 874.6 | 876.6 | 878.6 | 880.6 | 882.6 | 884.6 | 886.6 | 888.6 | 890.6 | 68.0       |
| 68.5       | 872.9                                                            | 874.9 | 876.9 | 878.9 | 880.9 | 882.9 | 884.9 | 886.9 | 888.9 | 890.9 | 68.5       |
| 69.0       | 873.2                                                            | 875.2 | 877.2 | 879.2 | 881.2 | 883.2 | 885.2 | 887.2 | 889.2 | 891.2 | 69.0       |
| 69.5       | 873.5                                                            | 875.5 | 877.5 | 879.5 | 881.5 | 883.5 | 885.5 | 887.5 | 889.5 | 891.5 | 69.5       |
| 70.0       | 873.8                                                            | 875.8 | 877.8 | 879.8 | 881.8 | 883.8 | 885.8 | 887.8 | 889.8 | 891.8 | 70.0       |
| 70.5       | 874.1                                                            | 876.1 | 878.1 | 880.1 | 882.1 | 884.1 | 886.1 | 888.1 | 890.1 | 892.1 | 70.5       |
| 71.0       | 874.4                                                            | 876.4 | 878.4 | 880.4 | 882.4 | 884.4 | 886.4 | 888.4 | 890.4 | 892.4 | 71.0       |
| 71.5       | 874.7                                                            | 876.7 | 878.7 | 880.7 | 882.7 | 884.7 | 886.7 | 888.7 | 890.7 | 892.7 | 71.5       |
| 72.0       | 875.0                                                            | 877.0 | 879.0 | 881.0 | 883.0 | 885.0 | 887.0 | 889.0 | 891.0 | 893.0 | 72.0       |
| 72.5       | 875.3                                                            | 877.3 | 879.3 | 881.3 | 883.3 | 885.3 | 887.3 | 889.3 | 891.3 | 893.3 | 72.5       |
| 73.0       | 875.6                                                            | 877.6 | 879.6 | 881.6 | 883.6 | 885.6 | 887.6 | 889.6 | 891.6 | 893.6 | 73.0       |
| 73.5       | 876.0                                                            | 878.0 | 880.0 | 881.9 | 883.9 | 885.9 | 887.9 | 889.9 | 891.9 | 893.9 | 73.5       |
| 74.0       | 876.3                                                            | 878.3 | 880.3 | 882.3 | 884.3 | 886.3 | 888.3 | 890.3 | 892.3 | 894.3 | 74.0       |
| 74.5       | 876.6                                                            | 878.6 | 880.6 | 882.6 | 884.6 | 886.6 | 888.6 | 890.6 | 892.6 | 894.6 | 74.5       |
| 75.0       | 876.9                                                            | 878.9 | 880.9 | 882.9 | 884.9 | 886.9 | 888.9 | 890.9 | 892.9 | 894.9 | 75.0       |
| 75.5       | 877.2                                                            | 879.2 | 881.2 | 883.2 | 885.2 | 887.2 | 889.2 | 891.2 | 893.2 | 895.2 | 75.5       |
| 76.0       | 877.5                                                            | 879.5 | 881.5 | 883.5 | 885.5 | 887.5 | 889.5 | 891.5 | 893.5 | 895.5 | 76.0       |
| 76.5       | 877.8                                                            | 879.8 | 881.8 | 883.8 | 885.8 | 887.8 | 889.8 | 891.8 | 893.8 | 895.8 | 76.5       |
| 77.0       | 878.1                                                            | 880.1 | 882.1 | 884.1 | 886.1 | 888.1 | 890.1 | 892.1 | 894.1 | 896.1 | 77.0       |
| 77.5       | 878.4                                                            | 880.4 | 882.4 | 884.4 | 886.4 | 888.4 | 890.4 | 892.4 | 894.4 | 896.4 | 77.5       |
| 78.0       | 878.8                                                            | 880.8 | 882.8 | 884.8 | 886.8 | 888.8 | 890.8 | 892.8 | 894.8 | 896.8 | 78.0       |
| 78.5       | 879.1                                                            | 881.1 | 883.1 | 885.1 | 887.1 | 889.1 | 891.1 | 893.1 | 895.1 | 897.1 | 78.5       |
| 79.0       | 879.4                                                            | 881.4 | 883.4 | 885.4 | 887.4 | 889.4 | 891.4 | 893.4 | 895.4 | 897.4 | 79.0       |
| 79.5       | 879.7                                                            | 881.7 | 883.7 | 885.7 | 887.7 | 889.7 | 891.7 | 893.7 | 895.7 | 897.7 | 79.5       |
| 80.0       | 880.0                                                            | 882.0 | 884.0 | 886.0 | 888.0 | 890.0 | 892.0 | 894.0 | 896.0 | 898.0 | 80.0       |

OBSERVED DENSITY = 840 TO 858

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WHEN USING A DENSITY IN G/ML, G/CC, OR KG/L, MULTIPLY BY 1000 BEFORE ENTERING THE ABOVE TABLE

TABLE 53D, GENERALIZED LUBRICATING OILS  
DENSITY CORRECTION TO 15 C

| TEMP.<br>C | 840   | 842   | 844   | DENSITY AT OBSERVED TEMPERATURE<br>CORRESPONDING DENSITY AT 15 C |       |       |       |       |       |       | TEMP.<br>C |
|------------|-------|-------|-------|------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|------------|
|            |       |       |       | 846                                                              | 848   | 850   | 852   | 854   | 856   | 858   |            |
| 80.0       | 880.0 | 882.0 | 884.0 | 886.0                                                            | 888.0 | 890.0 | 892.0 | 894.0 | 896.0 | 897.9 | 80.0       |
| 80.5       | 880.3 | 882.3 | 884.3 | 886.3                                                            | 888.3 | 890.3 | 892.3 | 894.3 | 896.3 | 898.3 | 80.5       |
| 81.0       | 880.6 | 882.6 | 884.6 | 886.6                                                            | 888.6 | 890.6 | 892.6 | 894.6 | 896.6 | 898.6 | 81.0       |
| 81.5       | 880.9 | 882.9 | 884.9 | 886.9                                                            | 888.9 | 890.9 | 892.9 | 894.9 | 896.9 | 898.9 | 81.5       |
| 82.0       | 881.2 | 883.2 | 885.2 | 887.2                                                            | 889.2 | 891.2 | 893.2 | 895.2 | 897.2 | 899.2 | 82.0       |
| 82.5       | 881.5 | 883.5 | 885.5 | 887.5                                                            | 889.5 | 891.5 | 893.5 | 895.5 | 897.5 | 899.5 | 82.5       |
| 83.0       | 881.9 | 883.9 | 885.8 | 887.8                                                            | 889.8 | 891.8 | 893.8 | 895.8 | 897.8 | 899.8 | 83.0       |
| 83.5       | 882.2 | 884.2 | 886.2 | 888.2                                                            | 890.1 | 892.1 | 894.1 | 896.1 | 898.1 | 900.1 | 83.5       |
| 84.0       | 882.5 | 884.5 | 886.5 | 888.5                                                            | 890.5 | 892.5 | 894.5 | 896.4 | 898.4 | 900.4 | 84.0       |
| 84.5       | 882.8 | 884.8 | 886.8 | 888.8                                                            | 890.8 | 892.8 | 894.8 | 896.8 | 898.8 | 900.8 | 84.5       |
| 85.0       | 883.1 | 885.1 | 887.1 | 889.1                                                            | 891.1 | 893.1 | 895.1 | 897.1 | 899.1 | 901.0 | 85.0       |
| 85.5       | 883.4 | 885.4 | 887.4 | 889.4                                                            | 891.4 | 893.4 | 895.4 | 897.4 | 899.4 | 901.4 | 85.5       |
| 86.0       | 883.7 | 885.7 | 887.7 | 889.7                                                            | 891.7 | 893.7 | 895.7 | 897.7 | 899.7 | 901.7 | 86.0       |
| 86.5       | 884.0 | 886.0 | 888.0 | 890.0                                                            | 892.0 | 894.0 | 896.0 | 898.0 | 900.0 | 902.0 | 86.5       |
| 87.0       | 884.3 | 886.3 | 888.3 | 890.3                                                            | 892.3 | 894.3 | 896.3 | 898.3 | 900.3 | 902.3 | 87.0       |
| 87.5       | 884.7 | 886.7 | 888.6 | 890.6                                                            | 892.6 | 894.6 | 896.6 | 898.6 | 900.6 | 902.6 | 87.5       |
| 88.0       | 885.0 | 887.0 | 888.9 | 890.9                                                            | 893.0 | 894.9 | 896.9 | 898.9 | 900.9 | 902.9 | 88.0       |
| 88.5       | 885.3 | 887.3 | 889.3 | 891.3                                                            | 893.2 | 895.2 | 897.2 | 899.2 | 901.2 | 903.2 | 88.5       |
| 89.0       | 885.6 | 887.6 | 889.6 | 891.6                                                            | 893.6 | 895.6 | 897.6 | 899.5 | 901.5 | 903.5 | 89.0       |
| 89.5       | 885.9 | 887.9 | 889.9 | 891.9                                                            | 893.9 | 895.9 | 897.9 | 899.9 | 901.9 | 903.8 | 89.5       |
| 90.0       | 886.2 | 888.2 | 890.2 | 892.2                                                            | 894.2 | 896.2 | 898.2 | 900.2 | 902.2 | 904.2 | 90.0       |
| 90.5       | 886.5 | 888.5 | 890.5 | 892.5                                                            | 894.5 | 896.5 | 898.5 | 900.5 | 902.5 | 904.5 | 90.5       |
| 91.0       | 886.8 | 888.8 | 890.8 | 892.8                                                            | 894.8 | 896.8 | 898.8 | 900.8 | 902.8 | 904.8 | 91.0       |
| 91.5       | 887.1 | 889.1 | 891.1 | 893.1                                                            | 895.1 | 897.1 | 899.1 | 901.1 | 903.1 | 905.1 | 91.5       |
| 92.0       | 887.4 | 889.4 | 891.4 | 893.4                                                            | 895.4 | 897.4 | 899.4 | 901.4 | 903.4 | 905.4 | 92.0       |
| 92.5       | 887.8 | 889.8 | 891.7 | 893.7                                                            | 895.7 | 897.7 | 899.7 | 901.7 | 903.7 | 905.7 | 92.5       |
| 93.0       | 888.1 | 890.1 | 892.1 | 894.1                                                            | 896.1 | 898.1 | 900.0 | 902.0 | 904.0 | 906.0 | 93.0       |
| 93.5       | 888.4 | 890.4 | 892.4 | 894.4                                                            | 896.4 | 898.4 | 900.4 | 902.3 | 904.3 | 906.3 | 93.5       |
| 94.0       | 888.7 | 890.7 | 892.7 | 894.7                                                            | 896.7 | 898.7 | 900.7 | 902.7 | 904.7 | 906.6 | 94.0       |
| 94.5       | 889.0 | 891.0 | 893.0 | 895.0                                                            | 897.0 | 899.0 | 901.0 | 903.0 | 905.0 | 907.0 | 94.5       |
| 95.0       | 889.3 | 891.3 | 893.3 | 895.3                                                            | 897.3 | 899.3 | 901.3 | 903.3 | 905.3 | 907.3 | 95.0       |
| 95.5       | 889.6 | 891.6 | 893.6 | 895.6                                                            | 897.6 | 899.6 | 901.6 | 903.6 | 905.6 | 907.6 | 95.5       |
| 96.0       | 889.9 | 891.9 | 893.9 | 895.9                                                            | 897.9 | 899.9 | 901.9 | 903.9 | 905.9 | 907.9 | 96.0       |
| 96.5       | 890.3 | 892.2 | 894.2 | 896.2                                                            | 898.2 | 900.2 | 902.2 | 904.2 | 906.2 | 908.2 | 96.5       |
| 97.0       | 890.6 | 892.6 | 894.6 | 896.5                                                            | 898.5 | 900.5 | 902.5 | 904.5 | 906.5 | 908.5 | 97.0       |
| 97.5       | 890.9 | 892.9 | 894.9 | 896.9                                                            | 898.9 | 900.8 | 902.8 | 904.8 | 906.8 | 908.8 | 97.5       |
| 98.0       | 891.2 | 893.2 | 895.2 | 897.2                                                            | 899.2 | 901.2 | 903.2 | 905.1 | 907.1 | 909.1 | 98.0       |
| 98.5       | 891.5 | 893.5 | 895.5 | 897.5                                                            | 899.5 | 901.5 | 903.5 | 905.5 | 907.5 | 909.4 | 98.5       |
| 99.0       | 891.8 | 893.8 | 895.8 | 897.8                                                            | 899.8 | 901.8 | 903.8 | 905.8 | 907.8 | 909.8 | 99.0       |
| 99.5       | 892.1 | 894.1 | 896.1 | 898.1                                                            | 900.1 | 902.1 | 904.1 | 906.1 | 908.1 | 910.1 | 99.5       |
| 100.0      | 892.4 | 894.4 | 896.4 | 898.4                                                            | 900.4 | 902.4 | 904.4 | 906.4 | 908.4 | 910.4 | 100.0      |
| 100.5      | 892.8 | 894.7 | 896.7 | 898.7                                                            | 900.7 | 902.7 | 904.7 | 906.7 | 908.7 | 910.7 | 100.5      |
| 101.0      | 893.1 | 895.1 | 897.0 | 899.0                                                            | 901.0 | 903.0 | 905.0 | 907.0 | 909.0 | 911.0 | 101.0      |
| 101.5      | 893.4 | 895.4 | 897.4 | 899.3                                                            | 901.4 | 903.3 | 905.3 | 907.3 | 909.3 | 911.3 | 101.5      |
| 102.0      | 893.7 | 895.7 | 897.7 | 899.7                                                            | 901.7 | 903.7 | 905.7 | 907.6 | 909.6 | 911.6 | 102.0      |
| 102.5      | 894.0 | 896.0 | 898.0 | 900.0                                                            | 902.0 | 904.0 | 906.0 | 907.9 | 909.9 | 911.9 | 102.5      |
| 103.0      | 894.3 | 896.3 | 898.3 | 900.3                                                            | 902.3 | 904.3 | 906.3 | 908.3 | 910.3 | 912.3 | 103.0      |
| 103.5      | 894.6 | 896.6 | 898.6 | 900.6                                                            | 902.6 | 904.6 | 906.6 | 908.6 | 910.6 | 912.6 | 103.5      |
| 104.0      | 894.9 | 896.9 | 898.9 | 900.9                                                            | 902.9 | 904.9 | 906.9 | 908.9 | 910.9 | 912.9 | 104.0      |
| 104.5      | 895.2 | 897.2 | 899.2 | 901.2                                                            | 903.2 | 905.2 | 907.2 | 909.2 | 911.2 | 913.2 | 104.5      |
| 105.0      | 895.6 | 897.5 | 899.5 | 901.5                                                            | 903.5 | 905.5 | 907.5 | 909.5 | 911.5 | 913.5 | 105.0      |

OBSERVED DENSITY = 840 TO 858

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WHEN USING A DENSITY IN G/ML, G/CC, OR KG/L, MULTIPLY BY 1000 BEFORE ENTERING THE ABOVE TABLE

TABLE 53D, GENERALIZED LUBRICATING OILS  
DENSITY CORRECTION TO 15 C

| TEMP.<br>C | DENSITY AT OBSERVED TEMPERATURE<br>CORRESPONDING DENSITY AT 15 C |       |       |       |       |       |       |       |       |       | TEMP.<br>C |
|------------|------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------------|
|            | 840                                                              | 842   | 844   | 846   | 848   | 850   | 852   | 854   | 856   | 858   |            |
| 105.0      | 895.6                                                            | 897.5 | 899.5 | 901.5 | 903.5 | 905.5 | 907.5 | 909.5 | 911.5 | 913.5 | 105.0      |
| 105.5      | 895.9                                                            | 897.9 | 899.9 | 901.8 | 903.8 | 905.8 | 907.8 | 909.8 | 911.8 | 913.8 | 105.5      |
| 106.0      | 896.2                                                            | 898.2 | 900.2 | 902.2 | 904.1 | 906.1 | 908.1 | 910.1 | 912.1 | 914.1 | 106.0      |
| 106.5      | 896.5                                                            | 898.5 | 900.5 | 902.5 | 904.5 | 906.5 | 908.5 | 910.4 | 912.4 | 914.4 | 106.5      |
| 107.0      | 896.8                                                            | 898.8 | 900.8 | 902.8 | 904.8 | 906.8 | 908.8 | 910.8 | 912.7 | 914.7 | 107.0      |
| 107.5      | 897.1                                                            | 899.1 | 901.1 | 903.1 | 905.1 | 907.1 | 909.1 | 911.1 | 913.1 | 915.1 | 107.5      |
| 108.0      | 897.4                                                            | 899.4 | 901.4 | 903.4 | 905.4 | 907.4 | 909.4 | 911.4 | 913.4 | 915.4 | 108.0      |
| 108.5      | 897.7                                                            | 899.7 | 901.7 | 903.7 | 905.7 | 907.7 | 909.7 | 911.7 | 913.7 | 915.7 | 108.5      |
| 109.0      | 898.0                                                            | 900.0 | 902.0 | 904.0 | 906.0 | 908.0 | 910.0 | 912.0 | 914.0 | 916.0 | 109.0      |
| 109.5      | 898.4                                                            | 900.4 | 902.3 | 904.3 | 906.3 | 908.3 | 910.3 | 912.3 | 914.3 | 916.3 | 109.5      |
| 110.0      | 898.7                                                            | 900.7 | 902.7 | 904.7 | 906.6 | 908.6 | 910.6 | 912.6 | 914.6 | 916.6 | 110.0      |
| 110.5      | 899.0                                                            | 901.0 | 903.0 | 905.0 | 907.0 | 909.0 | 910.9 | 912.9 | 914.9 | 916.9 | 110.5      |
| 111.0      | 899.3                                                            | 901.3 | 903.3 | 905.3 | 907.3 | 909.3 | 911.3 | 913.3 | 915.2 | 917.2 | 111.0      |
| 111.5      | 899.6                                                            | 901.6 | 903.6 | 905.6 | 907.6 | 909.6 | 911.6 | 913.6 | 915.6 | 917.6 | 111.5      |
| 112.0      | 899.9                                                            | 901.9 | 903.9 | 905.9 | 907.9 | 909.9 | 911.9 | 913.9 | 915.9 | 917.9 | 112.0      |
| 112.5      | 900.2                                                            | 902.2 | 904.2 | 906.2 | 908.2 | 910.2 | 912.2 | 914.2 | 916.2 | 918.2 | 112.5      |
| 113.0      | 900.6                                                            | 902.5 | 904.5 | 906.5 | 908.5 | 910.5 | 912.5 | 914.5 | 916.5 | 918.5 | 113.0      |
| 113.5      | 900.9                                                            | 902.9 | 904.8 | 906.8 | 908.8 | 910.8 | 912.8 | 914.8 | 916.8 | 918.8 | 113.5      |
| 114.0      | 901.2                                                            | 903.2 | 905.2 | 907.2 | 909.1 | 911.1 | 913.1 | 915.1 | 917.1 | 919.1 | 114.0      |
| 114.5      | 901.5                                                            | 903.5 | 905.5 | 907.5 | 909.5 | 911.5 | 913.4 | 915.4 | 917.4 | 919.4 | 114.5      |
| 115.0      | 901.8                                                            | 903.8 | 905.8 | 907.8 | 909.8 | 911.8 | 913.8 | 915.7 | 917.7 | 919.7 | 115.0      |
| 115.5      | 902.1                                                            | 904.1 | 906.1 | 908.1 | 910.1 | 912.1 | 914.1 | 916.1 | 918.1 | 920.0 | 115.5      |
| 116.0      | 902.4                                                            | 904.4 | 906.4 | 908.4 | 910.4 | 912.4 | 914.4 | 916.4 | 918.4 | 920.4 | 116.0      |
| 116.5      | 902.7                                                            | 904.7 | 906.7 | 908.7 | 910.7 | 912.7 | 914.7 | 916.7 | 918.7 | 920.7 | 116.5      |
| 117.0      | 903.0                                                            | 905.0 | 907.0 | 909.0 | 911.0 | 913.0 | 915.0 | 917.0 | 919.0 | 921.0 | 117.0      |
| 117.5      | 903.4                                                            | 905.4 | 907.3 | 909.3 | 911.3 | 913.3 | 915.3 | 917.3 | 919.3 | 921.3 | 117.5      |
| 118.0      | 903.7                                                            | 905.7 | 907.7 | 909.7 | 911.6 | 913.6 | 915.6 | 917.6 | 919.6 | 921.6 | 118.0      |
| 118.5      | 904.0                                                            | 906.0 | 908.0 | 910.0 | 912.0 | 913.9 | 915.9 | 917.9 | 919.9 | 921.9 | 118.5      |
| 119.0      | 904.3                                                            | 906.3 | 908.3 | 910.3 | 912.3 | 914.3 | 916.3 | 918.2 | 920.2 | 922.2 | 119.0      |
| 119.5      | 904.6                                                            | 906.6 | 908.6 | 910.6 | 912.6 | 914.6 | 916.6 | 918.6 | 920.6 | 922.5 | 119.5      |
| 120.0      | 904.9                                                            | 906.9 | 908.9 | 910.9 | 912.9 | 914.9 | 916.9 | 918.9 | 920.9 | 922.9 | 120.0      |
| 120.5      | 905.2                                                            | 907.2 | 909.2 | 911.2 | 913.2 | 915.2 | 917.2 | 919.2 | 921.2 | 923.2 | 120.5      |
| 121.0      | 905.5                                                            | 907.5 | 909.5 | 911.5 | 913.5 | 915.5 | 917.5 | 919.5 | 921.5 | 923.5 | 121.0      |
| 121.5      | 905.9                                                            | 907.9 | 909.8 | 911.8 | 913.8 | 915.8 | 917.8 | 919.8 | 921.8 | 923.8 | 121.5      |
| 122.0      | 906.2                                                            | 908.2 | 910.2 | 912.1 | 914.1 | 916.1 | 918.1 | 920.1 | 922.1 | 924.1 | 122.0      |
| 122.5      | 906.5                                                            | 908.5 | 910.5 | 912.5 | 914.5 | 916.4 | 918.4 | 920.4 | 922.4 | 924.4 | 122.5      |
| 123.0      | 906.8                                                            | 908.8 | 910.8 | 912.8 | 914.8 | 916.8 | 918.7 | 920.7 | 922.7 | 924.7 | 123.0      |
| 123.5      | 907.1                                                            | 909.1 | 911.1 | 913.1 | 915.1 | 917.1 | 919.1 | 921.1 | 923.0 | 925.0 | 123.5      |
| 124.0      | 907.4                                                            | 909.4 | 911.4 | 913.4 | 915.4 | 917.4 | 919.4 | 921.4 | 923.4 | 925.4 | 124.0      |
| 124.5      | 907.7                                                            | 909.7 | 911.7 | 913.7 | 915.7 | 917.7 | 919.7 | 921.7 | 923.7 | 925.7 | 124.5      |
| 125.0      | 908.1                                                            | 910.1 | 912.0 | 914.0 | 916.0 | 918.0 | 920.0 | 922.0 | 924.0 | 926.0 | 125.0      |
| 125.5      | 908.4                                                            | 910.4 | 912.4 | 914.3 | 916.3 | 918.3 | 920.3 | 922.3 | 924.3 | 926.3 | 125.5      |
| 126.0      | 908.7                                                            | 910.7 | 912.7 | 914.7 | 916.7 | 918.6 | 920.6 | 922.6 | 924.6 | 926.6 | 126.0      |
| 126.5      | 909.0                                                            | 911.0 | 913.0 | 915.0 | 917.0 | 919.0 | 920.9 | 922.9 | 924.9 | 926.9 | 126.5      |
| 127.0      | 909.3                                                            | 911.3 | 913.3 | 915.3 | 917.3 | 919.3 | 921.3 | 923.3 | 925.2 | 927.2 | 127.0      |
| 127.5      | 909.6                                                            | 911.6 | 913.6 | 915.6 | 917.6 | 919.6 | 921.6 | 923.6 | 925.6 | 927.5 | 127.5      |
| 128.0      | 909.9                                                            | 911.9 | 913.9 | 915.9 | 917.9 | 919.9 | 921.9 | 923.9 | 925.9 | 927.9 | 128.0      |
| 128.5      | 910.2                                                            | 912.2 | 914.2 | 916.2 | 918.2 | 920.2 | 922.2 | 924.2 | 926.2 | 928.2 | 128.5      |
| 129.0      | 910.6                                                            | 912.6 | 914.5 | 916.5 | 918.5 | 920.5 | 922.5 | 924.5 | 926.5 | 928.5 | 129.0      |
| 129.5      | 910.9                                                            | 912.9 | 914.9 | 916.8 | 918.8 | 920.8 | 922.8 | 924.8 | 926.8 | 928.8 | 129.5      |
| 130.0      | 911.2                                                            | 913.2 | 915.2 | 917.2 | 919.1 | 921.1 | 923.1 | 925.1 | 927.1 | 929.1 | 130.0      |

OBSERVED DENSITY = 840 TO 858

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WHEN USING A DENSITY IN G/ML, G/CC, OR KG/L, MULTIPLY BY 1000 BEFORE ENTERING THE ABOVE TABLE

TABLE 53D, GENERALIZED LUBRICATING OILS  
DENSITY CORRECTION TO 15 C

| TEMP.<br>C                    | DENSITY AT OBSERVED TEMPERATURE |       |       |       |       |       |       |       |       |       | TEMP.<br>C |
|-------------------------------|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------------|
|                               | 840                             | 842   | 844   | 846   | 848   | 850   | 852   | 854   | 856   | 858   |            |
| CORRESPONDING DENSITY AT 15 C |                                 |       |       |       |       |       |       |       |       |       |            |
| 130.0                         | 911.2                           | 913.2 | 915.2 | 917.2 | 919.1 | 921.1 | 923.1 | 925.1 | 927.1 | 929.1 | 130.0      |
| 130.5                         | 911.5                           | 913.5 | 915.5 | 917.5 | 919.5 | 921.5 | 923.4 | 925.4 | 927.4 | 929.4 | 130.5      |
| 131.0                         | 911.8                           | 913.8 | 915.8 | 917.8 | 919.8 | 921.8 | 923.8 | 925.8 | 927.7 | 929.7 | 131.0      |
| 131.5                         | 912.1                           | 914.1 | 916.1 | 918.1 | 920.1 | 922.1 | 924.1 | 926.1 | 928.1 | 930.0 | 131.5      |
| 132.0                         | 912.4                           | 914.4 | 916.4 | 918.4 | 920.4 | 922.4 | 924.4 | 926.4 | 928.4 | 930.4 | 132.0      |
| 132.5                         | 912.8                           | 914.7 | 916.7 | 918.7 | 920.7 | 922.7 | 924.7 | 926.7 | 928.7 | 930.7 | 132.5      |
| 133.0                         | 913.1                           | 915.1 | 917.0 | 919.0 | 921.0 | 923.0 | 925.0 | 927.0 | 929.0 | 931.0 | 133.0      |
| 133.5                         | 913.4                           | 915.4 | 917.4 | 919.4 | 921.3 | 923.3 | 925.3 | 927.3 | 929.3 | 931.3 | 133.5      |
| 134.0                         | 913.7                           | 915.7 | 917.7 | 919.7 | 921.7 | 923.6 | 925.6 | 927.6 | 929.6 | 931.6 | 134.0      |
| 134.5                         | 914.0                           | 916.0 | 918.0 | 920.0 | 922.0 | 924.0 | 925.9 | 927.9 | 929.9 | 931.9 | 134.5      |
| 135.0                         | 914.3                           | 916.3 | 918.3 | 920.3 | 922.3 | 924.3 | 926.3 | 928.3 | 930.2 | 932.2 | 135.0      |
| 135.5                         | 914.6                           | 916.6 | 918.6 | 920.6 | 922.6 | 924.6 | 926.6 | 928.6 | 930.6 | 932.5 | 135.5      |
| 136.0                         | 915.0                           | 916.9 | 918.9 | 920.9 | 922.9 | 924.9 | 926.9 | 928.9 | 930.9 | 932.9 | 136.0      |
| 136.5                         | 915.2                           | 917.2 | 919.2 | 921.2 | 923.2 | 925.2 | 927.2 | 929.2 | 931.2 | 933.2 | 136.5      |
| 137.0                         | 915.6                           | 917.6 | 919.5 | 921.5 | 923.5 | 925.5 | 927.5 | 929.5 | 931.5 | 933.5 | 137.0      |
| 137.5                         | 915.9                           | 917.9 | 919.9 | 921.9 | 923.8 | 925.8 | 927.8 | 929.8 | 931.8 | 933.8 | 137.5      |
| 138.0                         | 916.2                           | 918.2 | 920.2 | 922.2 | 924.2 | 926.2 | 928.1 | 930.1 | 932.1 | 934.1 | 138.0      |
| 138.5                         | 916.5                           | 918.5 | 920.5 | 922.5 | 924.5 | 926.5 | 928.5 | 930.4 | 932.4 | 934.4 | 138.5      |
| 139.0                         | 916.8                           | 918.8 | 920.8 | 922.8 | 924.8 | 926.8 | 928.8 | 930.8 | 932.8 | 934.7 | 139.0      |
| 139.5                         | 917.1                           | 919.1 | 921.1 | 923.1 | 925.1 | 927.1 | 929.1 | 931.1 | 933.1 | 935.1 | 139.5      |
| 140.0                         | 917.4                           | 919.4 | 921.4 | 923.4 | 925.4 | 927.4 | 929.4 | 931.4 | 933.4 | 935.4 | 140.0      |
| 140.5                         | 917.8                           | 919.8 | 921.7 | 923.7 | 925.7 | 927.7 | 929.7 | 931.7 | 933.7 | 935.7 | 140.5      |
| 141.0                         | 918.1                           | 920.1 | 922.1 | 924.0 | 926.0 | 928.0 | 930.0 | 932.0 | 934.0 | 936.0 | 141.0      |
| 141.5                         | 918.4                           | 920.4 | 922.4 | 924.4 | 926.4 | 928.3 | 930.3 | 932.3 | 934.3 | 936.3 | 141.5      |
| 142.0                         | 918.7                           | 920.7 | 922.7 | 924.7 | 926.7 | 928.7 | 930.7 | 932.6 | 934.6 | 936.6 | 142.0      |
| 142.5                         | 919.0                           | 921.0 | 923.0 | 925.0 | 927.0 | 929.0 | 931.0 | 933.0 | 934.9 | 936.9 | 142.5      |
| 143.0                         | 919.3                           | 921.3 | 923.3 | 925.3 | 927.3 | 929.3 | 931.3 | 933.3 | 935.3 | 937.2 | 143.0      |
| 143.5                         | 919.7                           | 921.6 | 923.6 | 925.6 | 927.6 | 929.6 | 931.6 | 933.6 | 935.6 | 937.6 | 143.5      |
| 144.0                         | 920.0                           | 922.0 | 923.9 | 925.9 | 927.9 | 929.9 | 931.9 | 933.9 | 935.9 | 937.9 | 144.0      |
| 144.5                         | 920.3                           | 922.3 | 924.3 | 926.2 | 928.2 | 930.2 | 932.2 | 934.2 | 936.2 | 938.2 | 144.5      |
| 145.0                         | 920.6                           | 922.6 | 924.6 | 926.6 | 928.5 | 930.5 | 932.5 | 934.5 | 936.5 | 938.5 | 145.0      |
| 145.5                         | 920.9                           | 922.9 | 924.9 | 926.9 | 928.9 | 930.8 | 932.8 | 934.8 | 936.8 | 938.8 | 145.5      |
| 146.0                         | 921.2                           | 923.2 | 925.2 | 927.2 | 929.2 | 931.2 | 933.2 | 935.1 | 937.1 | 939.1 | 146.0      |
| 146.5                         | 921.5                           | 923.5 | 925.5 | 927.5 | 929.5 | 931.5 | 933.5 | 935.5 | 937.5 | 939.4 | 146.5      |
| 147.0                         | 921.8                           | 923.8 | 925.8 | 927.8 | 929.8 | 931.8 | 933.8 | 935.8 | 937.8 | 939.8 | 147.0      |
| 147.5                         | 922.2                           | 924.1 | 926.1 | 928.1 | 930.1 | 932.1 | 934.1 | 936.1 | 938.1 | 940.1 | 147.5      |
| 148.0                         | 922.5                           | 924.5 | 926.4 | 928.4 | 930.4 | 932.4 | 934.4 | 936.4 | 938.4 | 940.4 | 148.0      |
| 148.5                         | 922.8                           | 924.8 | 926.8 | 928.8 | 930.7 | 932.7 | 934.7 | 936.7 | 938.7 | 940.7 | 148.5      |
| 149.0                         | 923.1                           | 925.1 | 927.1 | 929.1 | 931.1 | 933.1 | 935.0 | 937.0 | 939.0 | 941.0 | 149.0      |
| 149.5                         | 923.4                           | 925.4 | 927.4 | 929.4 | 931.4 | 933.4 | 935.4 | 937.3 | 939.3 | 941.3 | 149.5      |
| 150.0                         | 923.7                           | 925.7 | 927.7 | 929.7 | 931.7 | 933.7 | 935.7 | 937.6 | 939.6 | 941.6 | 150.0      |

WHEN USING A DENSITY IN G/ML, G/CC, OR KG/L, MULTIPLY BY 1000 BEFORE ENTERING THE ABOVE TABLE

TABLE 53D, GENERALIZED LUBRICATING OILS  
DENSITY CORRECTION TO 15 C

| TEMP.<br>C | DENSITY AT OBSERVED TEMPERATURE<br>CORRESPONDING DENSITY AT 15 C |       |       |       |       |       |       |       |       |       | TEMP.<br>C |
|------------|------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------------|
| -20.0      | 838.9                                                            | 840.9 | 842.9 | 844.9 | 846.9 | 848.9 | 850.9 | 852.9 | 854.9 | 856.9 | -20.0      |
| -19.5      | 839.2                                                            | 841.2 | 843.2 | 845.2 | 847.2 | 849.2 | 851.2 | 853.2 | 855.2 | 857.2 | -19.5      |
| -19.0      | 839.5                                                            | 841.5 | 843.5 | 845.5 | 847.5 | 849.5 | 851.5 | 853.5 | 855.5 | 857.5 | -19.0      |
| -18.5      | 839.8                                                            | 841.8 | 843.8 | 845.8 | 847.8 | 849.8 | 851.8 | 853.8 | 855.8 | 857.8 | -18.5      |
| -18.0      | 840.1                                                            | 842.1 | 844.1 | 846.1 | 848.1 | 850.1 | 852.1 | 854.1 | 856.1 | 858.1 | -18.0      |
| -17.5      | 840.4                                                            | 842.4 | 844.4 | 846.4 | 848.4 | 850.4 | 852.4 | 854.4 | 856.4 | 858.4 | -17.5      |
| -17.0      | 840.7                                                            | 842.7 | 844.7 | 846.7 | 848.7 | 850.7 | 852.7 | 854.7 | 856.7 | 858.7 | -17.0      |
| -16.5      | 841.0                                                            | 843.0 | 845.0 | 847.0 | 849.0 | 851.0 | 853.0 | 855.0 | 857.0 | 859.0 | -16.5      |
| -16.0      | 841.3                                                            | 843.3 | 845.3 | 847.3 | 849.3 | 851.3 | 853.3 | 855.3 | 857.3 | 859.3 | -16.0      |
| -15.5      | 841.6                                                            | 843.6 | 845.6 | 847.6 | 849.6 | 851.6 | 853.6 | 855.6 | 857.6 | 859.6 | -15.5      |
| -15.0      | 841.9                                                            | 843.9 | 845.9 | 847.9 | 849.9 | 851.9 | 853.9 | 855.9 | 857.9 | 859.9 | -15.0      |
| -14.5      | 842.2                                                            | 844.2 | 846.2 | 848.2 | 850.2 | 852.2 | 854.2 | 856.2 | 858.2 | 860.2 | -14.5      |
| -14.0      | 842.5                                                            | 844.5 | 846.5 | 848.5 | 850.5 | 852.5 | 854.5 | 856.5 | 858.5 | 860.5 | -14.0      |
| -13.5      | 842.8                                                            | 844.8 | 846.8 | 848.8 | 850.8 | 852.8 | 854.8 | 856.8 | 858.8 | 860.8 | -13.5      |
| -13.0      | 843.1                                                            | 845.1 | 847.1 | 849.1 | 851.1 | 853.1 | 855.1 | 857.1 | 859.1 | 861.1 | -13.0      |
| -12.5      | 843.4                                                            | 845.4 | 847.4 | 849.4 | 851.4 | 853.4 | 855.4 | 857.4 | 859.4 | 861.4 | -12.5      |
| -12.0      | 843.7                                                            | 845.7 | 847.7 | 849.7 | 851.7 | 853.7 | 855.7 | 857.7 | 859.7 | 861.7 | -12.0      |
| -11.5      | 844.0                                                            | 846.0 | 848.0 | 850.0 | 852.0 | 854.0 | 856.0 | 858.0 | 860.0 | 862.0 | -11.5      |
| -11.0      | 844.3                                                            | 846.3 | 848.3 | 850.3 | 852.3 | 854.3 | 856.3 | 858.3 | 860.3 | 862.3 | -11.0      |
| -10.5      | 844.6                                                            | 846.6 | 848.6 | 850.6 | 852.6 | 854.6 | 856.6 | 858.6 | 860.6 | 862.6 | -10.5      |
| -10.0      | 844.9                                                            | 846.9 | 848.9 | 850.9 | 852.9 | 854.9 | 856.9 | 858.9 | 860.9 | 862.9 | -10.0      |
| -9.5       | 845.2                                                            | 847.2 | 849.2 | 851.2 | 853.2 | 855.2 | 857.2 | 859.2 | 861.2 | 863.2 | -9.5       |
| -9.0       | 845.5                                                            | 847.5 | 849.5 | 851.5 | 853.5 | 855.5 | 857.5 | 859.5 | 861.5 | 863.5 | -9.0       |
| -8.5       | 845.8                                                            | 847.8 | 849.8 | 851.8 | 853.8 | 855.8 | 857.8 | 859.8 | 861.8 | 863.8 | -8.5       |
| -8.0       | 846.1                                                            | 848.1 | 850.1 | 852.1 | 854.1 | 856.1 | 858.1 | 860.1 | 862.1 | 864.1 | -8.0       |
| -7.5       | 846.4                                                            | 848.4 | 850.4 | 852.4 | 854.4 | 856.4 | 858.4 | 860.4 | 862.4 | 864.4 | -7.5       |
| -7.0       | 846.7                                                            | 848.7 | 850.7 | 852.7 | 854.7 | 856.7 | 858.7 | 860.7 | 862.7 | 864.7 | -7.0       |
| -6.5       | 847.0                                                            | 849.0 | 851.0 | 853.0 | 855.0 | 857.0 | 859.0 | 861.0 | 863.0 | 865.0 | -6.5       |
| -6.0       | 847.3                                                            | 849.3 | 851.3 | 853.3 | 855.3 | 857.3 | 859.3 | 861.3 | 863.3 | 865.3 | -6.0       |
| -5.5       | 847.6                                                            | 849.6 | 851.6 | 853.6 | 855.6 | 857.6 | 859.6 | 861.6 | 863.6 | 865.6 | -5.5       |
| -5.0       | 847.9                                                            | 849.9 | 851.9 | 853.9 | 855.9 | 857.9 | 859.9 | 861.9 | 863.9 | 865.9 | -5.0       |
| -4.5       | 848.2                                                            | 850.2 | 852.2 | 854.2 | 856.2 | 858.2 | 860.2 | 862.2 | 864.2 | 866.2 | -4.5       |
| -4.0       | 848.5                                                            | 850.5 | 852.5 | 854.5 | 856.5 | 858.5 | 860.5 | 862.5 | 864.5 | 866.5 | -4.0       |
| -3.5       | 848.8                                                            | 850.8 | 852.8 | 854.8 | 856.8 | 858.8 | 860.8 | 862.8 | 864.8 | 866.8 | -3.5       |
| -3.0       | 849.1                                                            | 851.1 | 853.1 | 855.1 | 857.1 | 859.1 | 861.1 | 863.1 | 865.1 | 867.1 | -3.0       |
| -2.5       | 849.4                                                            | 851.4 | 853.4 | 855.4 | 857.4 | 859.4 | 861.4 | 863.4 | 865.4 | 867.4 | -2.5       |
| -2.0       | 849.7                                                            | 851.7 | 853.7 | 855.7 | 857.7 | 859.7 | 861.7 | 863.7 | 865.7 | 867.7 | -2.0       |
| -1.5       | 850.0                                                            | 852.0 | 854.0 | 856.0 | 858.0 | 860.0 | 862.0 | 864.0 | 866.0 | 868.0 | -1.5       |
| -1.0       | 850.3                                                            | 852.3 | 854.3 | 856.3 | 858.3 | 860.3 | 862.3 | 864.3 | 866.3 | 868.3 | -1.0       |
| -0.5       | 850.6                                                            | 852.6 | 854.6 | 856.6 | 858.6 | 860.6 | 862.6 | 864.6 | 866.6 | 868.6 | -0.5       |
| 0.0        | 850.9                                                            | 852.9 | 854.9 | 856.9 | 858.9 | 860.9 | 862.9 | 864.9 | 866.9 | 868.9 | 0.0        |
| 0.5        | 851.2                                                            | 853.2 | 855.2 | 857.2 | 859.2 | 861.2 | 863.2 | 865.2 | 867.2 | 869.2 | 0.5        |
| 1.0        | 851.5                                                            | 853.5 | 855.5 | 857.5 | 859.5 | 861.5 | 863.5 | 865.5 | 867.5 | 869.5 | 1.0        |
| 1.5        | 851.8                                                            | 853.8 | 855.8 | 857.8 | 859.8 | 861.8 | 863.8 | 865.8 | 867.8 | 869.8 | 1.5        |
| 2.0        | 852.1                                                            | 854.1 | 856.1 | 858.1 | 860.1 | 862.1 | 864.1 | 866.1 | 868.1 | 870.1 | 2.0        |
| 2.5        | 852.4                                                            | 854.4 | 856.4 | 858.4 | 860.4 | 862.4 | 864.4 | 866.4 | 868.4 | 870.4 | 2.5        |
| 3.0        | 852.7                                                            | 854.7 | 856.7 | 858.7 | 860.7 | 862.7 | 864.7 | 866.7 | 868.7 | 870.7 | 3.0        |
| 3.5        | 853.0                                                            | 855.0 | 857.0 | 859.0 | 861.0 | 863.0 | 865.0 | 867.0 | 869.0 | 871.0 | 3.5        |
| 4.0        | 853.3                                                            | 855.3 | 857.3 | 859.3 | 861.3 | 863.3 | 865.3 | 867.3 | 869.3 | 871.3 | 4.0        |
| 4.5        | 853.6                                                            | 855.6 | 857.6 | 859.6 | 861.6 | 863.6 | 865.6 | 867.6 | 869.6 | 871.6 | 4.5        |
| 5.0        | 853.9                                                            | 855.9 | 857.9 | 859.9 | 861.9 | 863.9 | 865.9 | 867.9 | 869.9 | 871.9 | 5.0        |

OBSERVED DENSITY = 860 TO 878

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WHEN USING A DENSITY IN G/ML, G/CC, OR KG/L, MULTIPLY BY 1000 BEFORE ENTERING THE ABOVE TABLE

TABLE 53D, GENERALIZED LUBRICATING OILS  
DENSITY CORRECTION TO 15 C

| TEMP.<br>C                    | DENSITY AT OBSERVED TEMPERATURE |       |       |       |       |       |       |       |       |       | TEMP.<br>C |
|-------------------------------|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------------|
|                               | 860                             | 862   | 864   | 866   | 868   | 870   | 872   | 874   | 876   | 878   |            |
| CORRESPONDING DENSITY AT 15 C |                                 |       |       |       |       |       |       |       |       |       |            |
| 5.0                           | 853.9                           | 855.9 | 857.9 | 859.9 | 861.9 | 863.9 | 865.9 | 867.9 | 869.9 | 871.9 | 5.0        |
| 5.5                           | 854.2                           | 856.2 | 858.2 | 860.2 | 862.2 | 864.2 | 866.2 | 868.2 | 870.2 | 872.2 | 5.5        |
| 6.0                           | 854.5                           | 856.5 | 858.5 | 860.5 | 862.5 | 864.5 | 866.5 | 868.5 | 870.5 | 872.5 | 6.0        |
| 6.5                           | 854.8                           | 856.8 | 858.8 | 860.8 | 862.8 | 864.8 | 866.8 | 868.8 | 870.8 | 872.8 | 6.5        |
| 7.0                           | 855.1                           | 857.1 | 859.1 | 861.1 | 863.1 | 865.1 | 867.1 | 869.1 | 871.1 | 873.1 | 7.0        |
| 7.5                           | 855.4                           | 857.4 | 859.4 | 861.4 | 863.4 | 865.4 | 867.4 | 869.4 | 871.4 | 873.4 | 7.5        |
| 8.0                           | 855.8                           | 857.8 | 859.8 | 861.8 | 863.8 | 865.8 | 867.8 | 869.8 | 871.8 | 873.8 | 8.0        |
| 8.5                           | 856.1                           | 858.1 | 860.1 | 862.1 | 864.1 | 866.1 | 868.1 | 870.1 | 872.1 | 874.1 | 8.5        |
| 9.0                           | 856.4                           | 858.4 | 860.4 | 862.4 | 864.4 | 866.4 | 868.4 | 870.4 | 872.4 | 874.4 | 9.0        |
| 9.5                           | 856.7                           | 858.7 | 860.7 | 862.7 | 864.7 | 866.7 | 868.7 | 870.7 | 872.7 | 874.7 | 9.5        |
| 10.0                          | 857.0                           | 859.0 | 861.0 | 863.0 | 865.0 | 867.0 | 869.0 | 871.0 | 873.0 | 875.0 | 10.0       |
| 10.5                          | 857.3                           | 859.3 | 861.3 | 863.3 | 865.3 | 867.3 | 869.3 | 871.3 | 873.3 | 875.3 | 10.5       |
| 11.0                          | 857.6                           | 859.6 | 861.6 | 863.6 | 865.6 | 867.6 | 869.6 | 871.6 | 873.6 | 875.6 | 11.0       |
| 11.5                          | 857.9                           | 859.9 | 861.9 | 863.9 | 865.9 | 867.9 | 869.9 | 871.9 | 873.9 | 875.9 | 11.5       |
| 12.0                          | 858.2                           | 860.2 | 862.2 | 864.2 | 866.2 | 868.2 | 870.2 | 872.2 | 874.2 | 876.2 | 12.0       |
| 12.5                          | 858.5                           | 860.5 | 862.5 | 864.5 | 866.5 | 868.5 | 870.5 | 872.5 | 874.5 | 876.5 | 12.5       |
| 13.0                          | 858.8                           | 860.8 | 862.8 | 864.8 | 866.8 | 868.8 | 870.8 | 872.8 | 874.8 | 876.8 | 13.0       |
| 13.5                          | 859.1                           | 861.1 | 863.1 | 865.1 | 867.1 | 869.1 | 871.1 | 873.1 | 875.1 | 877.1 | 13.5       |
| 14.0                          | 859.4                           | 861.4 | 863.4 | 865.4 | 867.4 | 869.4 | 871.4 | 873.4 | 875.4 | 877.4 | 14.0       |
| 14.5                          | 859.7                           | 861.7 | 863.7 | 865.7 | 867.7 | 869.7 | 871.7 | 873.7 | 875.7 | 877.7 | 14.5       |
| 15.0                          | 860.0                           | 862.0 | 864.0 | 866.0 | 868.0 | 870.0 | 872.0 | 874.0 | 876.0 | 878.0 | 15.0       |
| 15.5                          | 860.3                           | 862.3 | 864.3 | 866.3 | 868.3 | 870.3 | 872.3 | 874.3 | 876.3 | 878.3 | 15.5       |
| 16.0                          | 860.6                           | 862.6 | 864.6 | 866.6 | 868.6 | 870.6 | 872.6 | 874.6 | 876.6 | 878.6 | 16.0       |
| 16.5                          | 860.9                           | 862.9 | 864.9 | 866.9 | 868.9 | 870.9 | 872.9 | 874.9 | 876.9 | 878.9 | 16.5       |
| 17.0                          | 861.2                           | 863.2 | 865.2 | 867.2 | 869.2 | 871.2 | 873.2 | 875.2 | 877.2 | 879.2 | 17.0       |
| 17.5                          | 861.5                           | 863.5 | 865.5 | 867.5 | 869.5 | 871.5 | 873.5 | 875.5 | 877.5 | 879.5 | 17.5       |
| 18.0                          | 861.8                           | 863.8 | 865.8 | 867.8 | 869.8 | 871.8 | 873.8 | 875.8 | 877.8 | 879.8 | 18.0       |
| 18.5                          | 862.1                           | 864.1 | 866.1 | 868.1 | 870.1 | 872.1 | 874.1 | 876.1 | 878.1 | 880.1 | 18.5       |
| 19.0                          | 862.4                           | 864.4 | 866.4 | 868.4 | 870.4 | 872.4 | 874.4 | 876.4 | 878.4 | 880.4 | 19.0       |
| 19.5                          | 862.7                           | 864.7 | 866.7 | 868.7 | 870.7 | 872.7 | 874.7 | 876.7 | 878.7 | 880.7 | 19.5       |
| 20.0                          | 863.0                           | 865.0 | 867.0 | 869.0 | 871.0 | 873.0 | 875.0 | 877.0 | 879.0 | 881.0 | 20.0       |
| 20.5                          | 863.3                           | 865.3 | 867.3 | 869.3 | 871.3 | 873.3 | 875.3 | 877.3 | 879.3 | 881.3 | 20.5       |
| 21.0                          | 863.7                           | 865.7 | 867.7 | 869.7 | 871.7 | 873.7 | 875.7 | 877.7 | 879.7 | 881.7 | 21.0       |
| 21.5                          | 864.0                           | 866.0 | 868.0 | 870.0 | 872.0 | 874.0 | 876.0 | 878.0 | 880.0 | 882.0 | 21.5       |
| 22.0                          | 864.3                           | 866.3 | 868.3 | 870.3 | 872.3 | 874.3 | 876.3 | 878.3 | 880.3 | 882.3 | 22.0       |
| 22.5                          | 864.6                           | 866.6 | 868.6 | 870.6 | 872.6 | 874.6 | 876.6 | 878.6 | 880.6 | 882.6 | 22.5       |
| 23.0                          | 864.9                           | 866.9 | 868.9 | 870.9 | 872.9 | 874.9 | 876.9 | 878.9 | 880.9 | 882.9 | 23.0       |
| 23.5                          | 865.2                           | 867.2 | 869.2 | 871.2 | 873.2 | 875.2 | 877.2 | 879.2 | 881.2 | 883.2 | 23.5       |
| 24.0                          | 865.5                           | 867.5 | 869.5 | 871.5 | 873.5 | 875.5 | 877.5 | 879.5 | 881.5 | 883.5 | 24.0       |
| 24.5                          | 865.8                           | 867.8 | 869.8 | 871.8 | 873.8 | 875.8 | 877.8 | 879.8 | 881.8 | 883.8 | 24.5       |
| 25.0                          | 866.1                           | 868.1 | 870.1 | 872.1 | 874.1 | 876.1 | 878.1 | 880.1 | 882.1 | 884.1 | 25.0       |
| 25.5                          | 866.4                           | 868.4 | 870.4 | 872.4 | 874.4 | 876.4 | 878.4 | 880.4 | 882.4 | 884.4 | 25.5       |
| 26.0                          | 866.7                           | 868.7 | 870.7 | 872.7 | 874.7 | 876.7 | 878.7 | 880.7 | 882.7 | 884.7 | 26.0       |
| 26.5                          | 867.0                           | 869.0 | 871.0 | 873.0 | 875.0 | 877.0 | 879.0 | 881.0 | 883.0 | 885.0 | 26.5       |
| 27.0                          | 867.3                           | 869.3 | 871.3 | 873.3 | 875.3 | 877.3 | 879.3 | 881.3 | 883.3 | 885.3 | 27.0       |
| 27.5                          | 867.6                           | 869.6 | 871.6 | 873.6 | 875.6 | 877.6 | 879.6 | 881.6 | 883.6 | 885.6 | 27.5       |
| 28.0                          | 867.9                           | 869.9 | 871.9 | 873.9 | 875.9 | 877.9 | 879.9 | 881.9 | 883.9 | 885.9 | 28.0       |
| 28.5                          | 868.2                           | 870.2 | 872.2 | 874.2 | 876.2 | 878.2 | 880.2 | 882.2 | 884.2 | 886.2 | 28.5       |
| 29.0                          | 868.5                           | 870.5 | 872.5 | 874.5 | 876.5 | 878.5 | 880.5 | 882.5 | 884.5 | 886.5 | 29.0       |
| 29.5                          | 868.8                           | 870.8 | 872.8 | 874.8 | 876.8 | 878.8 | 880.8 | 882.8 | 884.8 | 886.8 | 29.5       |
| 30.0                          | 869.1                           | 871.1 | 873.1 | 875.1 | 877.1 | 879.1 | 881.1 | 883.1 | 885.1 | 887.1 | 30.0       |

OBSERVED DENSITY = 860 TO 878

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WHEN USING A DENSITY IN G/ML, G/CC, OR KG/L, MULTIPLY BY 1000 BEFORE ENTERING THE ABOVE TABLE

TABLE 53D, GENERALIZED LUBRICATING OILS  
DENSITY CORRECTION TO 15 C

| TEMP.<br>C | DENSITY AT OBSERVED TEMPERATURE<br>CORRESPONDING DENSITY AT 15 C |       |       |       |       |       |       |       |       |       | TEMP.<br>C |
|------------|------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------------|
|            | 860                                                              | 862   | 864   | 866   | 868   | 870   | 872   | 874   | 876   | 878   |            |
| 30.0       | 869.1                                                            | 871.1 | 873.1 | 875.1 | 877.1 | 879.1 | 881.1 | 883.1 | 885.1 | 887.1 | 30.0       |
| 30.5       | 869.5                                                            | 871.5 | 873.5 | 875.5 | 877.5 | 879.5 | 881.4 | 883.4 | 885.4 | 887.4 | 30.5       |
| 31.0       | 869.8                                                            | 871.8 | 873.8 | 875.8 | 877.8 | 879.8 | 881.7 | 883.7 | 885.7 | 887.7 | 31.0       |
| 31.5       | 870.1                                                            | 872.1 | 874.1 | 876.1 | 878.1 | 880.1 | 882.1 | 884.1 | 886.1 | 888.1 | 31.5       |
| 32.0       | 870.4                                                            | 872.4 | 874.4 | 876.4 | 878.4 | 880.4 | 882.4 | 884.4 | 886.4 | 888.4 | 32.0       |
| 32.5       | 870.7                                                            | 872.7 | 874.7 | 876.7 | 878.7 | 880.7 | 882.7 | 884.7 | 886.7 | 888.7 | 32.5       |
| 33.0       | 871.0                                                            | 873.0 | 875.0 | 877.0 | 879.0 | 881.0 | 883.0 | 885.0 | 887.0 | 889.0 | 33.0       |
| 33.5       | 871.3                                                            | 873.3 | 875.3 | 877.3 | 879.3 | 881.3 | 883.3 | 885.3 | 887.3 | 889.3 | 33.5       |
| 34.0       | 871.6                                                            | 873.6 | 875.6 | 877.6 | 879.6 | 881.6 | 883.6 | 885.6 | 887.6 | 889.6 | 34.0       |
| 34.5       | 871.9                                                            | 873.9 | 875.9 | 877.9 | 879.9 | 881.9 | 883.9 | 885.9 | 887.9 | 889.9 | 34.5       |
| 35.0       | 872.2                                                            | 874.2 | 876.2 | 878.2 | 880.2 | 882.2 | 884.2 | 886.2 | 888.2 | 890.2 | 35.0       |
| 35.5       | 872.5                                                            | 874.5 | 876.5 | 878.5 | 880.5 | 882.5 | 884.5 | 886.5 | 888.5 | 890.5 | 35.5       |
| 36.0       | 872.8                                                            | 874.8 | 876.8 | 878.8 | 880.8 | 882.8 | 884.8 | 886.8 | 888.8 | 890.8 | 36.0       |
| 36.5       | 873.1                                                            | 875.1 | 877.1 | 879.1 | 881.1 | 883.1 | 885.1 | 887.1 | 889.1 | 891.1 | 36.5       |
| 37.0       | 873.4                                                            | 875.4 | 877.4 | 879.4 | 881.4 | 883.4 | 885.4 | 887.4 | 889.4 | 891.4 | 37.0       |
| 37.5       | 873.7                                                            | 875.7 | 877.7 | 879.7 | 881.7 | 883.7 | 885.7 | 887.7 | 889.7 | 891.7 | 37.5       |
| 38.0       | 874.0                                                            | 876.0 | 878.0 | 880.0 | 882.0 | 884.0 | 886.0 | 888.0 | 890.0 | 892.0 | 38.0       |
| 38.5       | 874.4                                                            | 876.3 | 878.3 | 880.3 | 882.3 | 884.3 | 886.3 | 888.3 | 890.3 | 892.3 | 38.5       |
| 39.0       | 874.7                                                            | 876.7 | 878.7 | 880.7 | 882.7 | 884.7 | 886.7 | 888.7 | 890.7 | 892.7 | 39.0       |
| 39.5       | 875.0                                                            | 877.0 | 879.0 | 881.0 | 883.0 | 885.0 | 887.0 | 889.0 | 891.0 | 892.9 | 39.5       |
| 40.0       | 875.3                                                            | 877.3 | 879.3 | 881.3 | 883.3 | 885.3 | 887.3 | 889.3 | 891.3 | 893.3 | 40.0       |
| 40.5       | 875.6                                                            | 877.6 | 879.6 | 881.6 | 883.6 | 885.6 | 887.6 | 889.6 | 891.6 | 893.6 | 40.5       |
| 41.0       | 875.9                                                            | 877.9 | 879.9 | 881.9 | 883.9 | 885.9 | 887.9 | 889.9 | 891.9 | 893.9 | 41.0       |
| 41.5       | 876.2                                                            | 878.2 | 880.2 | 882.2 | 884.2 | 886.2 | 888.2 | 890.2 | 892.2 | 894.2 | 41.5       |
| 42.0       | 876.5                                                            | 878.5 | 880.5 | 882.5 | 884.5 | 886.5 | 888.5 | 890.5 | 892.5 | 894.5 | 42.0       |
| 42.5       | 876.8                                                            | 878.8 | 880.8 | 882.8 | 884.8 | 886.8 | 888.8 | 890.8 | 892.8 | 894.8 | 42.5       |
| 43.0       | 877.1                                                            | 879.1 | 881.1 | 883.1 | 885.1 | 887.1 | 889.1 | 891.1 | 893.1 | 895.1 | 43.0       |
| 43.5       | 877.4                                                            | 879.4 | 881.4 | 883.4 | 885.4 | 887.4 | 889.4 | 891.4 | 893.4 | 895.4 | 43.5       |
| 44.0       | 877.7                                                            | 879.7 | 881.7 | 883.7 | 885.7 | 887.7 | 889.7 | 891.7 | 893.7 | 895.7 | 44.0       |
| 44.5       | 878.0                                                            | 880.0 | 882.0 | 884.0 | 886.0 | 888.0 | 890.0 | 892.0 | 894.0 | 896.0 | 44.5       |
| 45.0       | 878.3                                                            | 880.3 | 882.3 | 884.3 | 886.3 | 888.3 | 890.3 | 892.3 | 894.3 | 896.3 | 45.0       |
| 45.5       | 878.6                                                            | 880.6 | 882.6 | 884.6 | 886.6 | 888.6 | 890.6 | 892.6 | 894.6 | 896.6 | 45.5       |
| 46.0       | 879.0                                                            | 881.0 | 883.0 | 885.0 | 886.9 | 888.9 | 890.9 | 892.9 | 894.9 | 896.9 | 46.0       |
| 46.5       | 879.3                                                            | 881.3 | 883.3 | 885.3 | 887.3 | 889.3 | 891.3 | 893.2 | 895.3 | 897.3 | 46.5       |
| 47.0       | 879.6                                                            | 881.6 | 883.6 | 885.6 | 887.6 | 889.6 | 891.6 | 893.6 | 895.6 | 897.6 | 47.0       |
| 47.5       | 879.9                                                            | 881.9 | 883.9 | 885.9 | 887.9 | 889.9 | 891.9 | 893.9 | 895.9 | 897.9 | 47.5       |
| 48.0       | 880.2                                                            | 882.2 | 884.2 | 886.2 | 888.2 | 890.2 | 892.2 | 894.2 | 896.2 | 898.2 | 48.0       |
| 48.5       | 880.5                                                            | 882.5 | 884.5 | 886.5 | 888.5 | 890.5 | 892.5 | 894.5 | 896.5 | 898.5 | 48.5       |
| 49.0       | 880.8                                                            | 882.8 | 884.8 | 886.8 | 888.8 | 890.8 | 892.8 | 894.8 | 896.8 | 898.8 | 49.0       |
| 49.5       | 881.1                                                            | 883.1 | 885.1 | 887.1 | 889.1 | 891.1 | 893.1 | 895.1 | 897.1 | 899.1 | 49.5       |
| 50.0       | 881.4                                                            | 883.4 | 885.4 | 887.4 | 889.4 | 891.4 | 893.4 | 895.4 | 897.4 | 899.4 | 50.0       |
| 50.5       | 881.7                                                            | 883.7 | 885.7 | 887.7 | 889.7 | 891.7 | 893.7 | 895.7 | 897.7 | 899.7 | 50.5       |
| 51.0       | 882.0                                                            | 884.0 | 886.0 | 888.0 | 890.0 | 892.0 | 894.0 | 896.0 | 898.0 | 900.0 | 51.0       |
| 51.5       | 882.3                                                            | 884.3 | 886.3 | 888.3 | 890.3 | 892.3 | 894.3 | 896.3 | 898.3 | 900.3 | 51.5       |
| 52.0       | 882.6                                                            | 884.6 | 886.6 | 888.6 | 890.6 | 892.6 | 894.6 | 896.6 | 898.6 | 900.6 | 52.0       |
| 52.5       | 882.9                                                            | 884.9 | 886.9 | 888.9 | 891.0 | 892.9 | 894.9 | 896.9 | 898.9 | 900.9 | 52.5       |
| 53.0       | 883.3                                                            | 885.3 | 887.3 | 889.3 | 891.3 | 893.2 | 895.2 | 897.2 | 899.2 | 901.2 | 53.0       |
| 53.5       | 883.6                                                            | 885.6 | 887.6 | 889.6 | 891.6 | 893.6 | 895.6 | 897.6 | 899.6 | 901.6 | 53.5       |
| 54.0       | 883.9                                                            | 885.9 | 887.9 | 889.9 | 891.9 | 893.9 | 895.9 | 897.9 | 899.9 | 901.9 | 54.0       |
| 54.5       | 884.2                                                            | 886.2 | 888.2 | 890.2 | 892.2 | 894.2 | 896.2 | 898.2 | 900.2 | 902.2 | 54.5       |
| 55.0       | 884.5                                                            | 886.5 | 888.5 | 890.5 | 892.5 | 894.5 | 896.5 | 898.5 | 900.5 | 902.5 | 55.0       |

OBSERVED DENSITY = 860 TO 878

WHEN USING A DENSITY IN G/ML, G/CC, OR KG/L, MULTIPLY BY 1000 BEFORE ENTERING THE ABOVE TABLE

TABLE 53D, GENERALIZED LUBRICATING OILS  
DENSITY CORRECTION TO 15 C

| TEMP.<br>C | DENSITY AT OBSERVED TEMPERATURE<br>CORRESPONDING DENSITY AT 15 C |       |       |       |       |       |       |       |       |       | TEMP.<br>C |
|------------|------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------------|
|            | 860                                                              | 862   | 864   | 866   | 868   | 870   | 872   | 874   | 876   | 878   |            |
| 55.0       | 884.5                                                            | 886.5 | 888.5 | 890.5 | 892.5 | 894.5 | 896.5 | 898.5 | 900.5 | 902.5 | 55.0       |
| 55.5       | 884.8                                                            | 886.8 | 888.8 | 890.8 | 892.8 | 894.8 | 896.8 | 898.8 | 900.8 | 902.8 | 55.5       |
| 56.0       | 885.1                                                            | 887.1 | 889.1 | 891.1 | 893.1 | 895.1 | 897.1 | 899.1 | 901.1 | 903.1 | 56.0       |
| 56.5       | 885.4                                                            | 887.4 | 889.4 | 891.4 | 893.4 | 895.4 | 897.4 | 899.4 | 901.4 | 903.4 | 56.5       |
| 57.0       | 885.7                                                            | 887.7 | 889.7 | 891.7 | 893.7 | 895.7 | 897.7 | 899.7 | 901.7 | 903.7 | 57.0       |
| 57.5       | 886.0                                                            | 888.0 | 890.0 | 892.0 | 894.0 | 896.0 | 898.0 | 900.0 | 902.0 | 904.0 | 57.5       |
| 58.0       | 886.3                                                            | 888.3 | 890.3 | 892.3 | 894.3 | 896.3 | 898.3 | 900.3 | 902.3 | 904.3 | 58.0       |
| 58.5       | 886.7                                                            | 888.6 | 890.6 | 892.6 | 894.6 | 896.6 | 898.6 | 900.6 | 902.6 | 904.6 | 58.5       |
| 59.0       | 887.0                                                            | 889.0 | 891.0 | 893.0 | 895.0 | 897.0 | 898.9 | 900.9 | 902.9 | 904.9 | 59.0       |
| 59.5       | 887.3                                                            | 889.3 | 891.3 | 893.3 | 895.3 | 897.3 | 899.3 | 901.3 | 903.3 | 905.2 | 59.5       |
| 60.0       | 887.6                                                            | 889.6 | 891.6 | 893.6 | 895.6 | 897.6 | 899.6 | 901.6 | 903.6 | 905.6 | 60.0       |
| 60.5       | 887.9                                                            | 889.9 | 891.9 | 893.9 | 895.9 | 897.9 | 899.9 | 901.9 | 903.9 | 905.9 | 60.5       |
| 61.0       | 888.2                                                            | 890.2 | 892.2 | 894.2 | 896.2 | 898.2 | 900.2 | 902.2 | 904.2 | 906.2 | 61.0       |
| 61.5       | 888.5                                                            | 890.5 | 892.5 | 894.5 | 896.5 | 898.5 | 900.5 | 902.5 | 904.5 | 906.5 | 61.5       |
| 62.0       | 888.8                                                            | 890.8 | 892.8 | 894.8 | 896.8 | 898.8 | 900.8 | 902.8 | 904.8 | 906.8 | 62.0       |
| 62.5       | 889.1                                                            | 891.1 | 893.1 | 895.1 | 897.1 | 899.1 | 901.1 | 903.1 | 905.1 | 907.1 | 62.5       |
| 63.0       | 889.4                                                            | 891.4 | 893.4 | 895.4 | 897.4 | 899.4 | 901.4 | 903.4 | 905.4 | 907.4 | 63.0       |
| 63.5       | 889.7                                                            | 891.7 | 893.7 | 895.7 | 897.7 | 899.7 | 901.7 | 903.7 | 905.7 | 907.7 | 63.5       |
| 64.0       | 890.1                                                            | 892.0 | 894.0 | 896.0 | 898.0 | 900.0 | 902.0 | 904.0 | 906.0 | 908.0 | 64.0       |
| 64.5       | 890.4                                                            | 892.4 | 894.3 | 896.3 | 898.3 | 900.3 | 902.3 | 904.3 | 906.3 | 908.3 | 64.5       |
| 65.0       | 890.7                                                            | 892.7 | 894.7 | 896.7 | 898.7 | 900.7 | 902.6 | 904.6 | 906.6 | 908.6 | 65.0       |
| 65.5       | 891.0                                                            | 893.0 | 895.0 | 897.0 | 899.0 | 901.0 | 903.0 | 905.0 | 907.0 | 909.0 | 65.5       |
| 66.0       | 891.3                                                            | 893.3 | 895.3 | 897.3 | 899.3 | 901.3 | 903.3 | 905.3 | 907.3 | 909.3 | 66.0       |
| 66.5       | 891.6                                                            | 893.6 | 895.6 | 897.6 | 899.6 | 901.6 | 903.6 | 905.6 | 907.6 | 909.6 | 66.5       |
| 67.0       | 891.9                                                            | 893.9 | 895.9 | 897.9 | 899.9 | 901.9 | 903.9 | 905.9 | 907.9 | 909.9 | 67.0       |
| 67.5       | 892.2                                                            | 894.2 | 896.2 | 898.2 | 900.2 | 902.2 | 904.2 | 906.2 | 908.2 | 910.2 | 67.5       |
| 68.0       | 892.5                                                            | 894.5 | 896.5 | 898.5 | 900.5 | 902.5 | 904.5 | 906.5 | 908.5 | 910.5 | 68.0       |
| 68.5       | 892.8                                                            | 894.8 | 896.8 | 898.8 | 900.8 | 902.8 | 904.8 | 906.8 | 908.8 | 910.8 | 68.5       |
| 69.0       | 893.1                                                            | 895.1 | 897.1 | 899.1 | 901.1 | 903.1 | 905.1 | 907.1 | 909.1 | 911.1 | 69.0       |
| 69.5       | 893.4                                                            | 895.4 | 897.4 | 899.4 | 901.4 | 903.4 | 905.4 | 907.4 | 909.4 | 911.4 | 69.5       |
| 70.0       | 893.8                                                            | 895.8 | 897.7 | 899.7 | 901.7 | 903.7 | 905.7 | 907.7 | 909.7 | 911.7 | 70.0       |
| 70.5       | 894.1                                                            | 896.1 | 898.1 | 900.1 | 902.1 | 904.1 | 906.0 | 908.0 | 910.0 | 912.0 | 70.5       |
| 71.0       | 894.4                                                            | 896.4 | 898.4 | 900.4 | 902.4 | 904.4 | 906.4 | 908.3 | 910.4 | 912.3 | 71.0       |
| 71.5       | 894.7                                                            | 896.7 | 898.7 | 900.7 | 902.7 | 904.7 | 906.7 | 908.7 | 910.7 | 912.7 | 71.5       |
| 72.0       | 895.0                                                            | 897.0 | 899.0 | 901.0 | 903.0 | 905.0 | 907.0 | 909.0 | 911.0 | 913.0 | 72.0       |
| 72.5       | 895.3                                                            | 897.3 | 899.3 | 901.3 | 903.3 | 905.3 | 907.3 | 909.3 | 911.3 | 913.3 | 72.5       |
| 73.0       | 895.6                                                            | 897.6 | 899.6 | 901.6 | 903.6 | 905.6 | 907.6 | 909.6 | 911.6 | 913.6 | 73.0       |
| 73.5       | 895.9                                                            | 897.9 | 899.9 | 901.9 | 903.9 | 905.9 | 907.9 | 909.9 | 911.9 | 913.9 | 73.5       |
| 74.0       | 896.2                                                            | 898.2 | 900.2 | 902.2 | 904.2 | 906.2 | 908.2 | 910.2 | 912.2 | 914.2 | 74.0       |
| 74.5       | 896.5                                                            | 898.5 | 900.5 | 902.5 | 904.5 | 906.5 | 908.5 | 910.5 | 912.5 | 914.5 | 74.5       |
| 75.0       | 896.8                                                            | 898.8 | 900.8 | 902.8 | 904.8 | 906.8 | 908.8 | 910.8 | 912.8 | 914.8 | 75.0       |
| 75.5       | 897.2                                                            | 899.2 | 901.2 | 903.1 | 905.1 | 907.1 | 909.1 | 911.1 | 913.1 | 915.1 | 75.5       |
| 76.0       | 897.5                                                            | 899.5 | 901.5 | 903.5 | 905.5 | 907.4 | 909.4 | 911.4 | 913.4 | 915.4 | 76.0       |
| 76.5       | 897.8                                                            | 899.8 | 901.8 | 903.8 | 905.8 | 907.8 | 909.8 | 911.8 | 913.7 | 915.7 | 76.5       |
| 77.0       | 898.1                                                            | 900.1 | 902.1 | 904.1 | 906.1 | 908.1 | 910.1 | 912.1 | 914.1 | 916.1 | 77.0       |
| 77.5       | 898.4                                                            | 900.4 | 902.4 | 904.4 | 906.4 | 908.4 | 910.4 | 912.4 | 914.4 | 916.4 | 77.5       |
| 78.0       | 898.7                                                            | 900.7 | 902.7 | 904.7 | 906.7 | 908.7 | 910.7 | 912.7 | 914.7 | 916.7 | 78.0       |
| 78.5       | 899.0                                                            | 901.0 | 903.0 | 905.0 | 907.0 | 909.0 | 911.0 | 913.0 | 915.0 | 917.0 | 78.5       |
| 79.0       | 899.3                                                            | 901.3 | 903.3 | 905.3 | 907.3 | 909.3 | 911.3 | 913.3 | 915.3 | 917.3 | 79.0       |
| 79.5       | 899.6                                                            | 901.6 | 903.6 | 905.6 | 907.6 | 909.6 | 911.6 | 913.6 | 915.6 | 917.6 | 79.5       |
| 80.0       | 899.9                                                            | 901.9 | 903.9 | 905.9 | 907.9 | 909.9 | 911.9 | 913.9 | 915.9 | 917.9 | 80.0       |

OBSERVED DENSITY = 860 TO 878

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WHEN USING A DENSITY IN G/ML, G/CC, OR KG/L, MULTIPLY BY 1000 BEFORE ENTERING THE ABOVE TABLE

TABLE 53D, GENERALIZED LUBRICATING OILS  
DENSITY CORRECTION TO 15 C

| TEMP.<br>C | DENSITY AT OBSERVED TEMPERATURE<br>CORRESPONDING DENSITY AT 15 C |       |       |       |       |       |       |       |       |       | TEMP.<br>C |
|------------|------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------------|
|            | 860                                                              | 862   | 864   | 866   | 868   | 870   | 872   | 874   | 876   | 878   |            |
| 80.0       | 899.9                                                            | 901.9 | 903.9 | 905.9 | 907.9 | 909.9 | 911.9 | 913.9 | 915.9 | 917.9 | 80.0       |
| 80.5       | 900.3                                                            | 902.3 | 904.2 | 906.2 | 908.2 | 910.2 | 912.2 | 914.2 | 916.2 | 918.2 | 80.5       |
| 81.0       | 900.6                                                            | 902.6 | 904.6 | 906.6 | 908.6 | 910.5 | 912.5 | 914.5 | 916.5 | 918.5 | 81.0       |
| 81.5       | 900.9                                                            | 902.9 | 904.9 | 906.9 | 908.9 | 910.9 | 912.9 | 914.9 | 916.8 | 918.8 | 81.5       |
| 82.0       | 901.2                                                            | 903.2 | 905.2 | 907.2 | 909.2 | 911.2 | 913.2 | 915.2 | 917.2 | 919.2 | 82.0       |
| 82.5       | 901.5                                                            | 903.5 | 905.5 | 907.5 | 909.5 | 911.5 | 913.5 | 915.5 | 917.5 | 919.5 | 82.5       |
| 83.0       | 901.8                                                            | 903.8 | 905.8 | 907.8 | 909.8 | 911.8 | 913.8 | 915.8 | 917.8 | 919.8 | 83.0       |
| 83.5       | 902.1                                                            | 904.1 | 906.1 | 908.1 | 910.1 | 912.1 | 914.1 | 916.1 | 918.1 | 920.1 | 83.5       |
| 84.0       | 902.4                                                            | 904.4 | 906.4 | 908.4 | 910.4 | 912.4 | 914.4 | 916.4 | 918.4 | 920.4 | 84.0       |
| 84.5       | 902.7                                                            | 904.7 | 906.7 | 908.7 | 910.7 | 912.7 | 914.7 | 916.7 | 918.7 | 920.7 | 84.5       |
| 85.0       | 903.1                                                            | 905.1 | 907.0 | 909.0 | 911.0 | 913.0 | 915.0 | 917.0 | 919.0 | 921.0 | 85.0       |
| 85.5       | 903.4                                                            | 905.4 | 907.4 | 909.4 | 911.4 | 913.3 | 915.3 | 917.3 | 919.3 | 921.3 | 85.5       |
| 86.0       | 903.7                                                            | 905.7 | 907.7 | 909.7 | 911.7 | 913.6 | 915.6 | 917.6 | 919.6 | 921.6 | 86.0       |
| 86.5       | 904.0                                                            | 906.0 | 908.0 | 910.0 | 912.0 | 914.0 | 916.0 | 917.9 | 919.9 | 921.9 | 86.5       |
| 87.0       | 904.3                                                            | 906.3 | 908.3 | 910.3 | 912.3 | 914.3 | 916.3 | 918.3 | 920.3 | 922.3 | 87.0       |
| 87.5       | 904.6                                                            | 906.6 | 908.6 | 910.6 | 912.6 | 914.6 | 916.6 | 918.6 | 920.6 | 922.6 | 87.5       |
| 88.0       | 904.9                                                            | 906.9 | 908.9 | 910.9 | 912.9 | 914.9 | 916.9 | 918.9 | 920.9 | 922.9 | 88.0       |
| 88.5       | 905.2                                                            | 907.2 | 909.2 | 911.2 | 913.2 | 915.2 | 917.2 | 919.2 | 921.2 | 923.2 | 88.5       |
| 89.0       | 905.5                                                            | 907.5 | 909.5 | 911.5 | 913.5 | 915.5 | 917.5 | 919.5 | 921.5 | 923.5 | 89.0       |
| 89.5       | 905.8                                                            | 907.8 | 909.8 | 911.8 | 913.8 | 915.8 | 917.8 | 919.8 | 921.8 | 923.8 | 89.5       |
| 90.0       | 906.2                                                            | 908.2 | 910.1 | 912.1 | 914.1 | 916.1 | 918.1 | 920.1 | 922.1 | 924.1 | 90.0       |
| 90.5       | 906.5                                                            | 908.5 | 910.5 | 912.5 | 914.4 | 916.4 | 918.4 | 920.4 | 922.4 | 924.4 | 90.5       |
| 91.0       | 906.8                                                            | 908.8 | 910.8 | 912.8 | 914.8 | 916.8 | 918.8 | 920.7 | 922.7 | 924.7 | 91.0       |
| 91.5       | 907.1                                                            | 909.1 | 911.1 | 913.1 | 915.1 | 917.1 | 919.1 | 921.1 | 923.1 | 925.0 | 91.5       |
| 92.0       | 907.4                                                            | 909.4 | 911.4 | 913.4 | 915.4 | 917.4 | 919.4 | 921.4 | 923.4 | 925.4 | 92.0       |
| 92.5       | 907.7                                                            | 909.7 | 911.7 | 913.7 | 915.7 | 917.7 | 919.7 | 921.7 | 923.7 | 925.7 | 92.5       |
| 93.0       | 908.0                                                            | 910.0 | 912.0 | 914.0 | 916.0 | 918.0 | 920.0 | 922.0 | 924.0 | 926.0 | 93.0       |
| 93.5       | 908.3                                                            | 910.3 | 912.3 | 914.3 | 916.3 | 918.3 | 920.3 | 922.3 | 924.3 | 926.3 | 93.5       |
| 94.0       | 908.6                                                            | 910.6 | 912.6 | 914.6 | 916.6 | 918.6 | 920.6 | 922.6 | 924.6 | 926.6 | 94.0       |
| 94.5       | 909.0                                                            | 910.9 | 912.9 | 914.9 | 916.9 | 918.9 | 920.9 | 922.9 | 924.9 | 926.9 | 94.5       |
| 95.0       | 909.3                                                            | 911.3 | 913.3 | 915.3 | 917.2 | 919.2 | 921.2 | 923.2 | 925.2 | 927.2 | 95.0       |
| 95.5       | 909.6                                                            | 911.6 | 913.6 | 915.6 | 917.6 | 919.6 | 921.5 | 923.5 | 925.5 | 927.5 | 95.5       |
| 96.0       | 909.9                                                            | 911.9 | 913.9 | 915.9 | 917.9 | 919.9 | 921.9 | 923.9 | 925.8 | 927.8 | 96.0       |
| 96.5       | 910.2                                                            | 912.2 | 914.2 | 916.2 | 918.2 | 920.2 | 922.2 | 924.2 | 926.2 | 928.2 | 96.5       |
| 97.0       | 910.5                                                            | 912.5 | 914.5 | 916.5 | 918.5 | 920.5 | 922.5 | 924.5 | 926.5 | 928.5 | 97.0       |
| 97.5       | 910.8                                                            | 912.8 | 914.8 | 916.8 | 918.8 | 920.8 | 922.8 | 924.8 | 926.8 | 928.8 | 97.5       |
| 98.0       | 911.1                                                            | 913.1 | 915.1 | 917.1 | 919.1 | 921.1 | 923.1 | 925.1 | 927.1 | 929.1 | 98.0       |
| 98.5       | 911.4                                                            | 913.4 | 915.4 | 917.4 | 919.4 | 921.4 | 923.4 | 925.4 | 927.4 | 929.4 | 98.5       |
| 99.0       | 911.8                                                            | 913.8 | 915.7 | 917.7 | 919.7 | 921.7 | 923.7 | 925.7 | 927.7 | 929.7 | 99.0       |
| 99.5       | 912.1                                                            | 914.1 | 916.1 | 918.0 | 920.0 | 922.0 | 924.0 | 926.0 | 928.0 | 930.0 | 99.5       |
| 100.0      | 912.4                                                            | 914.4 | 916.4 | 918.4 | 920.4 | 922.3 | 924.3 | 926.3 | 928.3 | 930.3 | 100.0      |
| 100.5      | 912.7                                                            | 914.7 | 916.7 | 918.7 | 920.7 | 922.7 | 924.7 | 926.6 | 928.6 | 930.6 | 100.5      |
| 101.0      | 913.0                                                            | 915.0 | 917.0 | 919.0 | 921.0 | 923.0 | 925.0 | 927.0 | 929.0 | 930.9 | 101.0      |
| 101.5      | 913.3                                                            | 915.3 | 917.3 | 919.3 | 921.3 | 923.3 | 925.3 | 927.3 | 929.3 | 931.3 | 101.5      |
| 102.0      | 913.6                                                            | 915.6 | 917.6 | 919.6 | 921.6 | 923.6 | 925.6 | 927.6 | 929.6 | 931.6 | 102.0      |
| 102.5      | 913.9                                                            | 915.9 | 917.9 | 919.9 | 921.9 | 923.9 | 925.9 | 927.9 | 929.9 | 931.9 | 102.5      |
| 103.0      | 914.3                                                            | 916.2 | 918.2 | 920.2 | 922.2 | 924.2 | 926.2 | 928.2 | 930.2 | 932.2 | 103.0      |
| 103.5      | 914.5                                                            | 916.5 | 918.6 | 920.5 | 922.5 | 924.5 | 926.5 | 928.5 | 930.5 | 932.5 | 103.5      |
| 104.0      | 914.9                                                            | 916.9 | 918.8 | 920.8 | 922.9 | 924.8 | 926.8 | 928.8 | 930.8 | 932.8 | 104.0      |
| 104.5      | 915.2                                                            | 917.2 | 919.2 | 921.2 | 923.1 | 925.2 | 927.1 | 929.1 | 931.1 | 933.1 | 104.5      |
| 105.0      | 915.5                                                            | 917.5 | 919.5 | 921.5 | 923.5 | 925.5 | 927.5 | 929.4 | 931.4 | 933.4 | 105.0      |

OBSERVED DENSITY = 860 TO 878

WHEN USING A DENSITY IN G/ML, G/CC, OR KG/L, MULTIPLY BY 1000 BEFORE ENTERING THE ABOVE TABLE

TABLE 53D, GENERALIZED LUBRICATING OILS  
DENSITY CORRECTION TO 15 C

| TEMP.<br>C                    | DENSITY AT OBSERVED TEMPERATURE |       |       |       |       |       |       |       |       |       | TEMP.<br>C |
|-------------------------------|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------------|
|                               | 860                             | 862   | 864   | 866   | 868   | 870   | 872   | 874   | 876   | 878   |            |
| CORRESPONDING DENSITY AT 15 C |                                 |       |       |       |       |       |       |       |       |       |            |
| 105.0                         | 915.5                           | 917.5 | 919.5 | 921.5 | 923.5 | 925.5 | 927.5 | 929.4 | 931.4 | 933.4 | 105.0      |
| 105.5                         | 915.8                           | 917.8 | 919.8 | 921.8 | 923.8 | 925.8 | 927.8 | 929.8 | 931.8 | 933.7 | 105.5      |
| 106.0                         | 916.1                           | 918.1 | 920.1 | 922.1 | 924.1 | 926.1 | 928.1 | 930.1 | 932.1 | 934.1 | 106.0      |
| 106.5                         | 916.4                           | 918.4 | 920.4 | 922.4 | 924.4 | 926.4 | 928.4 | 930.4 | 932.4 | 934.4 | 106.5      |
| 107.0                         | 916.7                           | 918.7 | 920.7 | 922.7 | 924.7 | 926.7 | 928.7 | 930.7 | 932.7 | 934.7 | 107.0      |
| 107.5                         | 917.0                           | 919.0 | 921.0 | 923.0 | 925.0 | 927.0 | 929.0 | 931.0 | 933.0 | 935.0 | 107.5      |
| 108.0                         | 917.4                           | 919.4 | 921.3 | 923.3 | 925.3 | 927.3 | 929.3 | 931.3 | 933.3 | 935.3 | 108.0      |
| 108.5                         | 917.7                           | 919.7 | 921.7 | 923.7 | 925.6 | 927.6 | 929.6 | 931.6 | 933.6 | 935.6 | 108.5      |
| 109.0                         | 918.0                           | 920.0 | 922.0 | 924.0 | 926.0 | 928.0 | 929.9 | 931.9 | 933.9 | 935.9 | 109.0      |
| 109.5                         | 918.3                           | 920.3 | 922.3 | 924.3 | 926.3 | 928.3 | 930.3 | 932.2 | 934.2 | 936.2 | 109.5      |
| 110.0                         | 918.6                           | 920.6 | 922.6 | 924.6 | 926.6 | 928.6 | 930.6 | 932.6 | 934.6 | 936.5 | 110.0      |
| 110.5                         | 918.9                           | 920.9 | 922.9 | 924.9 | 926.9 | 928.9 | 930.9 | 932.9 | 934.9 | 936.9 | 110.5      |
| 111.0                         | 919.2                           | 921.2 | 923.2 | 925.2 | 927.2 | 929.2 | 931.2 | 933.2 | 935.2 | 937.2 | 111.0      |
| 111.5                         | 919.5                           | 921.5 | 923.5 | 925.5 | 927.5 | 929.5 | 931.5 | 933.5 | 935.5 | 937.5 | 111.5      |
| 112.0                         | 919.9                           | 921.8 | 923.8 | 925.8 | 927.8 | 929.8 | 931.8 | 933.8 | 935.8 | 937.8 | 112.0      |
| 112.5                         | 920.2                           | 922.2 | 924.2 | 926.1 | 928.1 | 930.1 | 932.1 | 934.1 | 936.1 | 938.1 | 112.5      |
| 113.0                         | 920.5                           | 922.5 | 924.5 | 926.5 | 928.5 | 930.4 | 932.4 | 934.4 | 936.4 | 938.4 | 113.0      |
| 113.5                         | 920.8                           | 922.8 | 924.8 | 926.8 | 928.8 | 930.8 | 932.8 | 934.7 | 936.7 | 938.7 | 113.5      |
| 114.0                         | 921.1                           | 923.1 | 925.1 | 927.1 | 929.1 | 931.1 | 933.1 | 935.1 | 937.0 | 939.0 | 114.0      |
| 114.5                         | 921.4                           | 923.4 | 925.4 | 927.4 | 929.4 | 931.4 | 933.4 | 935.4 | 937.4 | 939.4 | 114.5      |
| 115.0                         | 921.7                           | 923.7 | 925.7 | 927.7 | 929.7 | 931.7 | 933.7 | 935.7 | 937.7 | 939.7 | 115.0      |
| 115.5                         | 922.0                           | 924.0 | 926.0 | 928.0 | 930.0 | 932.0 | 934.0 | 936.0 | 938.0 | 940.0 | 115.5      |
| 116.0                         | 922.4                           | 924.3 | 926.3 | 928.3 | 930.3 | 932.3 | 934.3 | 936.3 | 938.3 | 940.3 | 116.0      |
| 116.5                         | 922.7                           | 924.7 | 926.7 | 928.6 | 930.6 | 932.6 | 934.6 | 936.6 | 938.6 | 940.6 | 116.5      |
| 117.0                         | 923.0                           | 925.0 | 927.0 | 929.0 | 930.9 | 932.9 | 934.9 | 936.9 | 938.9 | 940.9 | 117.0      |
| 117.5                         | 923.3                           | 925.3 | 927.3 | 929.3 | 931.3 | 933.3 | 935.2 | 937.2 | 939.2 | 941.2 | 117.5      |
| 118.0                         | 923.6                           | 925.6 | 927.6 | 929.6 | 931.6 | 933.6 | 935.6 | 937.5 | 939.5 | 941.5 | 118.0      |
| 118.5                         | 923.9                           | 925.9 | 927.9 | 929.9 | 931.9 | 933.9 | 935.9 | 937.9 | 939.9 | 941.8 | 118.5      |
| 119.0                         | 924.2                           | 926.2 | 928.2 | 930.2 | 932.2 | 934.2 | 936.2 | 938.2 | 940.2 | 942.2 | 119.0      |
| 119.5                         | 924.5                           | 926.5 | 928.5 | 930.5 | 932.5 | 934.5 | 936.5 | 938.5 | 940.5 | 942.5 | 119.5      |
| 120.0                         | 924.8                           | 926.8 | 928.8 | 930.8 | 932.8 | 934.8 | 936.8 | 938.8 | 940.8 | 942.8 | 120.0      |
| 120.5                         | 925.2                           | 927.2 | 929.1 | 931.1 | 933.1 | 935.1 | 937.1 | 939.1 | 941.1 | 943.1 | 120.5      |
| 121.0                         | 925.5                           | 927.5 | 929.5 | 931.4 | 933.4 | 935.4 | 937.4 | 939.4 | 941.4 | 943.4 | 121.0      |
| 121.5                         | 925.8                           | 927.8 | 929.8 | 931.8 | 933.8 | 935.7 | 937.7 | 939.7 | 941.7 | 943.7 | 121.5      |
| 122.0                         | 926.1                           | 928.1 | 930.1 | 932.1 | 934.1 | 936.1 | 938.0 | 940.0 | 942.0 | 944.0 | 122.0      |
| 122.5                         | 926.4                           | 928.4 | 930.4 | 932.4 | 934.4 | 936.4 | 938.4 | 940.4 | 942.3 | 944.3 | 122.5      |
| 123.0                         | 926.7                           | 928.7 | 930.7 | 932.7 | 934.7 | 936.7 | 938.7 | 940.7 | 942.7 | 944.7 | 123.0      |
| 123.5                         | 927.0                           | 929.0 | 931.0 | 933.0 | 935.0 | 937.0 | 939.0 | 941.0 | 943.0 | 945.0 | 123.5      |
| 124.0                         | 927.4                           | 929.3 | 931.3 | 933.3 | 935.3 | 937.3 | 939.3 | 941.3 | 943.3 | 945.3 | 124.0      |
| 124.5                         | 927.7                           | 929.7 | 931.6 | 933.6 | 935.6 | 937.6 | 939.6 | 941.6 | 943.6 | 945.6 | 124.5      |
| 125.0                         | 928.0                           | 930.0 | 932.0 | 934.0 | 935.9 | 937.9 | 939.9 | 941.9 | 943.9 | 945.9 | 125.0      |
| 125.5                         | 928.3                           | 930.3 | 932.3 | 934.3 | 936.2 | 938.2 | 940.2 | 942.2 | 944.2 | 946.2 | 125.5      |
| 126.0                         | 928.6                           | 930.6 | 932.6 | 934.6 | 936.6 | 938.6 | 940.6 | 942.5 | 944.5 | 946.5 | 126.0      |
| 126.5                         | 928.9                           | 930.9 | 932.9 | 934.9 | 936.9 | 938.9 | 940.9 | 942.9 | 944.8 | 946.8 | 126.5      |
| 127.0                         | 929.2                           | 931.2 | 933.2 | 935.2 | 937.2 | 939.2 | 941.2 | 943.2 | 945.2 | 947.2 | 127.0      |
| 127.5                         | 929.5                           | 931.5 | 933.5 | 935.5 | 937.5 | 939.5 | 941.5 | 943.5 | 945.5 | 947.5 | 127.5      |
| 128.0                         | 929.9                           | 931.8 | 933.8 | 935.8 | 937.8 | 939.8 | 941.8 | 943.8 | 945.8 | 947.8 | 128.0      |
| 128.5                         | 930.2                           | 932.2 | 934.2 | 936.1 | 938.1 | 940.1 | 942.1 | 944.1 | 946.1 | 948.1 | 128.5      |
| 129.0                         | 930.5                           | 932.5 | 934.5 | 936.4 | 938.4 | 940.4 | 942.4 | 944.4 | 946.4 | 948.4 | 129.0      |
| 129.5                         | 930.8                           | 932.8 | 934.8 | 936.8 | 938.8 | 940.7 | 942.7 | 944.7 | 946.7 | 948.7 | 129.5      |
| 130.0                         | 931.1                           | 933.1 | 935.1 | 937.1 | 939.1 | 941.1 | 943.0 | 945.0 | 947.0 | 949.0 | 130.0      |

OBSERVED DENSITY = 860 TO 878

WHEN USING A DENSITY IN G/ML, G/CC, OR KG/L, MULTIPLY BY 1000 BEFORE ENTERING THE ABOVE TABLE

TABLE 53D, GENERALIZED LUBRICATING OILS  
DENSITY CORRECTION TO 15 C

| TEMP.<br>C | DENSITY AT OBSERVED TEMPERATURE<br>CORRESPONDING DENSITY AT 15 C |       |       |       |       |       |       |       |       |       | TEMP.<br>C |
|------------|------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------------|
|            | 860                                                              | 862   | 864   | 866   | 868   | 870   | 872   | 874   | 876   | 878   |            |
| 130.0      | 931.1                                                            | 933.1 | 935.1 | 937.1 | 939.1 | 941.1 | 943.0 | 945.0 | 947.0 | 949.0 | 130.0      |
| 130.5      | 931.4                                                            | 933.4 | 935.4 | 937.4 | 939.4 | 941.4 | 943.4 | 945.4 | 947.3 | 949.3 | 130.5      |
| 131.0      | 931.7                                                            | 933.7 | 935.7 | 937.7 | 939.7 | 941.7 | 943.7 | 945.7 | 947.7 | 949.7 | 131.0      |
| 131.5      | 932.0                                                            | 934.0 | 936.0 | 938.0 | 940.0 | 942.0 | 944.0 | 946.0 | 948.0 | 950.0 | 131.5      |
| 132.0      | 932.4                                                            | 934.3 | 936.3 | 938.3 | 940.3 | 942.3 | 944.3 | 946.3 | 948.3 | 950.3 | 132.0      |
| 132.5      | 932.7                                                            | 934.7 | 936.7 | 938.6 | 940.6 | 942.6 | 944.6 | 946.6 | 948.6 | 950.6 | 132.5      |
| 133.0      | 933.0                                                            | 935.0 | 937.0 | 939.0 | 940.9 | 942.9 | 944.9 | 946.9 | 948.9 | 950.9 | 133.0      |
| 133.5      | 933.3                                                            | 935.3 | 937.3 | 939.3 | 941.3 | 943.2 | 945.2 | 947.2 | 949.2 | 951.2 | 133.5      |
| 134.0      | 933.6                                                            | 935.6 | 937.6 | 939.6 | 941.6 | 943.6 | 945.6 | 947.5 | 949.5 | 951.5 | 134.0      |
| 134.5      | 933.9                                                            | 935.9 | 937.9 | 939.9 | 941.9 | 943.9 | 945.9 | 947.9 | 949.9 | 951.8 | 134.5      |
| 135.0      | 934.2                                                            | 936.2 | 938.2 | 940.2 | 942.2 | 944.2 | 946.2 | 948.2 | 950.2 | 952.2 | 135.0      |
| 135.5      | 934.5                                                            | 936.5 | 938.5 | 940.5 | 942.5 | 944.5 | 946.5 | 948.5 | 950.5 | 952.5 | 135.5      |
| 136.0      | 934.9                                                            | 936.8 | 938.8 | 940.8 | 942.8 | 944.8 | 946.8 | 948.8 | 950.8 | 952.8 | 136.0      |
| 136.5      | 935.2                                                            | 937.2 | 939.2 | 941.1 | 943.1 | 945.1 | 947.1 | 949.1 | 951.1 | 953.1 | 136.5      |
| 137.0      | 935.5                                                            | 937.5 | 939.5 | 941.4 | 943.4 | 945.4 | 947.4 | 949.4 | 951.4 | 953.4 | 137.0      |
| 137.5      | 935.8                                                            | 937.8 | 939.8 | 941.8 | 943.8 | 945.8 | 947.7 | 949.7 | 951.7 | 953.7 | 137.5      |
| 138.0      | 936.1                                                            | 938.1 | 940.1 | 942.1 | 944.1 | 946.1 | 948.1 | 950.0 | 952.0 | 954.0 | 138.0      |
| 138.5      | 936.4                                                            | 938.4 | 940.4 | 942.4 | 944.4 | 946.4 | 948.4 | 950.4 | 952.3 | 954.3 | 138.5      |
| 139.0      | 936.7                                                            | 938.7 | 940.7 | 942.7 | 944.7 | 946.7 | 948.7 | 950.7 | 952.7 | 954.7 | 139.0      |
| 139.5      | 937.0                                                            | 939.0 | 941.0 | 943.0 | 945.0 | 947.0 | 949.0 | 951.0 | 953.0 | 955.0 | 139.5      |
| 140.0      | 937.4                                                            | 939.3 | 941.3 | 943.3 | 945.3 | 947.3 | 949.3 | 951.3 | 953.3 | 955.3 | 140.0      |
| 140.5      | 937.7                                                            | 939.7 | 941.6 | 943.6 | 945.6 | 947.6 | 949.6 | 951.6 | 953.6 | 955.6 | 140.5      |
| 141.0      | 938.0                                                            | 940.0 | 942.0 | 944.0 | 946.0 | 947.9 | 949.9 | 951.9 | 953.9 | 955.9 | 141.0      |
| 141.5      | 938.3                                                            | 940.3 | 942.3 | 944.3 | 946.3 | 948.3 | 950.2 | 952.2 | 954.2 | 956.2 | 141.5      |
| 142.0      | 938.6                                                            | 940.6 | 942.6 | 944.6 | 946.6 | 948.6 | 950.6 | 952.6 | 954.5 | 956.5 | 142.0      |
| 142.5      | 938.9                                                            | 940.9 | 942.9 | 944.9 | 946.9 | 948.9 | 950.9 | 952.9 | 954.9 | 956.8 | 142.5      |
| 143.0      | 939.2                                                            | 941.2 | 943.2 | 945.2 | 947.2 | 949.2 | 951.2 | 953.2 | 955.2 | 957.2 | 143.0      |
| 143.5      | 939.5                                                            | 941.5 | 943.5 | 945.5 | 947.5 | 949.5 | 951.5 | 953.5 | 955.5 | 957.5 | 143.5      |
| 144.0      | 939.9                                                            | 941.9 | 943.9 | 945.8 | 947.8 | 949.8 | 951.8 | 953.8 | 955.8 | 957.8 | 144.0      |
| 144.5      | 940.2                                                            | 942.2 | 944.2 | 946.1 | 948.1 | 950.1 | 952.1 | 954.1 | 956.1 | 958.1 | 144.5      |
| 145.0      | 940.5                                                            | 942.5 | 944.5 | 946.5 | 948.4 | 950.4 | 952.4 | 954.4 | 956.4 | 958.4 | 145.0      |
| 145.5      | 940.8                                                            | 942.8 | 944.8 | 946.8 | 948.8 | 950.8 | 952.7 | 954.7 | 956.7 | 958.7 | 145.5      |
| 146.0      | 941.1                                                            | 943.1 | 945.1 | 947.1 | 949.1 | 951.1 | 953.1 | 955.0 | 957.0 | 959.0 | 146.0      |
| 146.5      | 941.4                                                            | 943.4 | 945.4 | 947.4 | 949.4 | 951.4 | 953.4 | 955.4 | 957.4 | 959.3 | 146.5      |
| 147.0      | 941.7                                                            | 943.7 | 945.7 | 947.7 | 949.7 | 951.7 | 953.7 | 955.7 | 957.7 | 959.7 | 147.0      |
| 147.5      | 942.1                                                            | 944.0 | 946.0 | 948.0 | 950.0 | 952.0 | 954.0 | 956.0 | 958.0 | 960.0 | 147.5      |
| 148.0      | 942.4                                                            | 944.4 | 946.4 | 948.3 | 950.3 | 952.3 | 954.3 | 956.3 | 958.3 | 960.3 | 148.0      |
| 148.5      | 942.7                                                            | 944.7 | 946.7 | 948.7 | 950.7 | 952.6 | 954.6 | 956.6 | 958.6 | 960.6 | 148.5      |
| 149.0      | 943.0                                                            | 945.0 | 947.0 | 949.0 | 951.0 | 953.0 | 954.9 | 956.9 | 958.9 | 960.9 | 149.0      |
| 149.5      | 943.3                                                            | 945.3 | 947.3 | 949.3 | 951.3 | 953.3 | 955.3 | 957.2 | 959.2 | 961.2 | 149.5      |
| 150.0      | 943.6                                                            | 945.6 | 947.6 | 949.6 | 951.6 | 953.6 | 955.6 | 957.6 | 959.5 | 961.5 | 150.0      |

OBSERVED DENSITY = 860 TO 878

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WHEN USING A DENSITY IN G/ML, G/CC, OR KG/L, MULTIPLY BY 1000 BEFORE ENTERING THE ABOVE TABLE

TABLE 53D, GENERALIZED LUBRICATING OILS  
DENSITY CORRECTION TO 15 C

| TEMP.<br>C                    | DENSITY AT OBSERVED TEMPERATURE |       |       |       |       |       |       |       |       |       | TEMP.<br>C |
|-------------------------------|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------------|
|                               | 880                             | 882   | 884   | 886   | 888   | 890   | 892   | 894   | 896   | 898   |            |
| CORRESPONDING DENSITY AT 15 C |                                 |       |       |       |       |       |       |       |       |       |            |
| -20.0                         | 858.9                           | 860.9 | 862.9 | 864.9 | 866.9 | 868.9 | 870.9 | 872.9 | 874.9 | 876.9 | -20.0      |
| -19.5                         | 859.2                           | 861.2 | 863.2 | 865.2 | 867.2 | 869.2 | 871.2 | 873.2 | 875.2 | 877.2 | -19.5      |
| -19.0                         | 859.5                           | 861.5 | 863.5 | 865.5 | 867.5 | 869.5 | 871.5 | 873.5 | 875.5 | 877.5 | -19.0      |
| -18.5                         | 859.8                           | 861.8 | 863.8 | 865.8 | 867.8 | 869.8 | 871.8 | 873.8 | 875.8 | 877.8 | -18.5      |
| -18.0                         | 860.1                           | 862.1 | 864.1 | 866.1 | 868.1 | 870.1 | 872.1 | 874.1 | 876.1 | 878.1 | -18.0      |
| -17.5                         | 860.4                           | 862.4 | 864.4 | 866.4 | 868.4 | 870.4 | 872.4 | 874.4 | 876.4 | 878.4 | -17.5      |
| -17.0                         | 860.7                           | 862.7 | 864.7 | 866.7 | 868.7 | 870.7 | 872.7 | 874.7 | 876.7 | 878.7 | -17.0      |
| -16.5                         | 861.0                           | 863.0 | 865.0 | 867.0 | 869.0 | 871.0 | 873.0 | 875.0 | 877.0 | 879.0 | -16.5      |
| -16.0                         | 861.3                           | 863.3 | 865.3 | 867.3 | 869.3 | 871.3 | 873.3 | 875.3 | 877.3 | 879.3 | -16.0      |
| -15.5                         | 861.6                           | 863.6 | 865.6 | 867.6 | 869.6 | 871.6 | 873.6 | 875.6 | 877.6 | 879.6 | -15.5      |
| -15.0                         | 861.9                           | 863.9 | 865.9 | 867.9 | 869.9 | 871.9 | 873.9 | 875.9 | 877.9 | 879.9 | -15.0      |
| -14.5                         | 862.2                           | 864.2 | 866.2 | 868.2 | 870.2 | 872.2 | 874.2 | 876.2 | 878.2 | 880.2 | -14.5      |
| -14.0                         | 862.5                           | 864.5 | 866.5 | 868.5 | 870.5 | 872.5 | 874.5 | 876.5 | 878.5 | 880.5 | -14.0      |
| -13.5                         | 862.8                           | 864.8 | 866.8 | 868.8 | 870.8 | 872.8 | 874.8 | 876.8 | 878.8 | 880.8 | -13.5      |
| -13.0                         | 863.1                           | 865.1 | 867.1 | 869.1 | 871.1 | 873.1 | 875.1 | 877.1 | 879.1 | 881.1 | -13.0      |
| -12.5                         | 863.4                           | 865.4 | 867.4 | 869.4 | 871.4 | 873.4 | 875.4 | 877.4 | 879.4 | 881.4 | -12.5      |
| -12.0                         | 863.7                           | 865.7 | 867.7 | 869.7 | 871.7 | 873.7 | 875.7 | 877.7 | 879.7 | 881.7 | -12.0      |
| -11.5                         | 864.0                           | 866.0 | 868.0 | 870.0 | 872.0 | 874.0 | 876.0 | 878.0 | 880.0 | 882.0 | -11.5      |
| -11.0                         | 864.3                           | 866.3 | 868.3 | 870.3 | 872.3 | 874.3 | 876.3 | 878.3 | 880.3 | 882.3 | -11.0      |
| -10.5                         | 864.6                           | 866.6 | 868.6 | 870.6 | 872.6 | 874.6 | 876.6 | 878.6 | 880.6 | 882.6 | -10.5      |
| -10.0                         | 864.9                           | 866.9 | 868.9 | 870.9 | 872.9 | 874.9 | 876.9 | 878.9 | 880.9 | 882.9 | -10.0      |
| -9.5                          | 865.2                           | 867.2 | 869.2 | 871.2 | 873.2 | 875.2 | 877.2 | 879.2 | 881.2 | 883.2 | -9.5       |
| -9.0                          | 865.5                           | 867.5 | 869.5 | 871.5 | 873.5 | 875.5 | 877.5 | 879.5 | 881.5 | 883.5 | -9.0       |
| -8.5                          | 865.8                           | 867.8 | 869.8 | 871.8 | 873.8 | 875.8 | 877.8 | 879.8 | 881.8 | 883.8 | -8.5       |
| -8.0                          | 866.1                           | 868.1 | 870.1 | 872.1 | 874.1 | 876.1 | 878.1 | 880.1 | 882.1 | 884.1 | -8.0       |
| -7.5                          | 866.4                           | 868.4 | 870.4 | 872.4 | 874.4 | 876.4 | 878.4 | 880.4 | 882.4 | 884.4 | -7.5       |
| -7.0                          | 866.7                           | 868.7 | 870.7 | 872.7 | 874.7 | 876.7 | 878.7 | 880.7 | 882.7 | 884.7 | -7.0       |
| -6.5                          | 867.0                           | 869.0 | 871.0 | 873.0 | 875.0 | 877.0 | 879.0 | 881.0 | 883.0 | 885.0 | -6.5       |
| -6.0                          | 867.3                           | 869.3 | 871.3 | 873.3 | 875.3 | 877.3 | 879.3 | 881.3 | 883.3 | 885.3 | -6.0       |
| -5.5                          | 867.6                           | 869.6 | 871.6 | 873.6 | 875.6 | 877.6 | 879.6 | 881.6 | 883.6 | 885.6 | -5.5       |
| -5.0                          | 867.9                           | 869.9 | 871.9 | 873.9 | 875.9 | 877.9 | 879.9 | 881.9 | 883.9 | 885.9 | -5.0       |
| -4.5                          | 868.2                           | 870.2 | 872.2 | 874.2 | 876.2 | 878.2 | 880.2 | 882.2 | 884.2 | 886.2 | -4.5       |
| -4.0                          | 868.5                           | 870.5 | 872.5 | 874.5 | 876.5 | 878.5 | 880.5 | 882.5 | 884.5 | 886.5 | -4.0       |
| -3.5                          | 868.8                           | 870.8 | 872.8 | 874.8 | 876.8 | 878.8 | 880.8 | 882.8 | 884.8 | 886.8 | -3.5       |
| -3.0                          | 869.1                           | 871.1 | 873.1 | 875.1 | 877.1 | 879.1 | 881.1 | 883.1 | 885.1 | 887.1 | -3.0       |
| -2.5                          | 869.4                           | 871.4 | 873.4 | 875.4 | 877.4 | 879.4 | 881.4 | 883.4 | 885.4 | 887.4 | -2.5       |
| -2.0                          | 869.7                           | 871.7 | 873.7 | 875.7 | 877.7 | 879.7 | 881.7 | 883.7 | 885.7 | 887.7 | -2.0       |
| -1.5                          | 870.0                           | 872.0 | 874.0 | 876.0 | 878.0 | 880.0 | 882.0 | 884.0 | 886.0 | 888.0 | -1.5       |
| -1.0                          | 870.3                           | 872.3 | 874.3 | 876.3 | 878.3 | 880.3 | 882.3 | 884.3 | 886.3 | 888.3 | -1.0       |
| -0.5                          | 870.6                           | 872.6 | 874.6 | 876.6 | 878.6 | 880.6 | 882.6 | 884.6 | 886.6 | 888.6 | -0.5       |
| 0.0                           | 870.9                           | 872.9 | 874.9 | 876.9 | 878.9 | 880.9 | 882.9 | 884.9 | 886.9 | 888.9 | 0.0        |
| 0.5                           | 871.2                           | 873.2 | 875.2 | 877.2 | 879.2 | 881.2 | 883.2 | 885.2 | 887.2 | 889.2 | 0.5        |
| 1.0                           | 871.5                           | 873.5 | 875.5 | 877.5 | 879.5 | 881.5 | 883.5 | 885.5 | 887.5 | 889.5 | 1.0        |
| 1.5                           | 871.8                           | 873.8 | 875.8 | 877.8 | 879.8 | 881.8 | 883.8 | 885.8 | 887.8 | 889.8 | 1.5        |
| 2.0                           | 872.1                           | 874.1 | 876.1 | 878.1 | 880.1 | 882.1 | 884.1 | 886.1 | 888.1 | 890.1 | 2.0        |
| 2.5                           | 872.4                           | 874.4 | 876.4 | 878.4 | 880.4 | 882.4 | 884.4 | 886.4 | 888.4 | 890.4 | 2.5        |
| 3.0                           | 872.7                           | 874.7 | 876.7 | 878.7 | 880.7 | 882.7 | 884.7 | 886.7 | 888.7 | 890.7 | 3.0        |
| 3.5                           | 873.0                           | 875.0 | 877.0 | 879.0 | 881.0 | 883.0 | 885.0 | 887.0 | 889.0 | 891.0 | 3.5        |
| 4.0                           | 873.3                           | 875.3 | 877.3 | 879.3 | 881.3 | 883.3 | 885.3 | 887.3 | 889.3 | 891.3 | 4.0        |
| 4.5                           | 873.6                           | 875.6 | 877.6 | 879.6 | 881.6 | 883.6 | 885.6 | 887.6 | 889.6 | 891.6 | 4.5        |
| 5.0                           | 873.9                           | 875.9 | 877.9 | 879.9 | 881.9 | 883.9 | 885.9 | 887.9 | 889.9 | 891.9 | 5.0        |

OBSERVED DENSITY = 880 TO 898

WHEN USING A DENSITY IN G/ML, G/CC, OR KG/L, MULTIPLY BY 1000 BEFORE ENTERING THE ABOVE TABLE

TABLE 53D, GENERALIZED LUBRICATING OILS  
DENSITY CORRECTION TO 15 C

| TEMP.<br>C | DENSITY AT OBSERVED TEMPERATURE<br>CORRESPONDING DENSITY AT 15 C |       |       |       |       |       |       |       |       |       | TEMP.<br>C |
|------------|------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------------|
| 5.0        | 873.9                                                            | 875.9 | 877.9 | 879.9 | 881.9 | 883.9 | 885.9 | 887.9 | 889.9 | 891.9 | 5.0        |
| 5.5        | 874.2                                                            | 876.2 | 878.2 | 880.2 | 882.2 | 884.2 | 886.2 | 888.2 | 890.2 | 892.2 | 5.5        |
| 6.0        | 874.5                                                            | 876.5 | 878.5 | 880.5 | 882.5 | 884.5 | 886.5 | 888.5 | 890.5 | 892.5 | 6.0        |
| 6.5        | 874.8                                                            | 876.8 | 878.8 | 880.8 | 882.8 | 884.8 | 886.8 | 888.8 | 890.8 | 892.8 | 6.5        |
| 7.0        | 875.1                                                            | 877.1 | 879.1 | 881.1 | 883.1 | 885.1 | 887.1 | 889.1 | 891.1 | 893.1 | 7.0        |
| 7.5        | 875.4                                                            | 877.4 | 879.4 | 881.4 | 883.4 | 885.4 | 887.4 | 889.4 | 891.4 | 893.4 | 7.5        |
| 8.0        | 875.8                                                            | 877.8 | 879.8 | 881.8 | 883.8 | 885.8 | 887.8 | 889.8 | 891.8 | 893.8 | 8.0        |
| 8.5        | 876.1                                                            | 878.1 | 880.1 | 882.1 | 884.1 | 886.1 | 888.1 | 890.1 | 892.1 | 894.1 | 8.5        |
| 9.0        | 876.4                                                            | 878.4 | 880.4 | 882.4 | 884.4 | 886.4 | 888.4 | 890.4 | 892.4 | 894.4 | 9.0        |
| 9.5        | 876.7                                                            | 878.7 | 880.7 | 882.7 | 884.7 | 886.7 | 888.7 | 890.7 | 892.7 | 894.7 | 9.5        |
| 10.0       | 877.0                                                            | 879.0 | 881.0 | 883.0 | 885.0 | 887.0 | 889.0 | 891.0 | 893.0 | 895.0 | 10.0       |
| 10.5       | 877.3                                                            | 879.3 | 881.3 | 883.3 | 885.3 | 887.3 | 889.3 | 891.3 | 893.3 | 895.3 | 10.5       |
| 11.0       | 877.6                                                            | 879.6 | 881.6 | 883.6 | 885.6 | 887.6 | 889.6 | 891.6 | 893.6 | 895.6 | 11.0       |
| 11.5       | 877.9                                                            | 879.9 | 881.9 | 883.9 | 885.9 | 887.9 | 889.9 | 891.9 | 893.9 | 895.9 | 11.5       |
| 12.0       | 878.2                                                            | 880.2 | 882.2 | 884.2 | 886.2 | 888.2 | 890.2 | 892.2 | 894.2 | 896.2 | 12.0       |
| 12.5       | 878.5                                                            | 880.5 | 882.5 | 884.5 | 886.5 | 888.5 | 890.5 | 892.5 | 894.5 | 896.5 | 12.5       |
| 13.0       | 878.8                                                            | 880.8 | 882.8 | 884.8 | 886.8 | 888.8 | 890.8 | 892.8 | 894.8 | 896.8 | 13.0       |
| 13.5       | 879.1                                                            | 881.1 | 883.1 | 885.1 | 887.1 | 889.1 | 891.1 | 893.1 | 895.1 | 897.1 | 13.5       |
| 14.0       | 879.4                                                            | 881.4 | 883.4 | 885.4 | 887.4 | 889.4 | 891.4 | 893.4 | 895.4 | 897.4 | 14.0       |
| 14.5       | 879.7                                                            | 881.7 | 883.7 | 885.7 | 887.7 | 889.7 | 891.7 | 893.7 | 895.7 | 897.7 | 14.5       |
| 15.0       | 880.0                                                            | 882.0 | 884.0 | 886.0 | 888.0 | 890.0 | 892.0 | 894.0 | 896.0 | 898.0 | 15.0       |
| 15.5       | 880.3                                                            | 882.3 | 884.3 | 886.3 | 888.3 | 890.3 | 892.3 | 894.3 | 896.3 | 898.3 | 15.5       |
| 16.0       | 880.6                                                            | 882.6 | 884.6 | 886.6 | 888.6 | 890.6 | 892.6 | 894.6 | 896.6 | 898.6 | 16.0       |
| 16.5       | 880.9                                                            | 882.9 | 884.9 | 886.9 | 888.9 | 890.9 | 892.9 | 894.9 | 896.9 | 898.9 | 16.5       |
| 17.0       | 881.2                                                            | 883.2 | 885.2 | 887.2 | 889.2 | 891.2 | 893.2 | 895.2 | 897.2 | 899.2 | 17.0       |
| 17.5       | 881.5                                                            | 883.5 | 885.5 | 887.5 | 889.5 | 891.5 | 893.5 | 895.5 | 897.5 | 899.5 | 17.5       |
| 18.0       | 881.8                                                            | 883.8 | 885.8 | 887.8 | 889.8 | 891.8 | 893.8 | 895.8 | 897.8 | 899.8 | 18.0       |
| 18.5       | 882.1                                                            | 884.1 | 886.1 | 888.1 | 890.1 | 892.1 | 894.1 | 896.1 | 898.1 | 900.1 | 18.5       |
| 19.0       | 882.4                                                            | 884.4 | 886.4 | 888.4 | 890.4 | 892.4 | 894.4 | 896.4 | 898.4 | 900.4 | 19.0       |
| 19.5       | 882.7                                                            | 884.7 | 886.7 | 888.7 | 890.7 | 892.7 | 894.7 | 896.7 | 898.7 | 900.7 | 19.5       |
| 20.0       | 883.0                                                            | 885.0 | 887.0 | 889.0 | 891.0 | 893.0 | 895.0 | 897.0 | 899.0 | 901.0 | 20.0       |
| 20.5       | 883.3                                                            | 885.3 | 887.3 | 889.3 | 891.3 | 893.3 | 895.3 | 897.3 | 899.3 | 901.3 | 20.5       |
| 21.0       | 883.7                                                            | 885.7 | 887.7 | 889.7 | 891.7 | 893.7 | 895.7 | 897.7 | 899.7 | 901.7 | 21.0       |
| 21.5       | 884.0                                                            | 886.0 | 888.0 | 890.0 | 892.0 | 894.0 | 896.0 | 898.0 | 900.0 | 902.0 | 21.5       |
| 22.0       | 884.3                                                            | 886.3 | 888.3 | 890.3 | 892.3 | 894.3 | 896.3 | 898.3 | 900.3 | 902.3 | 22.0       |
| 22.5       | 884.6                                                            | 886.6 | 888.6 | 890.6 | 892.6 | 894.6 | 896.6 | 898.6 | 900.6 | 902.6 | 22.5       |
| 23.0       | 884.9                                                            | 886.9 | 888.9 | 890.9 | 892.9 | 894.9 | 896.9 | 898.9 | 900.9 | 902.9 | 23.0       |
| 23.5       | 885.2                                                            | 887.2 | 889.2 | 891.2 | 893.2 | 895.2 | 897.2 | 899.2 | 901.2 | 903.2 | 23.5       |
| 24.0       | 885.5                                                            | 887.5 | 889.5 | 891.5 | 893.5 | 895.5 | 897.5 | 899.5 | 901.5 | 903.5 | 24.0       |
| 24.5       | 885.8                                                            | 887.8 | 889.8 | 891.8 | 893.8 | 895.8 | 897.8 | 899.8 | 901.8 | 903.8 | 24.5       |
| 25.0       | 886.1                                                            | 888.1 | 890.1 | 892.1 | 894.1 | 896.1 | 898.1 | 900.1 | 902.1 | 904.1 | 25.0       |
| 25.5       | 886.4                                                            | 888.4 | 890.4 | 892.4 | 894.4 | 896.4 | 898.4 | 900.4 | 902.4 | 904.4 | 25.5       |
| 26.0       | 886.7                                                            | 888.7 | 890.7 | 892.7 | 894.7 | 896.7 | 898.7 | 900.7 | 902.7 | 904.7 | 26.0       |
| 26.5       | 887.0                                                            | 889.0 | 891.0 | 893.0 | 895.0 | 897.0 | 899.0 | 901.0 | 903.0 | 905.0 | 26.5       |
| 27.0       | 887.3                                                            | 889.3 | 891.3 | 893.3 | 895.3 | 897.3 | 899.3 | 901.3 | 903.3 | 905.3 | 27.0       |
| 27.5       | 887.6                                                            | 889.6 | 891.6 | 893.6 | 895.6 | 897.6 | 899.6 | 901.6 | 903.6 | 905.6 | 27.5       |
| 28.0       | 887.9                                                            | 889.9 | 891.9 | 893.9 | 895.9 | 897.9 | 899.9 | 901.9 | 903.9 | 905.9 | 28.0       |
| 28.5       | 888.2                                                            | 890.2 | 892.2 | 894.2 | 896.2 | 898.2 | 900.2 | 902.2 | 904.2 | 906.2 | 28.5       |
| 29.0       | 888.5                                                            | 890.5 | 892.5 | 894.5 | 896.5 | 898.5 | 900.5 | 902.5 | 904.5 | 906.5 | 29.0       |
| 29.5       | 888.8                                                            | 890.8 | 892.8 | 894.8 | 896.8 | 898.8 | 900.8 | 902.8 | 904.8 | 906.8 | 29.5       |
| 30.0       | 889.1                                                            | 891.1 | 893.1 | 895.1 | 897.1 | 899.1 | 901.1 | 903.1 | 905.1 | 907.1 | 30.0       |

OBSERVED DENSITY = 880 TO 898

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WHEN USING A DENSITY IN G/ML, G/CC, OR KG/L, MULTIPLY BY 1000 BEFORE ENTERING THE ABOVE TABLE

TABLE 53D, GENERALIZED LUBRICATING OILS  
DENSITY CORRECTION TO 15 C

| TEMP.<br>C | DENSITY AT OBSERVED TEMPERATURE<br>CORRESPONDING DENSITY AT 15 C |       |       |       |       |       |       |       |       |       | TEMP.<br>C |
|------------|------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------------|
|            | 880                                                              | 882   | 884   | 886   | 888   | 890   | 892   | 894   | 896   | 898   |            |
| 30.0       | 889.1                                                            | 891.1 | 893.1 | 895.1 | 897.1 | 899.1 | 901.1 | 903.1 | 905.1 | 907.1 | 30.0       |
| 30.5       | 889.4                                                            | 891.4 | 893.4 | 895.4 | 897.4 | 899.4 | 901.4 | 903.4 | 905.4 | 907.4 | 30.5       |
| 31.0       | 889.7                                                            | 891.7 | 893.7 | 895.7 | 897.7 | 899.7 | 901.7 | 903.7 | 905.7 | 907.7 | 31.0       |
| 31.5       | 890.1                                                            | 892.1 | 894.1 | 896.1 | 898.1 | 900.1 | 902.1 | 904.1 | 906.1 | 908.0 | 31.5       |
| 32.0       | 890.4                                                            | 892.4 | 894.4 | 896.4 | 898.4 | 900.4 | 902.4 | 904.4 | 906.3 | 908.3 | 32.0       |
| 32.5       | 890.7                                                            | 892.7 | 894.7 | 896.7 | 898.7 | 900.7 | 902.7 | 904.7 | 906.7 | 908.7 | 32.5       |
| 33.0       | 891.0                                                            | 893.0 | 895.0 | 897.0 | 899.0 | 901.0 | 903.0 | 905.0 | 907.0 | 909.0 | 33.0       |
| 33.5       | 891.3                                                            | 893.3 | 895.3 | 897.3 | 899.3 | 901.3 | 903.3 | 905.3 | 907.3 | 909.3 | 33.5       |
| 34.0       | 891.6                                                            | 893.6 | 895.6 | 897.6 | 899.6 | 901.6 | 903.6 | 905.6 | 907.6 | 909.6 | 34.0       |
| 34.5       | 891.9                                                            | 893.9 | 895.9 | 897.9 | 899.9 | 901.9 | 903.9 | 905.9 | 907.9 | 909.9 | 34.5       |
| 35.0       | 892.2                                                            | 894.2 | 896.2 | 898.2 | 900.2 | 902.2 | 904.2 | 906.2 | 908.2 | 910.2 | 35.0       |
| 35.5       | 892.5                                                            | 894.5 | 896.5 | 898.5 | 900.5 | 902.5 | 904.5 | 906.5 | 908.5 | 910.5 | 35.5       |
| 36.0       | 892.8                                                            | 894.8 | 896.8 | 898.8 | 900.8 | 902.8 | 904.8 | 906.8 | 908.8 | 910.8 | 36.0       |
| 36.5       | 893.1                                                            | 895.1 | 897.1 | 899.1 | 901.1 | 903.1 | 905.1 | 907.1 | 909.1 | 911.1 | 36.5       |
| 37.0       | 893.4                                                            | 895.4 | 897.4 | 899.4 | 901.4 | 903.4 | 905.4 | 907.4 | 909.4 | 911.4 | 37.0       |
| 37.5       | 893.7                                                            | 895.7 | 897.7 | 899.7 | 901.7 | 903.7 | 905.7 | 907.7 | 909.7 | 911.7 | 37.5       |
| 38.0       | 894.0                                                            | 896.0 | 898.0 | 900.0 | 902.0 | 904.0 | 906.0 | 908.0 | 910.0 | 912.0 | 38.0       |
| 38.5       | 894.3                                                            | 896.3 | 898.3 | 900.3 | 902.3 | 904.3 | 906.3 | 908.3 | 910.3 | 912.3 | 38.5       |
| 39.0       | 894.6                                                            | 896.6 | 898.6 | 900.6 | 902.6 | 904.6 | 906.6 | 908.6 | 910.6 | 912.6 | 39.0       |
| 39.5       | 894.9                                                            | 896.9 | 898.9 | 900.9 | 902.9 | 904.9 | 906.9 | 908.9 | 910.9 | 912.9 | 39.5       |
| 40.0       | 895.3                                                            | 897.3 | 899.3 | 901.3 | 903.3 | 905.3 | 907.3 | 909.2 | 911.2 | 913.2 | 40.0       |
| 40.5       | 895.6                                                            | 897.6 | 899.6 | 901.6 | 903.6 | 905.6 | 907.6 | 909.5 | 911.5 | 913.5 | 40.5       |
| 41.0       | 895.9                                                            | 897.9 | 899.9 | 901.9 | 903.9 | 905.9 | 907.9 | 909.9 | 911.9 | 913.9 | 41.0       |
| 41.5       | 896.2                                                            | 898.2 | 900.2 | 902.2 | 904.2 | 906.2 | 908.2 | 910.2 | 912.2 | 914.2 | 41.5       |
| 42.0       | 896.5                                                            | 898.5 | 900.5 | 902.5 | 904.5 | 906.5 | 908.5 | 910.5 | 912.5 | 914.5 | 42.0       |
| 42.5       | 896.8                                                            | 898.8 | 900.8 | 902.8 | 904.8 | 906.8 | 908.8 | 910.8 | 912.8 | 914.8 | 42.5       |
| 43.0       | 897.1                                                            | 899.1 | 901.1 | 903.1 | 905.1 | 907.1 | 909.1 | 911.1 | 913.1 | 915.1 | 43.0       |
| 43.5       | 897.4                                                            | 899.4 | 901.4 | 903.4 | 905.4 | 907.4 | 909.4 | 911.4 | 913.4 | 915.4 | 43.5       |
| 44.0       | 897.7                                                            | 899.7 | 901.7 | 903.7 | 905.7 | 907.7 | 909.7 | 911.7 | 913.7 | 915.7 | 44.0       |
| 44.5       | 898.0                                                            | 900.0 | 902.0 | 904.0 | 906.0 | 908.0 | 910.0 | 912.0 | 914.0 | 916.0 | 44.5       |
| 45.0       | 898.3                                                            | 900.3 | 902.3 | 904.3 | 906.3 | 908.3 | 910.3 | 912.3 | 914.3 | 916.3 | 45.0       |
| 45.5       | 898.6                                                            | 900.6 | 902.6 | 904.6 | 906.6 | 908.6 | 910.6 | 912.6 | 914.6 | 916.6 | 45.5       |
| 46.0       | 898.9                                                            | 900.9 | 902.9 | 904.9 | 906.9 | 908.9 | 910.9 | 912.9 | 914.9 | 916.9 | 46.0       |
| 46.5       | 899.2                                                            | 901.2 | 903.2 | 905.2 | 907.2 | 909.2 | 911.2 | 913.2 | 915.2 | 917.2 | 46.5       |
| 47.0       | 899.5                                                            | 901.5 | 903.5 | 905.5 | 907.5 | 909.5 | 911.5 | 913.5 | 915.5 | 917.5 | 47.0       |
| 47.5       | 899.9                                                            | 901.9 | 903.9 | 905.9 | 907.9 | 909.9 | 911.8 | 913.8 | 915.8 | 917.8 | 47.5       |
| 48.0       | 900.2                                                            | 902.2 | 904.2 | 906.2 | 908.2 | 910.2 | 912.2 | 914.2 | 916.2 | 918.2 | 48.0       |
| 48.5       | 900.5                                                            | 902.5 | 904.5 | 906.5 | 908.5 | 910.5 | 912.5 | 914.5 | 916.5 | 918.5 | 48.5       |
| 49.0       | 900.8                                                            | 902.8 | 904.8 | 906.8 | 908.8 | 910.8 | 912.8 | 914.8 | 916.8 | 918.8 | 49.0       |
| 49.5       | 901.1                                                            | 903.1 | 905.1 | 907.1 | 909.1 | 911.1 | 913.1 | 915.1 | 917.1 | 919.1 | 49.5       |
| 50.0       | 901.4                                                            | 903.4 | 905.4 | 907.4 | 909.4 | 911.4 | 913.4 | 915.4 | 917.4 | 919.4 | 50.0       |
| 50.5       | 901.7                                                            | 903.7 | 905.7 | 907.7 | 909.7 | 911.7 | 913.7 | 915.7 | 917.7 | 919.7 | 50.5       |
| 51.0       | 902.0                                                            | 904.0 | 906.0 | 908.0 | 910.0 | 912.0 | 914.0 | 916.0 | 918.0 | 920.0 | 51.0       |
| 51.5       | 902.3                                                            | 904.3 | 906.3 | 908.3 | 910.3 | 912.3 | 914.3 | 916.3 | 918.3 | 920.3 | 51.5       |
| 52.0       | 902.6                                                            | 904.6 | 906.6 | 908.6 | 910.6 | 912.6 | 914.6 | 916.6 | 918.6 | 920.6 | 52.0       |
| 52.5       | 902.9                                                            | 904.9 | 906.9 | 908.9 | 910.9 | 912.9 | 914.9 | 916.9 | 918.9 | 920.9 | 52.5       |
| 53.0       | 903.2                                                            | 905.2 | 907.2 | 909.2 | 911.2 | 913.2 | 915.2 | 917.2 | 919.2 | 921.2 | 53.0       |
| 53.5       | 903.5                                                            | 905.5 | 907.5 | 909.5 | 911.5 | 913.5 | 915.5 | 917.5 | 919.5 | 921.5 | 53.5       |
| 54.0       | 903.9                                                            | 905.9 | 907.8 | 909.9 | 911.9 | 913.8 | 915.8 | 917.8 | 919.8 | 921.8 | 54.0       |
| 54.5       | 904.2                                                            | 906.2 | 908.2 | 910.2 | 912.2 | 914.2 | 916.1 | 918.1 | 920.1 | 922.1 | 54.5       |
| 55.0       | 904.5                                                            | 906.5 | 908.5 | 910.5 | 912.5 | 914.5 | 916.5 | 918.5 | 920.5 | 922.5 | 55.0       |

OBSERVED DENSITY = 880 TO 898

31

WHEN USING A DENSITY IN G/ML, G/CC, OR KG/L, MULTIPLY BY 1000 BEFORE ENTERING THE ABOVE TABLE

TABLE 53D, GENERALIZED LUBRICATING OILS  
DENSITY CORRECTION TO 15 C

| TEMP.<br>C | DENSITY AT OBSERVED TEMPERATURE<br>CORRESPONDING DENSITY AT 15 C |       |       |       |       |       |       |       |       |       | TEMP.<br>C |
|------------|------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------------|
|            | 880                                                              | 882   | 884   | 886   | 888   | 890   | 892   | 894   | 896   | 898   |            |
| 55.0       | 904.5                                                            | 906.5 | 908.5 | 910.5 | 912.5 | 914.5 | 916.5 | 918.5 | 920.5 | 922.5 | 55.0       |
| 55.5       | 904.8                                                            | 906.8 | 908.8 | 910.8 | 912.8 | 914.8 | 916.8 | 918.8 | 920.8 | 922.8 | 55.5       |
| 56.0       | 905.1                                                            | 907.1 | 909.1 | 911.1 | 913.1 | 915.1 | 917.1 | 919.1 | 921.1 | 923.1 | 56.0       |
| 56.5       | 905.4                                                            | 907.4 | 909.4 | 911.4 | 913.4 | 915.4 | 917.4 | 919.4 | 921.4 | 923.4 | 56.5       |
| 57.0       | 905.7                                                            | 907.7 | 909.7 | 911.7 | 913.7 | 915.7 | 917.7 | 919.7 | 921.7 | 923.7 | 57.0       |
| 57.5       | 906.0                                                            | 908.0 | 910.0 | 912.0 | 914.0 | 916.0 | 918.0 | 920.0 | 922.0 | 924.0 | 57.5       |
| 58.0       | 906.3                                                            | 908.3 | 910.3 | 912.3 | 914.3 | 916.3 | 918.3 | 920.3 | 922.3 | 924.3 | 58.0       |
| 58.5       | 906.6                                                            | 908.6 | 910.6 | 912.6 | 914.6 | 916.6 | 918.6 | 920.6 | 922.6 | 924.6 | 58.5       |
| 59.0       | 906.9                                                            | 908.9 | 910.9 | 912.9 | 914.9 | 916.9 | 918.9 | 920.9 | 922.9 | 924.9 | 59.0       |
| 59.5       | 907.2                                                            | 909.2 | 911.2 | 913.2 | 915.2 | 917.2 | 919.2 | 921.2 | 923.2 | 925.2 | 59.5       |
| 60.0       | 907.5                                                            | 909.5 | 911.5 | 913.5 | 915.5 | 917.5 | 919.5 | 921.5 | 923.5 | 925.5 | 60.0       |
| 60.5       | 907.9                                                            | 909.9 | 911.9 | 913.9 | 915.8 | 917.8 | 919.8 | 921.8 | 923.8 | 925.8 | 60.5       |
| 61.0       | 908.2                                                            | 910.2 | 912.2 | 914.2 | 916.2 | 918.2 | 920.2 | 922.2 | 924.1 | 926.1 | 61.0       |
| 61.5       | 908.5                                                            | 910.5 | 912.5 | 914.5 | 916.5 | 918.5 | 920.5 | 922.5 | 924.5 | 926.5 | 61.5       |
| 62.0       | 908.8                                                            | 910.8 | 912.8 | 914.8 | 916.8 | 918.8 | 920.8 | 922.8 | 924.8 | 926.8 | 62.0       |
| 62.5       | 909.1                                                            | 911.1 | 913.1 | 915.1 | 917.1 | 919.1 | 921.1 | 923.1 | 925.1 | 927.1 | 62.5       |
| 63.0       | 909.4                                                            | 911.4 | 913.4 | 915.4 | 917.4 | 919.4 | 921.4 | 923.4 | 925.4 | 927.4 | 63.0       |
| 63.5       | 909.7                                                            | 911.7 | 913.7 | 915.7 | 917.7 | 919.7 | 921.7 | 923.7 | 925.7 | 927.7 | 63.5       |
| 64.0       | 910.0                                                            | 912.0 | 914.0 | 916.0 | 918.0 | 920.0 | 922.0 | 924.0 | 926.0 | 928.0 | 64.0       |
| 64.5       | 910.3                                                            | 912.3 | 914.3 | 916.3 | 918.3 | 920.3 | 922.3 | 924.3 | 926.3 | 928.3 | 64.5       |
| 65.0       | 910.6                                                            | 912.6 | 914.6 | 916.6 | 918.6 | 920.6 | 922.6 | 924.6 | 926.6 | 928.6 | 65.0       |
| 65.5       | 910.9                                                            | 912.9 | 914.9 | 916.9 | 918.9 | 920.9 | 922.9 | 924.9 | 926.9 | 928.9 | 65.5       |
| 66.0       | 911.2                                                            | 913.3 | 915.2 | 917.2 | 919.2 | 921.2 | 923.2 | 925.2 | 927.2 | 929.2 | 66.0       |
| 66.5       | 911.6                                                            | 913.6 | 915.6 | 917.5 | 919.5 | 921.5 | 923.5 | 925.5 | 927.5 | 929.5 | 66.5       |
| 67.0       | 911.9                                                            | 913.9 | 915.9 | 917.9 | 919.9 | 921.9 | 923.8 | 925.8 | 927.8 | 929.8 | 67.0       |
| 67.5       | 912.2                                                            | 914.2 | 916.2 | 918.2 | 920.2 | 922.2 | 924.2 | 926.2 | 928.2 | 930.2 | 67.5       |
| 68.0       | 912.5                                                            | 914.5 | 916.5 | 918.5 | 920.5 | 922.5 | 924.5 | 926.5 | 928.5 | 930.5 | 68.0       |
| 68.5       | 912.8                                                            | 914.8 | 916.8 | 918.8 | 920.8 | 922.8 | 924.8 | 926.8 | 928.8 | 930.8 | 68.5       |
| 69.0       | 913.1                                                            | 915.1 | 917.1 | 919.1 | 921.1 | 923.1 | 925.1 | 927.1 | 929.1 | 931.1 | 69.0       |
| 69.5       | 913.4                                                            | 915.4 | 917.4 | 919.4 | 921.4 | 923.4 | 925.4 | 927.4 | 929.4 | 931.4 | 69.5       |
| 70.0       | 913.7                                                            | 915.7 | 917.7 | 919.7 | 921.7 | 923.7 | 925.7 | 927.7 | 929.7 | 931.7 | 70.0       |
| 70.5       | 914.0                                                            | 916.0 | 918.0 | 920.0 | 922.0 | 924.0 | 926.0 | 928.0 | 930.0 | 932.0 | 70.5       |
| 71.0       | 914.3                                                            | 916.3 | 918.3 | 920.3 | 922.3 | 924.3 | 926.3 | 928.3 | 930.3 | 932.3 | 71.0       |
| 71.5       | 914.7                                                            | 916.6 | 918.6 | 920.6 | 922.6 | 924.6 | 926.6 | 928.6 | 930.6 | 932.6 | 71.5       |
| 72.0       | 915.0                                                            | 917.0 | 918.9 | 920.9 | 922.9 | 924.9 | 926.9 | 928.9 | 930.9 | 932.9 | 72.0       |
| 72.5       | 915.3                                                            | 917.3 | 919.3 | 921.3 | 923.3 | 925.2 | 927.2 | 929.2 | 931.2 | 933.2 | 72.5       |
| 73.0       | 915.6                                                            | 917.6 | 919.6 | 921.6 | 923.6 | 925.6 | 927.6 | 929.6 | 931.5 | 933.5 | 73.0       |
| 73.5       | 915.9                                                            | 917.9 | 919.9 | 921.9 | 923.9 | 925.9 | 927.9 | 929.9 | 931.9 | 933.9 | 73.5       |
| 74.0       | 916.2                                                            | 918.2 | 920.2 | 922.2 | 924.2 | 926.2 | 928.2 | 930.2 | 932.2 | 934.2 | 74.0       |
| 74.5       | 916.5                                                            | 918.5 | 920.5 | 922.5 | 924.5 | 926.5 | 928.5 | 930.5 | 932.5 | 934.5 | 74.5       |
| 75.0       | 916.8                                                            | 918.8 | 920.8 | 922.8 | 924.8 | 926.8 | 928.8 | 930.8 | 932.8 | 934.8 | 75.0       |
| 75.5       | 917.1                                                            | 919.1 | 921.1 | 923.1 | 925.1 | 927.1 | 929.1 | 931.1 | 933.1 | 935.1 | 75.5       |
| 76.0       | 917.4                                                            | 919.4 | 921.4 | 923.4 | 925.4 | 927.4 | 929.4 | 931.4 | 933.4 | 935.4 | 76.0       |
| 76.5       | 917.7                                                            | 919.7 | 921.7 | 923.7 | 925.7 | 927.7 | 929.7 | 931.7 | 933.7 | 935.7 | 76.5       |
| 77.0       | 918.1                                                            | 920.0 | 922.0 | 924.0 | 926.0 | 928.0 | 930.0 | 932.0 | 934.0 | 936.0 | 77.0       |
| 77.5       | 918.4                                                            | 920.4 | 922.4 | 924.4 | 926.3 | 928.3 | 930.3 | 932.3 | 934.3 | 936.3 | 77.5       |
| 78.0       | 918.7                                                            | 920.7 | 922.7 | 924.7 | 926.7 | 928.6 | 930.7 | 932.6 | 934.6 | 936.6 | 78.0       |
| 78.5       | 919.0                                                            | 921.0 | 923.0 | 925.0 | 927.0 | 929.0 | 931.0 | 932.9 | 935.0 | 936.9 | 78.5       |
| 79.0       | 919.3                                                            | 921.3 | 923.3 | 925.3 | 927.3 | 929.3 | 931.3 | 933.3 | 935.3 | 937.2 | 79.0       |
| 79.5       | 919.6                                                            | 921.6 | 923.6 | 925.6 | 927.6 | 929.6 | 931.6 | 933.6 | 935.6 | 937.6 | 79.5       |
| 80.0       | 919.9                                                            | 921.9 | 923.9 | 925.9 | 927.9 | 929.9 | 931.9 | 933.9 | 935.9 | 937.9 | 80.0       |

OBSERVED DENSITY = 880 TO 898

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WHEN USING A DENSITY IN G/ML, G/CC, OR KG/L, MULTIPLY BY 1000 BEFORE ENTERING THE ABOVE TABLE

TABLE 53D, GENERALIZED LUBRICATING OILS  
DENSITY CORRECTION TO 15 C

| TEMP.<br>C | DENSITY AT OBSERVED TEMPERATURE<br>CORRESPONDING DENSITY AT 15 C |       |       |       |       |       |       |       |       |       | TEMP.<br>C |
|------------|------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------------|
|            | 880                                                              | 882   | 884   | 886   | 888   | 890   | 892   | 894   | 896   | 898   |            |
| 80.0       | 919.9                                                            | 921.9 | 923.9 | 925.9 | 927.9 | 929.9 | 931.9 | 933.9 | 935.9 | 937.9 | 80.0       |
| 80.5       | 920.2                                                            | 922.2 | 924.2 | 926.2 | 928.2 | 930.2 | 932.2 | 934.2 | 936.2 | 938.2 | 80.5       |
| 81.0       | 920.5                                                            | 922.5 | 924.5 | 926.5 | 928.5 | 930.5 | 932.5 | 934.5 | 936.5 | 938.5 | 81.0       |
| 81.5       | 920.8                                                            | 922.8 | 924.8 | 926.8 | 928.8 | 930.8 | 932.8 | 934.8 | 936.8 | 938.8 | 81.5       |
| 82.0       | 921.1                                                            | 923.1 | 925.1 | 927.1 | 929.1 | 931.1 | 933.1 | 935.1 | 937.1 | 939.1 | 82.0       |
| 82.5       | 921.5                                                            | 923.5 | 925.5 | 927.4 | 929.4 | 931.4 | 933.4 | 935.4 | 937.4 | 939.4 | 82.5       |
| 83.0       | 921.8                                                            | 923.8 | 925.8 | 927.8 | 929.7 | 931.8 | 933.7 | 935.7 | 937.7 | 939.7 | 83.0       |
| 83.5       | 922.1                                                            | 924.1 | 926.1 | 928.1 | 930.1 | 932.1 | 934.0 | 936.1 | 938.0 | 940.0 | 83.5       |
| 84.0       | 922.4                                                            | 924.4 | 926.4 | 928.4 | 930.4 | 932.4 | 934.4 | 936.4 | 938.3 | 940.3 | 84.0       |
| 84.5       | 922.7                                                            | 924.7 | 926.7 | 928.7 | 930.7 | 932.7 | 934.7 | 936.7 | 938.7 | 940.7 | 84.5       |
| 85.0       | 923.0                                                            | 925.0 | 927.0 | 929.0 | 931.0 | 933.0 | 935.0 | 937.0 | 939.0 | 941.0 | 85.0       |
| 85.5       | 923.3                                                            | 925.3 | 927.3 | 929.3 | 931.3 | 933.3 | 935.3 | 937.3 | 939.3 | 941.3 | 85.5       |
| 86.0       | 923.6                                                            | 925.6 | 927.6 | 929.6 | 931.6 | 933.6 | 935.6 | 937.6 | 939.6 | 941.6 | 86.0       |
| 86.5       | 923.9                                                            | 925.9 | 927.9 | 929.9 | 931.9 | 933.9 | 935.9 | 937.9 | 939.9 | 941.9 | 86.5       |
| 87.0       | 924.2                                                            | 926.2 | 928.2 | 930.2 | 932.2 | 934.2 | 936.2 | 938.2 | 940.2 | 942.2 | 87.0       |
| 87.5       | 924.6                                                            | 926.6 | 928.5 | 930.5 | 932.5 | 934.5 | 936.5 | 938.5 | 940.5 | 942.5 | 87.5       |
| 88.0       | 924.9                                                            | 926.9 | 928.9 | 930.9 | 932.8 | 934.8 | 936.8 | 938.8 | 940.8 | 942.8 | 88.0       |
| 88.5       | 925.2                                                            | 927.2 | 929.2 | 931.2 | 933.2 | 935.2 | 937.2 | 939.1 | 941.1 | 943.1 | 88.5       |
| 89.0       | 925.5                                                            | 927.5 | 929.5 | 931.5 | 933.5 | 935.5 | 937.5 | 939.5 | 941.5 | 943.4 | 89.0       |
| 89.5       | 925.8                                                            | 927.8 | 929.8 | 931.8 | 933.8 | 935.8 | 937.8 | 939.8 | 941.8 | 943.8 | 89.5       |
| 90.0       | 926.1                                                            | 928.1 | 930.1 | 932.1 | 934.1 | 936.1 | 938.1 | 940.1 | 942.1 | 944.1 | 90.0       |
| 90.5       | 926.4                                                            | 928.4 | 930.4 | 932.4 | 934.4 | 936.4 | 938.4 | 940.4 | 942.4 | 944.4 | 90.5       |
| 91.0       | 926.7                                                            | 928.7 | 930.7 | 932.7 | 934.7 | 936.7 | 938.7 | 940.7 | 942.7 | 944.7 | 91.0       |
| 91.5       | 927.0                                                            | 929.0 | 931.0 | 933.0 | 935.0 | 937.0 | 939.0 | 941.0 | 943.0 | 945.0 | 91.5       |
| 92.0       | 927.4                                                            | 929.3 | 931.3 | 933.3 | 935.3 | 937.3 | 939.3 | 941.3 | 943.3 | 945.3 | 92.0       |
| 92.5       | 927.7                                                            | 929.7 | 931.7 | 933.6 | 935.6 | 937.6 | 939.6 | 941.6 | 943.6 | 945.6 | 92.5       |
| 93.0       | 928.0                                                            | 930.0 | 932.0 | 934.0 | 936.0 | 937.9 | 939.9 | 941.9 | 943.9 | 945.9 | 93.0       |
| 93.5       | 928.3                                                            | 930.3 | 932.3 | 934.3 | 936.3 | 938.3 | 940.3 | 942.3 | 944.2 | 946.2 | 93.5       |
| 94.0       | 928.6                                                            | 930.6 | 932.6 | 934.6 | 936.6 | 938.6 | 940.6 | 942.6 | 944.5 | 946.5 | 94.0       |
| 94.5       | 928.9                                                            | 930.9 | 932.9 | 934.9 | 936.9 | 938.9 | 940.9 | 942.9 | 944.9 | 946.8 | 94.5       |
| 95.0       | 929.2                                                            | 931.2 | 933.2 | 935.2 | 937.2 | 939.2 | 941.2 | 943.2 | 945.2 | 947.2 | 95.0       |
| 95.5       | 929.5                                                            | 931.5 | 933.5 | 935.5 | 937.5 | 939.5 | 941.5 | 943.5 | 945.5 | 947.5 | 95.5       |
| 96.0       | 929.8                                                            | 931.8 | 933.8 | 935.8 | 937.8 | 939.8 | 941.8 | 943.8 | 945.8 | 947.8 | 96.0       |
| 96.5       | 930.1                                                            | 932.1 | 934.1 | 936.1 | 938.1 | 940.1 | 942.1 | 944.1 | 946.1 | 948.1 | 96.5       |
| 97.0       | 930.5                                                            | 932.5 | 934.4 | 936.4 | 938.4 | 940.4 | 942.4 | 944.4 | 946.4 | 948.4 | 97.0       |
| 97.5       | 930.8                                                            | 932.8 | 934.8 | 936.8 | 938.7 | 940.7 | 942.7 | 944.7 | 946.7 | 948.7 | 97.5       |
| 98.0       | 931.1                                                            | 933.1 | 935.1 | 937.1 | 939.0 | 941.1 | 943.0 | 945.0 | 947.0 | 949.0 | 98.0       |
| 98.5       | 931.4                                                            | 933.4 | 935.4 | 937.4 | 939.4 | 941.4 | 943.4 | 945.4 | 947.3 | 949.3 | 98.5       |
| 99.0       | 931.7                                                            | 933.7 | 935.7 | 937.7 | 939.7 | 941.7 | 943.7 | 945.7 | 947.7 | 949.7 | 99.0       |
| 99.5       | 932.0                                                            | 934.0 | 936.0 | 938.0 | 940.0 | 942.0 | 944.0 | 946.0 | 948.0 | 950.0 | 99.5       |
| 100.0      | 932.3                                                            | 934.3 | 936.3 | 938.3 | 940.3 | 942.3 | 944.3 | 946.3 | 948.3 | 950.3 | 100.0      |
| 100.5      | 932.6                                                            | 934.6 | 936.6 | 938.6 | 940.6 | 942.6 | 944.6 | 946.6 | 948.6 | 950.6 | 100.5      |
| 101.0      | 932.9                                                            | 934.9 | 936.9 | 938.9 | 940.9 | 942.9 | 944.9 | 946.9 | 948.9 | 950.9 | 101.0      |
| 101.5      | 933.3                                                            | 935.2 | 937.2 | 939.2 | 941.2 | 943.2 | 945.2 | 947.2 | 949.2 | 951.2 | 101.5      |
| 102.0      | 933.6                                                            | 935.6 | 937.6 | 939.5 | 941.5 | 943.5 | 945.5 | 947.5 | 949.5 | 951.5 | 102.0      |
| 102.5      | 933.9                                                            | 935.9 | 937.9 | 939.9 | 941.9 | 943.8 | 945.8 | 947.8 | 949.8 | 951.8 | 102.5      |
| 103.0      | 934.2                                                            | 936.2 | 938.2 | 940.2 | 942.2 | 944.2 | 946.2 | 948.1 | 950.1 | 952.1 | 103.0      |
| 103.5      | 934.5                                                            | 936.5 | 938.5 | 940.5 | 942.5 | 944.5 | 946.5 | 948.5 | 950.5 | 952.4 | 103.5      |
| 104.0      | 934.8                                                            | 936.8 | 938.8 | 940.8 | 942.8 | 944.8 | 946.8 | 948.8 | 950.8 | 952.8 | 104.0      |
| 104.5      | 935.1                                                            | 937.1 | 939.1 | 941.1 | 943.1 | 945.1 | 947.1 | 949.1 | 951.1 | 953.1 | 104.5      |
| 105.0      | 935.4                                                            | 937.4 | 939.4 | 941.4 | 943.4 | 945.4 | 947.4 | 949.4 | 951.4 | 953.4 | 105.0      |

OBSERVED DENSITY = 880 TO 898

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WHEN USING A DENSITY IN G/ML, G/CC, OR KG/L, MULTIPLY BY 1000 BEFORE ENTERING THE ABOVE TABLE

TABLE 53D, GENERALIZED LUBRICATING OILS  
DENSITY CORRECTION TO 15 C

| TEMP.<br>C | DENSITY AT OBSERVED TEMPERATURE<br>CORRESPONDING DENSITY AT 15 C |       |       |       |       |       |       |       |       |       | TEMP.<br>C |
|------------|------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------------|
|            | 880                                                              | 882   | 884   | 886   | 888   | 890   | 892   | 894   | 896   | 898   |            |
| 105.0      | 935.4                                                            | 937.4 | 939.4 | 941.4 | 943.4 | 945.4 | 947.4 | 949.4 | 951.4 | 953.4 | 105.0      |
| 105.5      | 935.7                                                            | 937.7 | 939.7 | 941.7 | 943.7 | 945.7 | 947.7 | 949.7 | 951.7 | 953.7 | 105.5      |
| 106.0      | 936.1                                                            | 938.0 | 940.0 | 942.0 | 944.0 | 946.0 | 948.0 | 950.0 | 952.0 | 954.0 | 106.0      |
| 106.5      | 936.4                                                            | 938.4 | 940.3 | 942.3 | 944.3 | 946.3 | 948.3 | 950.3 | 952.3 | 954.3 | 106.5      |
| 107.0      | 936.7                                                            | 938.7 | 940.7 | 942.7 | 944.7 | 946.7 | 948.6 | 950.6 | 952.6 | 954.6 | 107.0      |
| 107.5      | 937.0                                                            | 939.0 | 941.0 | 943.0 | 945.0 | 947.0 | 949.0 | 951.0 | 952.9 | 954.9 | 107.5      |
| 108.0      | 937.3                                                            | 939.3 | 941.3 | 943.3 | 945.3 | 947.3 | 949.3 | 951.3 | 953.3 | 955.2 | 108.0      |
| 108.5      | 937.6                                                            | 939.6 | 941.6 | 943.6 | 945.6 | 947.6 | 949.6 | 951.6 | 953.6 | 955.6 | 108.5      |
| 109.0      | 937.9                                                            | 939.9 | 941.9 | 943.9 | 945.9 | 947.9 | 949.9 | 951.9 | 953.9 | 955.9 | 109.0      |
| 109.5      | 938.2                                                            | 940.2 | 942.2 | 944.2 | 946.2 | 948.2 | 950.2 | 952.2 | 954.2 | 956.2 | 109.5      |
| 110.0      | 938.5                                                            | 940.5 | 942.5 | 944.5 | 946.5 | 948.5 | 950.5 | 952.5 | 954.5 | 956.5 | 110.0      |
| 110.5      | 938.9                                                            | 940.9 | 942.8 | 944.8 | 946.8 | 948.8 | 950.8 | 952.8 | 954.8 | 956.8 | 110.5      |
| 111.0      | 939.2                                                            | 941.2 | 943.2 | 945.1 | 947.1 | 949.1 | 951.1 | 953.1 | 955.1 | 957.1 | 111.0      |
| 111.5      | 939.5                                                            | 941.5 | 943.5 | 945.5 | 947.4 | 949.4 | 951.4 | 953.4 | 955.4 | 957.4 | 111.5      |
| 112.0      | 939.8                                                            | 941.8 | 943.8 | 945.8 | 947.8 | 949.8 | 951.7 | 953.7 | 955.7 | 957.7 | 112.0      |
| 112.5      | 940.1                                                            | 942.1 | 944.1 | 946.1 | 948.1 | 950.1 | 952.1 | 954.1 | 956.0 | 958.0 | 112.5      |
| 113.0      | 940.4                                                            | 942.4 | 944.4 | 946.4 | 948.4 | 950.4 | 952.4 | 954.4 | 956.4 | 958.4 | 113.0      |
| 113.5      | 940.7                                                            | 942.7 | 944.7 | 946.7 | 948.7 | 950.7 | 952.7 | 954.7 | 956.7 | 958.7 | 113.5      |
| 114.0      | 941.0                                                            | 943.0 | 945.0 | 947.0 | 949.0 | 951.0 | 953.0 | 955.0 | 957.0 | 959.0 | 114.0      |
| 114.5      | 941.3                                                            | 943.3 | 945.3 | 947.3 | 949.3 | 951.3 | 953.3 | 955.3 | 957.3 | 959.3 | 114.5      |
| 115.0      | 941.7                                                            | 943.7 | 945.6 | 947.6 | 949.6 | 951.6 | 953.6 | 955.6 | 957.6 | 959.6 | 115.0      |
| 115.5      | 942.0                                                            | 944.0 | 946.0 | 948.0 | 949.9 | 951.9 | 953.9 | 955.9 | 957.9 | 959.9 | 115.5      |
| 116.0      | 942.3                                                            | 944.3 | 946.3 | 948.3 | 950.3 | 952.2 | 954.2 | 956.2 | 958.2 | 960.2 | 116.0      |
| 116.5      | 942.6                                                            | 944.6 | 946.6 | 948.6 | 950.6 | 952.6 | 954.5 | 956.5 | 958.5 | 960.5 | 116.5      |
| 117.0      | 942.9                                                            | 944.9 | 946.9 | 948.9 | 950.9 | 952.9 | 954.9 | 956.9 | 958.8 | 960.8 | 117.0      |
| 117.5      | 943.2                                                            | 945.2 | 947.2 | 949.2 | 951.2 | 953.2 | 955.2 | 957.2 | 959.2 | 961.2 | 117.5      |
| 118.0      | 943.5                                                            | 945.5 | 947.5 | 949.5 | 951.5 | 953.5 | 955.5 | 957.5 | 959.5 | 961.5 | 118.0      |
| 118.5      | 943.8                                                            | 945.8 | 947.8 | 949.8 | 951.8 | 953.8 | 955.8 | 957.8 | 959.8 | 961.8 | 118.5      |
| 119.0      | 944.1                                                            | 946.1 | 948.1 | 950.1 | 952.1 | 954.1 | 956.1 | 958.1 | 960.1 | 962.1 | 119.0      |
| 119.5      | 944.5                                                            | 946.5 | 948.4 | 950.4 | 952.4 | 954.4 | 956.4 | 958.4 | 960.4 | 962.4 | 119.5      |
| 120.0      | 944.8                                                            | 946.8 | 948.8 | 950.7 | 952.7 | 954.7 | 956.7 | 958.7 | 960.7 | 962.7 | 120.0      |
| 120.5      | 945.1                                                            | 947.1 | 949.1 | 951.1 | 953.1 | 955.0 | 957.1 | 959.0 | 961.0 | 963.0 | 120.5      |
| 121.0      | 945.4                                                            | 947.4 | 949.4 | 951.4 | 953.4 | 955.4 | 957.3 | 959.4 | 961.3 | 963.3 | 121.0      |
| 121.5      | 945.7                                                            | 947.7 | 949.7 | 951.7 | 953.7 | 955.7 | 957.7 | 959.7 | 961.6 | 963.7 | 121.5      |
| 122.0      | 946.0                                                            | 948.0 | 950.0 | 952.0 | 954.0 | 956.0 | 958.0 | 960.0 | 962.0 | 964.0 | 122.0      |
| 122.5      | 946.3                                                            | 948.3 | 950.3 | 952.3 | 954.3 | 956.3 | 958.3 | 960.3 | 962.3 | 964.3 | 122.5      |
| 123.0      | 946.7                                                            | 948.6 | 950.6 | 952.6 | 954.6 | 956.6 | 958.6 | 960.6 | 962.6 | 964.6 | 123.0      |
| 123.5      | 947.0                                                            | 948.9 | 951.0 | 952.9 | 954.9 | 956.9 | 958.9 | 960.9 | 962.9 | 964.9 | 123.5      |
| 124.0      | 947.3                                                            | 949.3 | 951.2 | 953.3 | 955.2 | 957.2 | 959.2 | 961.2 | 963.2 | 965.2 | 124.0      |
| 124.5      | 947.6                                                            | 949.6 | 951.6 | 953.6 | 955.6 | 957.5 | 959.5 | 961.5 | 963.5 | 965.5 | 124.5      |
| 125.0      | 947.9                                                            | 949.9 | 951.9 | 953.9 | 955.9 | 957.9 | 959.8 | 961.8 | 963.8 | 965.8 | 125.0      |
| 125.5      | 948.2                                                            | 950.2 | 952.2 | 954.2 | 956.2 | 958.2 | 960.2 | 962.2 | 964.1 | 966.1 | 125.5      |
| 126.0      | 948.5                                                            | 950.5 | 952.5 | 954.5 | 956.5 | 958.5 | 960.5 | 962.5 | 964.5 | 966.5 | 126.0      |
| 126.5      | 948.8                                                            | 950.8 | 952.8 | 954.8 | 956.8 | 958.8 | 960.8 | 962.8 | 964.8 | 966.8 | 126.5      |
| 127.0      | 949.1                                                            | 951.1 | 953.1 | 955.1 | 957.1 | 959.1 | 961.1 | 963.1 | 965.1 | 967.1 | 127.0      |
| 127.5      | 949.5                                                            | 951.4 | 953.4 | 955.4 | 957.4 | 959.4 | 961.4 | 963.4 | 965.4 | 967.4 | 127.5      |
| 128.0      | 949.8                                                            | 951.8 | 953.8 | 955.7 | 957.7 | 959.7 | 961.7 | 963.7 | 965.7 | 967.7 | 128.0      |
| 128.5      | 950.1                                                            | 952.1 | 954.1 | 956.1 | 958.0 | 960.0 | 962.0 | 964.0 | 966.0 | 968.0 | 128.5      |
| 129.0      | 950.4                                                            | 952.4 | 954.4 | 956.4 | 958.4 | 960.4 | 962.3 | 964.3 | 966.3 | 968.3 | 129.0      |
| 129.5      | 950.7                                                            | 952.7 | 954.7 | 956.7 | 958.7 | 960.7 | 962.7 | 964.6 | 966.7 | 968.6 | 129.5      |
| 130.0      | 951.0                                                            | 953.0 | 955.0 | 957.0 | 959.0 | 961.0 | 963.0 | 965.0 | 967.0 | 968.9 | 130.0      |

OBSERVED DENSITY = 880 TO 898

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WHEN USING A DENSITY IN G/ML, G/CC, OR KG/L, MULTIPLY BY 1000 BEFORE ENTERING THE ABOVE TABLE

TABLE 53D, GENERALIZED LUBRICATING OILS  
DENSITY CORRECTION TO 15 C

| TEMP.<br>C                    | DENSITY AT OBSERVED TEMPERATURE |       |       |       |       |       |       |       |       |       | TEMP.<br>C |
|-------------------------------|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------------|
|                               | 880                             | 882   | 884   | 886   | 888   | 890   | 892   | 894   | 896   | 898   |            |
| CORRESPONDING DENSITY AT 15 C |                                 |       |       |       |       |       |       |       |       |       |            |
| 130.0                         | 951.0                           | 953.0 | 955.0 | 957.0 | 959.0 | 961.0 | 963.0 | 965.0 | 967.0 | 968.9 | 130.0      |
| 130.5                         | 951.3                           | 953.3 | 955.3 | 957.3 | 959.3 | 961.3 | 963.3 | 965.3 | 967.3 | 969.3 | 130.5      |
| 131.0                         | 951.6                           | 953.6 | 955.6 | 957.6 | 959.6 | 961.6 | 963.6 | 965.6 | 967.6 | 969.6 | 131.0      |
| 131.5                         | 952.0                           | 953.9 | 955.9 | 957.9 | 959.9 | 961.9 | 963.9 | 965.9 | 967.9 | 969.9 | 131.5      |
| 132.0                         | 952.3                           | 954.3 | 956.2 | 958.2 | 960.2 | 962.2 | 964.2 | 966.2 | 968.2 | 970.2 | 132.0      |
| 132.5                         | 952.6                           | 954.6 | 956.6 | 958.5 | 960.6 | 962.5 | 964.5 | 966.5 | 968.5 | 970.5 | 132.5      |
| 133.0                         | 952.9                           | 954.9 | 956.9 | 958.9 | 960.9 | 962.9 | 964.8 | 966.8 | 968.8 | 970.8 | 133.0      |
| 133.5                         | 953.2                           | 955.2 | 957.2 | 959.2 | 961.2 | 963.2 | 965.2 | 967.1 | 969.1 | 971.1 | 133.5      |
| 134.0                         | 953.5                           | 955.5 | 957.5 | 959.5 | 961.5 | 963.5 | 965.5 | 967.5 | 969.4 | 971.4 | 134.0      |
| 134.5                         | 953.8                           | 955.8 | 957.8 | 959.8 | 961.8 | 963.8 | 965.8 | 967.8 | 969.8 | 971.8 | 134.5      |
| 135.0                         | 954.1                           | 956.1 | 958.1 | 960.1 | 962.1 | 964.1 | 966.1 | 968.1 | 970.1 | 972.1 | 135.0      |
| 135.5                         | 954.5                           | 956.4 | 958.4 | 960.4 | 962.4 | 964.4 | 966.4 | 968.4 | 970.4 | 972.4 | 135.5      |
| 136.0                         | 954.8                           | 956.8 | 958.7 | 960.7 | 962.7 | 964.7 | 966.7 | 968.7 | 970.7 | 972.7 | 136.0      |
| 136.5                         | 955.1                           | 957.1 | 959.1 | 961.0 | 963.1 | 965.0 | 967.0 | 969.0 | 971.0 | 973.0 | 136.5      |
| 137.0                         | 955.4                           | 957.4 | 959.4 | 961.4 | 963.4 | 965.3 | 967.3 | 969.3 | 971.3 | 973.3 | 137.0      |
| 137.5                         | 955.7                           | 957.7 | 959.7 | 961.7 | 963.7 | 965.7 | 967.7 | 969.6 | 971.6 | 973.6 | 137.5      |
| 138.0                         | 956.0                           | 958.0 | 960.0 | 962.0 | 964.0 | 966.0 | 968.0 | 969.9 | 971.9 | 973.9 | 138.0      |
| 138.5                         | 956.3                           | 958.3 | 960.3 | 962.3 | 964.3 | 966.3 | 968.3 | 970.3 | 972.3 | 974.3 | 138.5      |
| 139.0                         | 956.6                           | 958.6 | 960.6 | 962.6 | 964.6 | 966.6 | 968.6 | 970.6 | 972.6 | 974.6 | 139.0      |
| 139.5                         | 957.0                           | 958.9 | 960.9 | 962.9 | 964.9 | 966.9 | 968.9 | 970.9 | 972.9 | 974.9 | 139.5      |
| 140.0                         | 957.3                           | 959.3 | 961.2 | 963.3 | 965.2 | 967.2 | 969.2 | 971.2 | 973.2 | 975.2 | 140.0      |
| 140.5                         | 957.6                           | 959.6 | 961.6 | 963.6 | 965.5 | 967.5 | 969.5 | 971.5 | 973.5 | 975.5 | 140.5      |
| 141.0                         | 957.9                           | 959.9 | 961.9 | 963.9 | 965.9 | 967.9 | 969.8 | 971.8 | 973.8 | 975.8 | 141.0      |
| 141.5                         | 958.2                           | 960.2 | 962.2 | 964.2 | 966.2 | 968.2 | 970.1 | 972.1 | 974.1 | 976.1 | 141.5      |
| 142.0                         | 958.5                           | 960.5 | 962.5 | 964.5 | 966.5 | 968.5 | 970.5 | 972.5 | 974.4 | 976.4 | 142.0      |
| 142.5                         | 958.8                           | 960.8 | 962.8 | 964.8 | 966.8 | 968.8 | 970.8 | 972.8 | 974.8 | 976.8 | 142.5      |
| 143.0                         | 959.1                           | 961.1 | 963.1 | 965.1 | 967.1 | 969.1 | 971.1 | 973.1 | 975.1 | 977.1 | 143.0      |
| 143.5                         | 959.5                           | 961.4 | 963.4 | 965.4 | 967.4 | 969.4 | 971.4 | 973.4 | 975.4 | 977.4 | 143.5      |
| 144.0                         | 959.8                           | 961.8 | 963.7 | 965.8 | 967.7 | 969.7 | 971.7 | 973.7 | 975.7 | 977.7 | 144.0      |
| 144.5                         | 960.1                           | 962.1 | 964.1 | 966.1 | 968.0 | 970.0 | 972.0 | 974.0 | 976.0 | 978.0 | 144.5      |
| 145.0                         | 960.4                           | 962.4 | 964.4 | 966.4 | 968.4 | 970.4 | 972.3 | 974.3 | 976.3 | 978.3 | 145.0      |
| 145.5                         | 960.7                           | 962.7 | 964.7 | 966.7 | 968.7 | 970.7 | 972.7 | 974.6 | 976.6 | 978.6 | 145.5      |
| 146.0                         | 961.0                           | 963.0 | 965.0 | 967.0 | 969.0 | 971.0 | 973.0 | 975.0 | 976.9 | 978.9 | 146.0      |
| 146.5                         | 961.3                           | 963.3 | 965.3 | 967.3 | 969.3 | 971.3 | 973.3 | 975.3 | 977.3 | 979.2 | 146.5      |
| 147.0                         | 961.6                           | 963.6 | 965.6 | 967.6 | 969.6 | 971.6 | 973.6 | 975.6 | 977.6 | 979.6 | 147.0      |
| 147.5                         | 962.0                           | 964.0 | 965.9 | 967.9 | 969.9 | 971.9 | 973.9 | 975.9 | 977.9 | 979.9 | 147.5      |
| 148.0                         | 962.3                           | 964.3 | 966.2 | 968.2 | 970.2 | 972.2 | 974.2 | 976.2 | 978.2 | 980.2 | 148.0      |
| 148.5                         | 962.6                           | 964.6 | 966.6 | 968.6 | 970.6 | 972.5 | 974.5 | 976.5 | 978.5 | 980.5 | 148.5      |
| 149.0                         | 962.9                           | 964.9 | 966.9 | 968.9 | 970.8 | 972.8 | 974.8 | 976.8 | 978.8 | 980.8 | 149.0      |
| 149.5                         | 963.2                           | 965.2 | 967.2 | 969.2 | 971.2 | 973.2 | 975.2 | 977.1 | 979.1 | 981.1 | 149.5      |
| 150.0                         | 963.5                           | 965.5 | 967.5 | 969.5 | 971.5 | 973.5 | 975.5 | 977.5 | 979.4 | 981.4 | 150.0      |

WHEN USING A DENSITY IN G/ML, G/CC, OR KG/L, MULTIPLY BY 1000 BEFORE ENTERING THE ABOVE TABLE

TABLE 53D, GENERALIZED LUBRICATING OILS  
DENSITY CORRECTION TO 15 C

| TEMP.<br>C | DENSITY AT OBSERVED TEMPERATURE<br>CORRESPONDING DENSITY AT 15 C |       |       |       |       |       |       |       |       |       | TEMP.<br>C |
|------------|------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------------|
|            | 900                                                              | 902   | 904   | 906   | 908   | 910   | 912   | 914   | 916   | 918   |            |
| -20.0      | 878.9                                                            | 880.9 | 882.9 | 884.9 | 886.9 | 888.9 | 890.9 | 892.9 | 894.9 | 896.9 | -20.0      |
| -19.5      | 879.2                                                            | 881.2 | 883.2 | 885.2 | 887.2 | 889.2 | 891.2 | 893.2 | 895.2 | 897.2 | -19.5      |
| -19.0      | 879.5                                                            | 881.5 | 883.5 | 885.5 | 887.5 | 889.5 | 891.5 | 893.5 | 895.5 | 897.5 | -19.0      |
| -18.5      | 879.8                                                            | 881.8 | 883.8 | 885.8 | 887.8 | 889.8 | 891.8 | 893.8 | 895.8 | 897.8 | -18.5      |
| -18.0      | 880.1                                                            | 882.1 | 884.1 | 886.1 | 888.1 | 890.1 | 892.1 | 894.1 | 896.1 | 898.1 | -18.0      |
| -17.5      | 880.4                                                            | 882.4 | 884.4 | 886.4 | 888.4 | 890.4 | 892.4 | 894.4 | 896.4 | 898.4 | -17.5      |
| -17.0      | 880.7                                                            | 882.7 | 884.7 | 886.7 | 888.7 | 890.7 | 892.7 | 894.7 | 896.7 | 898.7 | -17.0      |
| -16.5      | 881.0                                                            | 883.0 | 885.0 | 887.0 | 889.0 | 891.0 | 893.0 | 895.0 | 897.0 | 899.0 | -16.5      |
| -16.0      | 881.3                                                            | 883.3 | 885.3 | 887.3 | 889.3 | 891.3 | 893.3 | 895.3 | 897.3 | 899.3 | -16.0      |
| -15.5      | 881.6                                                            | 883.6 | 885.6 | 887.6 | 889.6 | 891.6 | 893.6 | 895.6 | 897.6 | 899.6 | -15.5      |
| -15.0      | 881.9                                                            | 883.9 | 885.9 | 887.9 | 889.9 | 891.9 | 893.9 | 895.9 | 897.9 | 899.9 | -15.0      |
| -14.5      | 882.2                                                            | 884.2 | 886.2 | 888.2 | 890.2 | 892.2 | 894.2 | 896.2 | 898.2 | 900.2 | -14.5      |
| -14.0      | 882.5                                                            | 884.5 | 886.5 | 888.5 | 890.5 | 892.5 | 894.5 | 896.5 | 898.5 | 900.5 | -14.0      |
| -13.5      | 882.8                                                            | 884.8 | 886.8 | 888.8 | 890.8 | 892.8 | 894.8 | 896.8 | 898.8 | 900.8 | -13.5      |
| -13.0      | 883.1                                                            | 885.1 | 887.1 | 889.1 | 891.1 | 893.1 | 895.1 | 897.1 | 899.1 | 901.1 | -13.0      |
| -12.5      | 883.4                                                            | 885.4 | 887.4 | 889.4 | 891.4 | 893.4 | 895.4 | 897.4 | 899.4 | 901.4 | -12.5      |
| -12.0      | 883.7                                                            | 885.7 | 887.7 | 889.7 | 891.7 | 893.7 | 895.7 | 897.7 | 899.7 | 901.7 | -12.0      |
| -11.5      | 884.0                                                            | 886.0 | 888.0 | 890.0 | 892.0 | 894.0 | 896.0 | 898.0 | 900.0 | 902.0 | -11.5      |
| -11.0      | 884.3                                                            | 886.3 | 888.3 | 890.3 | 892.3 | 894.3 | 896.3 | 898.3 | 900.3 | 902.3 | -11.0      |
| -10.5      | 884.6                                                            | 886.6 | 888.6 | 890.6 | 892.6 | 894.6 | 896.6 | 898.6 | 900.6 | 902.6 | -10.5      |
| -10.0      | 884.9                                                            | 886.9 | 888.9 | 890.9 | 892.9 | 894.9 | 896.9 | 898.9 | 900.9 | 902.9 | -10.0      |
| -9.5       | 885.2                                                            | 887.2 | 889.2 | 891.2 | 893.2 | 895.2 | 897.2 | 899.2 | 901.2 | 903.2 | -9.5       |
| -9.0       | 885.5                                                            | 887.5 | 889.5 | 891.5 | 893.5 | 895.5 | 897.5 | 899.5 | 901.5 | 903.5 | -9.0       |
| -8.5       | 885.8                                                            | 887.8 | 889.8 | 891.8 | 893.8 | 895.8 | 897.8 | 899.8 | 901.8 | 903.8 | -8.5       |
| -8.0       | 886.1                                                            | 888.1 | 890.1 | 892.1 | 894.1 | 896.1 | 898.1 | 900.1 | 902.1 | 904.1 | -8.0       |
| -7.5       | 886.4                                                            | 888.4 | 890.4 | 892.4 | 894.4 | 896.4 | 898.4 | 900.4 | 902.4 | 904.4 | -7.5       |
| -7.0       | 886.7                                                            | 888.7 | 890.7 | 892.7 | 894.7 | 896.7 | 898.7 | 900.7 | 902.7 | 904.7 | -7.0       |
| -6.5       | 887.0                                                            | 889.0 | 891.0 | 893.0 | 895.0 | 897.0 | 899.0 | 901.0 | 903.0 | 905.0 | -6.5       |
| -6.0       | 887.3                                                            | 889.3 | 891.3 | 893.3 | 895.3 | 897.3 | 899.3 | 901.3 | 903.3 | 905.3 | -6.0       |
| -5.5       | 887.6                                                            | 889.6 | 891.6 | 893.6 | 895.6 | 897.6 | 899.6 | 901.6 | 903.6 | 905.6 | -5.5       |
| -5.0       | 887.9                                                            | 889.9 | 891.9 | 893.9 | 895.9 | 897.9 | 899.9 | 901.9 | 903.9 | 905.9 | -5.0       |
| -4.5       | 888.2                                                            | 890.2 | 892.2 | 894.2 | 896.2 | 898.2 | 900.2 | 902.2 | 904.2 | 906.2 | -4.5       |
| -4.0       | 888.5                                                            | 890.5 | 892.5 | 894.5 | 896.5 | 898.5 | 900.5 | 902.5 | 904.5 | 906.5 | -4.0       |
| -3.5       | 888.8                                                            | 890.8 | 892.8 | 894.8 | 896.8 | 898.8 | 900.8 | 902.8 | 904.8 | 906.8 | -3.5       |
| -3.0       | 889.1                                                            | 891.1 | 893.1 | 895.1 | 897.1 | 899.1 | 901.1 | 903.1 | 905.1 | 907.1 | -3.0       |
| -2.5       | 889.4                                                            | 891.4 | 893.4 | 895.4 | 897.4 | 899.4 | 901.4 | 903.4 | 905.4 | 907.4 | -2.5       |
| -2.0       | 889.7                                                            | 891.7 | 893.7 | 895.7 | 897.7 | 899.7 | 901.7 | 903.7 | 905.7 | 907.7 | -2.0       |
| -1.5       | 890.0                                                            | 892.0 | 894.0 | 896.0 | 898.0 | 900.0 | 902.0 | 904.0 | 906.0 | 908.0 | -1.5       |
| -1.0       | 890.3                                                            | 892.3 | 894.3 | 896.3 | 898.3 | 900.3 | 902.3 | 904.3 | 906.3 | 908.3 | -1.0       |
| -0.5       | 890.6                                                            | 892.6 | 894.6 | 896.6 | 898.6 | 900.6 | 902.6 | 904.6 | 906.6 | 908.6 | -0.5       |
| 0.0        | 890.9                                                            | 892.9 | 894.9 | 896.9 | 898.9 | 900.9 | 902.9 | 904.9 | 906.9 | 908.9 | 0.0        |
| 0.5        | 891.2                                                            | 893.2 | 895.2 | 897.2 | 899.2 | 901.2 | 903.2 | 905.2 | 907.2 | 909.2 | 0.5        |
| 1.0        | 891.5                                                            | 893.5 | 895.5 | 897.5 | 899.5 | 901.5 | 903.5 | 905.5 | 907.5 | 909.5 | 1.0        |
| 1.5        | 891.8                                                            | 893.8 | 895.8 | 897.8 | 899.8 | 901.8 | 903.8 | 905.8 | 907.8 | 909.8 | 1.5        |
| 2.0        | 892.1                                                            | 894.1 | 896.1 | 898.1 | 900.1 | 902.1 | 904.1 | 906.1 | 908.1 | 910.1 | 2.0        |
| 2.5        | 892.4                                                            | 894.4 | 896.4 | 898.4 | 900.4 | 902.4 | 904.4 | 906.4 | 908.4 | 910.4 | 2.5        |
| 3.0        | 892.7                                                            | 894.7 | 896.7 | 898.7 | 900.7 | 902.7 | 904.7 | 906.7 | 908.7 | 910.7 | 3.0        |
| 3.5        | 893.0                                                            | 895.0 | 897.0 | 899.0 | 901.0 | 903.0 | 905.0 | 907.0 | 909.0 | 911.0 | 3.5        |
| 4.0        | 893.3                                                            | 895.3 | 897.3 | 899.3 | 901.3 | 903.3 | 905.3 | 907.3 | 909.3 | 911.3 | 4.0        |
| 4.5        | 893.6                                                            | 895.6 | 897.6 | 899.6 | 901.6 | 903.6 | 905.6 | 907.6 | 909.6 | 911.6 | 4.5        |
| 5.0        | 893.9                                                            | 895.9 | 897.9 | 899.9 | 901.9 | 903.9 | 905.9 | 907.9 | 909.9 | 911.9 | 5.0        |

OBSERVED DENSITY = 900 TO 918

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WHEN USING A DENSITY IN G/ML, G/CC, OR KG/L, MULTIPLY BY 1000 BEFORE ENTERING THE ABOVE TABLE