

INTERNATIONAL STANDARD

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Aviation fuels — Estimation of net specific energy

Carburants aviation — Estimation de l'énergie massique



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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 3648 was prepared by Technical Committee ISO/TC 28, *Petroleum products and lubricants*.

This second edition cancels and replaces the first edition (ISO 3648:1976), which has been technically revised.

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Aviation fuels — Estimation of net specific energy

WARNING — The use of the International Standard may involve hazardous materials, operations and equipment. This standard does not purport to address all of the safety problems associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

1 Scope

1.1 This International Standard describes a procedure for the estimation of the net specific energy of aviation fuels from their aniline point, density and sulfur content. It is not applicable to pure hydrocarbons.

The method is purely empirical and is applicable only to liquid hydrocarbon fuels derived by normal refining processes from conventional crude oil which conform to the requirements of specifications for aviation gasolines, or aircraft turbine and jet engine fuels of limited boiling ranges and compositions.

NOTE 1 Internationally understood designations used by the air transport industry may be encountered, for example:

- 100/130, 100LL and 115/145 for aviation gasolines;
- Jet A, JetA-1, Avtur and JP-8 for aviation turbine fuels, kerosine type;
- Avcat, and JP-5 for aviation turbine fuels, high flash;
- Jet B, Avtag and JP-4 for aviation turbine fuels, wide cut.

1.2 The method is intended for use as a guide in cases where an experimental determination of net specific energy is not available and cannot be made conveniently, and where an estimate is considered

satisfactory. It is not intended, for specific specifications and similar purposes, that estimated values of the net specific energy shall be used in place of experimentally determined values.

NOTE 2 The estimation of the net specific energy of hydrocarbon fuel from its aniline point and density is justifiable only when the fuel belongs to a well-defined class for which a relationship between net specific energy and aniline point and density has been derived from accurate experimental measurements on representative samples of that class. Even in this class, the possibility that the estimates may be in error by large amounts for individual fuels should be recognized.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 91-1:1992, *Petroleum measurement tables — Part 1: Tables based on reference temperatures of 15 °C and 60 degrees F.*