

Specifications for

Naphthalene (including test methods)

UDC 661.715.7:547.652.1

Confirmed
January 2011

NO COPYING WITHOUT BSI PERMISSION EXCEPT AS PERMITTED BY COPYRIGHT LAW

BSI
Documents

AVA

Document Sharing Hub

Cooperating organizations

The Chemicals Standards Committee, under whose direction this British Standard was prepared, consists of representatives from the following:

- Association of Fatty Acid Distillers
- British Tar Industry Association*
- Chemical Industries Association*
- Chemical Society, Analytical Division
- Consumer Standards Advisory Committee of BSI
- Department of Health and Social Security
- Department of Industry (Laboratory of the Government Chemist)
- Fertiliser Manufacturers' Association Ltd.
- Hydrocarbon Solvents Association
- Ministry of Agriculture, Fisheries and Food
- Ministry of Defence
- National Sulphuric Acid Association
- Paintmakers' Association of Great Britain Ltd.
- Royal Institute of Public Health and Hygiene
- Soap and Detergent Industry Association
- Standardization of Tar Products Tests Committee*

The organizations marked with an asterisk in the above list were directly represented on the Technical Committee entrusted with the preparation of this British Standard.

This British Standard, having been prepared under the direction of the Chemicals Standards Committee, was published under the authority of the Executive Board and comes into effect on 30 September 1980

© BSI 12-1999

The following BSI references relate to the work on this standard:
Committee reference CIC/45
Draft for comment 76/54257 DC

ISBN 0 580 11564 X

Amendments issued since publication

Amd. No.	Date of issue	Comments

Contents

	Page
Cooperating organizations	Inside front cover
Foreword	ii
1 Scope	1
2 References	1
3 Requirements	1
4 Sampling	1
Appendix A Determination of non-volatile matter	3
Appendix B Determination of crystallizing point	3
Appendix C Determination of ash	4
Appendix D Sulphuric acid test	5
Appendix E Determination of total sulphur content	5
Figure 1 — Heating block for non-volatile matter determination	9
Figure 2 — Crystallizing-point apparatus	10
Figure 3 — Reduction apparatus	11
Table 1 — Naphthalene, grade 1	1
Table 2 — Naphthalene, grade 2	1
Table 3 — Naphthalene, grade 3	2
Table 4 — Test portion required for determination sulphur content	7
Publications referred to	Inside back cover

Foreword

This British Standard was prepared under the direction of the Chemicals Standards Committee in order to provide specifications and methods of test for naphthalene for industrial purposes.

In the drafting of this standard, account has been taken of specifications used by the Ministry of Defence.

By agreement with the Standardization of Tar Products Tests Committee (STPTC), some of the methods of testing and descriptions of apparatus contained in the appendices have been reproduced with editorial modifications from the publication "Standard methods of testing tar and its products" (6th edition 1967)¹⁾.

NOTE The following definitions have been approved by the STPTC and have been adopted for the purposes of this British Standard:

accuracy, for statistical purposes, is the closeness of the test results to the true value. Variations due to sampling errors are included and these are often responsible for most of the difference between the test result and the true value. No estimates of the accuracy of the test methods are given.

precision is the closeness of agreement among test results obtained under any definite test conditions. Thus, a method may be precise without being accurate. Repeatability and reproducibility are aspects of precision under two such defined sets of conditions. (See also BS 4306.)

repeatability is a measure of the precision of test results obtained by one operator using one set of apparatus. Repeatability (*r*) is defined as the difference between duplicate results on the same sample that would be equalled or exceeded, in the long run, in only one case in twenty.

reproducibility is a measure of the precision of test results obtained by different operators using different sets of the same apparatus. Reproducibility (*R*) is defined as the difference between a single result by one operator at one laboratory and a single result by another operator at another laboratory that would be equalled or exceeded, in the long run, in only one case in twenty.

A number of industries, e.g. the petroleum industry, use methods of test that are also applicable to naphthalene and, wherever appropriate, these methods have been adopted.

For routine purposes, methods of test alternative to those given in this British Standard may be used provided that they give results of sufficient accuracy. However, in the event of doubt or dispute, only the specified methods of test should be used.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 12, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

¹⁾ These methods are intended to be carried out in accordance with the general principles and apparatus requirements laid down in the STPTC publication mentioned.

1 Scope

This British Standard specifies requirements and methods of test for three grades of naphthalene for industrial purposes. It is applicable to materials that consist essentially of naphthalene, $C_{10}H_8$.

NOTE For the purposes of this British Standard, the word “essentially” is understood to mean “at least 94.6 %”. See the footnotes to Table 1, Table 2 and Table 3, which give the percentages by mass of naphthalene corresponding to the specified corrected wet crystallizing points.

2 References

The titles of the publications referred to in this standard are listed on the inside back cover.

3 Requirements

The material shall comply with the requirements specified in Table 1, Table 2 or Table 3, as appropriate.

NOTE Solid naphthalene is available in a variety of physical forms such as flake, balls, eggs, etc. Users of this standard are advised to specify the form in which the material is to be supplied.

4 Sampling

A representative sample of not less than 1 000 g shall be taken from the bulk of the material to provide three separate laboratory samples.

Recommended methods of sampling are given in Parts 1, 3 and 4 of BS 5309.

Table 1 — Naphthalene, grade 1 (designated BS 5962-1)

Characteristic	Requirement	Test method
Appearance (colour)	White or faintly yellow and free from foreign matter or visible impurities	Visual inspection
Physical state	Solid or liquid	Visual inspection
Matter non-volatile at 250 °C	Not greater than 0.1 % by mass	Appendix A
Water content	Not greater than 0.2 % by mass	BS 4385
Corrected wet crystallizing point	Not lower than 79.6 °C ^a	Appendix B
Total sulphur content	Not greater than 0.3 % by mass	Appendix E
Ash (residue after ignition)	Not greater than 0.1 % by mass	Appendix C
Sulphuric acid test (acid wash test)	Not deeper than the standard colour solution	Appendix D
^a Corresponding to 98.75 % (m/m) of naphthalene.		

Table 2 — Naphthalene, grade 2 (designated BS 5962-2)

Characteristic	Requirement	Test method
Physical state	Solid or liquid	Visual inspection
Matter non-volatile at 250 °C	Not greater than 0.3 % by mass	Appendix A
Water content	Not greater than 1 % by mass	BS 4385
Corrected wet crystallizing point	Not lower than 78.5 °C ^a and not higher than 79.6 °C	Appendix B
Total sulphur content	Not greater than 1 % by mass	Appendix E
Ash (residue after ignition)	Not greater than 0.1 % by mass	Appendix C
^a Corresponding to 96.65 % (m/m) of naphthalene.		

Table 3 — Naphthalene, grade 3 (designated BS 5962-3)

Characteristic	Requirement	Test method
Physical state	Solid or liquid	Visual inspection
Matter non-volatile at 250 °C	Not greater than 0.3 % by mass	Appendix A
Water content	Not greater than 1 % by mass	BS 4385
Corrected wet crystallizing point	Not lower than 77.5 °C ^a and not higher than 78.5 °C	Appendix B
Total sulphur content	Not greater than 1 % by mass	Appendix E
Ash (residue after ignition)	Not greater than 0.1 % by mass	Appendix C
^a Corresponding to 94.64 % (<i>m/m</i>) of naphthalene.		