

Specifications for Plasticizer esters

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- Chemical Industries Association*
- Department of Health and Social Security
- Department of Trade and Industry
- Department of Trade and industry — Laboratory of the Government Chemist*
- Fertilizer Manufacturers' Association Limited
- Ministry of Agriculture, Fisheries and Food
- National Sulphuric Acid Association
- Royal Institute of Public Health and Hygiene
- Soap and Detergent Industry Association

The Government department and industrial organization marked with an asterisk in the above list, together with the following, were directly represented on the committees entrusted with the preparation of these British Standards:

- British Plastics Federation
- Ministry of Defence, Army Department
- Ministry of Defence, Navy Department
- Oil and Colour Chemists' Association
- Paintmakers Association of Great Britain
- Pharmaceutical Society of Great Britain
- Research Association of British Paint, Colour and Varnish Manufacturers
- Royal Institute of Chemistry
- Society of Chemical Industry
- Society of Motor Manufacturers Traders Limited

These British Standards, having been approved by the Chemicals Industry Standards Committee, were published under the authority of the Executive Board on 16 July 1973

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The following BSI references relate to the work on this standard:
Committee references CIC/4 and CIC/4/4
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Foreword

These standards are among those in a series of British Standards for solvents and allied products, prepared under the authority of the Chemicals Industry Standards Committee. BS 573 and BS 574 were first issued in 1934 and were revised in 1950, 1957 and 1964; BS 1995 and 1996 were first issued in 1953 and were revised in 1962; BS 2535 and BS 2536 were first issued in 1954 and were revised in 1962; and BS 3647 was issued in 1963.

The revised standards are now brought together in a single volume and, instead of including the methods of test in appendices as previously, reference is made wherever appropriate to BS 188, "*Methods for the determination of the viscosity of liquids in c.g.s. units*", BS 4522, "*Method for the determination of density of liquids at 20 °C*", and BS 4835, "*Methods of test for plasticizer esters*". Limits for colour and for colour after heat treatment are expressed in terms of Hazen units instead of using the chromaticity co-ordinates of the Commission Internationale de l'Eclairage (CIE) or the Lovibond scale, as previously. Requirements for ester contents are replaced by those for saponification value, and limits for acidity are now expressed in terms of milliequivalents per kilogram (meq/kg).

In the present revisions the limits for water content in BS 574, BS 1996 and BS 3647 have been made less stringent because meeting the current demand for deodorized products involves using a steam stripping process, after which the water content may exceed the limits previously specified in these three standards. The limits for acidity in BS 1995, BS 2535, BS 2536 and BS 3647 have been made more stringent, and in BS 2535 and BS 2536 the specified range of saponification value is narrower than the corresponding range of ester content previously specified.

The sucrose test is retained in BS 574 and BS 1996 (to which it was added by amendments published in 1970), and in BS 3647. However, for this purpose it is necessary to retain the Lovibond scale of colour measurement because the total colour is being measured and the variety of different colours that may develop in this test are specified.

Limits for viscosity and matter oxidizable by potassium dichromate are introduced in BS 1995 and BS 2536; the range of viscosity specified for di-(2-ethylhexy 1) phthalate in BS 1995 is intended to help in distinguishing this material from the product sold commercially as di-iso-octyl phthalate. A summary of requirements is given in Appendix B.

NOTE 1 Attention is drawn to certification facilities offered by BSI; see the inside back cover of these standards.

NOTE 2 The titles of the British Standards referred to in these standards are listed on the inside back cover.

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 16, 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.

BS 573:1973**British Standard specification for dibutyl phthalate****1 Scope**

This British Standard specifies requirements for dibutyl phthalate for use as a plasticizer and for other purposes requiring material of similar quality.

2 Description

The material shall be clear and free from matter in suspension, as determined by visual inspection. It consists essentially of the di-ester of phthalic acid and butan-1-ol (*n*-butanol).

3 Colour

The colour of the material, when measured by the method described in BS 4835, shall not exceed 50 Hazen units.

4 Colour after heat treatment

The colour of the material after heat treatment, when measured by the method described in BS 4835, shall not exceed 100 Hazen units.

5 Density at 20 °C

The density of the material at 20 °C, when determined by the method described in BS 4522, shall be not less than 1.044 g/ml and not greater than 1.048 g/ml.

6 Refractive index

The refractive index of the material at 20 °C for the sodium D line, when measured by the method described in BS 4835, shall be not lower than 1.492 and not higher than 1.495.

7 Water content

The water content of the material, when determined by the method described in BS 4835, shall not be more than 0.10 % by mass.

8 ASH

The material shall not leave more than 0.01 % by mass of ash when determined by the method described in BS 4835.

9 Acidity

The acidity of the material, when determined by the method described in BS 4835, shall not exceed 1.2 meq/kg.

10 Saponification value

The saponification value of the material, when determined by the method described in BS 4835, shall be not less than 399 mg of KOH per gram and not more than 405 mg of KOH per gram.

11 Sample

A representative sample of the material, of not less than 0.5 litre, shall be taken from the bulk for the purpose of examination in accordance with the requirements of this standard. The sample shall be placed in a clean, dry and airtight glass-stoppered bottle of such a size that it is nearly filled by the sample.

When it is necessary to seal the container take care to avoid contaminating the contents in any way.

BS 574:1973**British Standard specification for diethyl phthalate****1 Scope**

This British Standard specifies requirements for diethyl phthalate for use as a plasticizer and for other purposes requiring material of similar quality.

2 Description

The material shall be clear and free from matter in suspension, as determined by visual inspection. It consists essentially of the di-ester of phthalic acid and ethanol.

3 Colour

The colour of the material, when measured by the method described in BS 4835, shall not exceed 50 Hazen units.

4 Colour after heat treatment

The colour of the material after heat treatment, when measured by the method described in BS 4835, shall not exceed 100 Hazen units.

5 Density at 20°C

The density of the material at 20 °C, when determined by the method described in BS 4522, shall be not less than 1.115 g/ml and not greater than 1.119 g/ml.

6 Refractive index

The refractive index of the material at 20 °C for the sodium D line, when measured by the method described in BS 4835, shall be not lower than 1.500 and not higher than 1.505.

7 Water content

The water content of the material, when determined by the method described in BS 4835, shall not be more than 0.15 % by mass.

8 Ash

The material shall not leave more than 0.01 % by mass of ash when determined by the method described in BS 4835.

9 Acidity

The acidity of the material, when determined by the method described in BS 4835, shall not exceed 1.2 meq/kg.

10 Saponification value

The saponification value of the material, when determined by the method described in BS 4835, shall be not less than 499 mg of KOH per gram and not more than 507 mg of KOH per gram.

11 Sucrose test

After heat treatment of the material with sucrose and measurement of colour in accordance with the method described in Appendix A, neither tube shall have a total colour value of more than 15 units on the Lovibond scale.

NOTE This test is designed to detect trace impurities that would affect the suitability of the material for plasticizing cellulose acetate.

12 Sample

A representative sample of the material, of not less than 0.5 litre, shall be taken from the bulk for the purpose of examination in accordance with the requirements of this standard. The sample shall be placed in a clean, dry and airtight glass-stoppered bottle of such a size that it is nearly filled by the sample.

When it is necessary to seal the container take care to avoid contaminating the contents in any way.