

Specification for

Aluminium pigments

Confirmed
February 2011

Co-operating organizations

The Pigments, Paints and Varnishes Industry Standards Committee, under whose supervision this British Standard was prepared, consists of representatives from the following Government departments and scientific and industrial organizations:

- British Colour Makers' Association
- British Railways Board
- Chemical Industries Association
- Crown Agents for Oversea Governments and Administrations
- Department of the Environment
- Department of Trade and Industry
- Department of Trade and Industry, Laboratory of the Government Chemist
- Greater London Council
- London Transport Executive
- Ministry of Defence, Army Department*
- Ministry of Defence, Navy Department
- National Federation of Builders' and Plumbers' Merchants
- Oil and Colour Chemists' Association
- Paint Manufacturers and Allied Trades Association
- Paintmakers' Association of Great Britain Ltd.*
- Post Office
- Research Association of British Paint, Colour and Varnish Manufacturers*
- Royal Institute of British Architects
- Royal Institute of Public Health and Hygiene
- Society of Chemical Industry
- Titanium Pigment Manufacturers' Technical Committee
- White Lead Manufacturers' Association
- Zinc Development Association
- Zinc Pigment Development Association

The Government department and scientific and industrial organizations marked with an asterisk in the above list, together with the following, were directly represented on the committee entrusted with the preparation of this British Standard:

- Aluminium Federation
- Amalgamated Society of Painters and Decorators
- Decorators of England and Wales
- National Federation of Master Painters

This British Standard, having been approved by the Pigments, Paints and Varnishes Industry Standards Committee, was published under the authority of the Executive Board on 16 May 1972

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Foreword

This standard makes reference to the following British Standards:

BS 245, *White spirit*.

BS 410, *Test sieves*.

BS 1728, *Methods for the analysis of aluminium and aluminium alloys — Part 5: Determination of copper (absorptiometric method) — Part 8: Determination of iron (absorptiometric 1 : 10 phenanthroline method) — Part 10: Determination of manganese (absorptiometric method) — Part 12 Silicon (absorptiometric molybdenum blue method) — Part 18 Method for the determination of zinc (ion-exchange-volumetric EDTA or polarographic method)*.

BS 1752, *Laboratory sintered or fritted filters*.

BS 2511, *Methods for the determination of water (Karl Fischer method)*.

BS 3483, *Methods for testing pigments for paints*.

BS 3978, *Water for laboratory use*.

BS 4726, *Sampling raw materials for paints and varnishes*.

The British Standard for aluminium pigments was first issued in 1930 and was subsequently revised in 1938, 1952 and 1964.

The present revision is technically identical with ISO/R 1247, “*Aluminium pigments*”, except that in this standard there is an additional requirement that the leafing power of the leafing material shall be not less than 90 % of that of the agreed sample.

NOTE The use of chlorinated hydrocarbon solvents with aluminium powder or paste can be hazardous if heating is involved, since a rapid exothermic reaction may take place. Experience has shown, however, that chloroform presents no danger when used as described in Appendix G.

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 14 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 Scope

This British Standard specifies the requirements and the corresponding methods of test for aluminium pigments used in paints including

- 1) general purpose, decorative and protective paints, and
- 2) speciality finishing paints.

NOTE The titles of the British Standards referred to in this standard are listed on page ii.

2 Sampling

For the purposes of testing a pigment in accordance with this standard, a sample representative of the bulk material shall be taken by an appropriate procedure, as described in BS 4726. The sample shall not be less than 250 g in mass.

For both pastes and powders a sampling tube should be used that enables the whole depth of the container to be sampled (and preferably, the longest diagonal of the container). For powders, which may be compacted, a sharply pointed sampling tube should be used, and the container should be rolled vigorously before sampling.

Suitable designs of sampling tubes are illustrated in Figure 1.

3 Agreed sample

Except where otherwise agreed between the purchaser and the vendor, the agreed sample referred to in Table 2 shall comply in all respects with the requirements of this standard. The mass of the sample shall be not less than 250 g and shall be packed in the manner described in BS 4726.

4 Description

The material shall be composed essentially of finely divided aluminium metal. The particles of aluminium metal shall be lamellar, which can be confirmed by microscopical examination. The material shall be in the form of a powder or a homogeneous paste.

NOTE Mica and other adulterants shall be absent. If when preparing a solution of the sample in hydrochloric acid in H.1.3.3 a non-fatty residue is obtained, the residue should be examined further.

5 Classification

5.1 Types. This British Standard covers four types of aluminium pigments, as follows:

- Type 1. Aluminium powder, leafing
- Type 2. Aluminium paste, leafing
- Type 3. Aluminium powder, non-leafing
- Type 4. Aluminium paste, non-leafing

5.2 Classes. Pigments of Types 1 and 2 are further classified by their water-covering capacity as shown in Table 1.

Table 1 — Classification of materials

Type	Class	Water-covering capacity m ² /g
1	a	up to 0.8
	b	over 0.8 up to 1.5
	c	over 1.5 up to 2.2
	d	over 2.2
2	p	up to 1.7
	q	over 1.7 up to 2.4
	r	over 2.4

NOTE Attention is drawn to the reproducibility limits given in D.6.2.

6 Required characteristics and their tolerances

The material shall have the characteristics given in the appropriate column of Table 2.

The liquid contained in paste pigment shall be white spirit complying with the requirements of BS 245, or other appropriate liquid as may be agreed between the purchaser and the vendor.

7 Packing

The material shall be packed in air-tight containers.

Table 2 — Required characteristics and their tolerances

Type	Type 1 leafing powder	Type 2 leafing paste	Type 3 non-leafing powder	Type 4 non-leafing paste	Test method
Matter volatile at 105 °C,% max.	1.0	35.0 ^a	1.0	35.0 ^a	BS 3483
Matter soluble in organic solvents, % max.	6.0	4.0	1.5	6.0	Appendix A (Types 1 and 2, Method 1; Types 3 and 4, Method 2)
Appearance of paint prepared in an agreed vehicle	To match closely the appearance of paint prepared similarly from the agreed sample				Appendix B
Residue on sieve ^b	Nil on 250 µm	Nil on 180 µm	Nil on 250 µm	Nil on 180 µm	Appendix C
Water-covering capacity m ² /g	Within the limits for the agreed class (see clause 5)		—	—	Appendix D
leafing power	65 % min. and not less than 90 % of that of the agreed sample	65 % min. and not less than 90 % of that of the agreed sample	Nil	Nil	Appendix E (Types 1 and 2) Appendix F (Types 3 and 4)
Water content, % max.	0.2	0.15	0.2	0.15	Appendix G
Metallic impurities, % max., on dry pigment	1.0 for Cu + Fe + Pb + Si + Zn. 0.03 for Pb. Separate limits for metals other than lead may be agreed between the purchaser and the vendor.		Limits to be agreed between the purchaser and the vendor.		Appendix H
^a Alternative limits for volatile content of pastes may be agreed between the purchaser and the vendor.					
^b Additional limits for residue on sieves of smaller apertures may be agreed between the purchaser and the vendor.					