INTERNATIONAL STANDARD 788

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Ultramarine pigments for paints

Pigments d'outremer pour peintures

First edition — 1974-06-01

UDC 667.622 **Ref. No. ISO 788-1974 (E)**

Descriptors : paints, pigments, blue pigments, characteristics, materials specifications, classifying, tests, marking.

Price based on 2 pages

FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO Member Bodies). The work of developing International Standards is carried out through ISO Technical Committees. Every Member Body interested in a subject for which a Technical Committee has been set up 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.

Draft International Standards adopted by the Technical Committees are circulated to the Member Bodies for approval before their acceptance as International Standards by the ISO Council.

Prior to 1972, the results of the work of the Technical Committees were published as ISO Recommendations; these documents are now in the process of being transformed into International Standards. As part of this process, International Standard ISO 788 replaces ISO Recommendation R 788-1968 drawn up by Technical Committee ISO/TC 35, *Paints and varnishes.*

The Member Bodies of the following countries approved the Recommendation :

Australia	Israel	Spain
Denmark	Italy	Sweden
France	Netherlands	Switzerland
Germany	New Zealand	Turkey
India	Portugal	United Kingdom
Iran	South Africa, Rep. of	Yugoslavia

The Member Body of the following country expressed disapproval of the Recommendation on technical grounds :

Japan

Printed in Switzerland

Ultramarine pigments for paints

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies the requirements and corresponding test methods for artificial ultramarine pigments, suitable for use in paints.

2 REFERENCES

ISO 787, *General methods of test for pigments.*

ISO 842, *Raw materials for paints and varnishes — Sampling.*

3 DESCRIPTION

Ultramarine pigments are mineral pigments characterized by the presence of metalloids such as sulphur, incorporated in a complex of aluminium sodium silicates.

NOTE — Small quantities of extenders may be present, as they may be used for adjustment of tinting strength.

The following types are distinguished :

- **type A** : maximum 0,5 % free sulphur
- **type B** : maximum 0,1 % free sulphur

4 REQUIRED CHARACTERISTICS AND THEIR TOLERANCES

The pigment shall be in the form of a soft dry powder or in such a condition that it may be readily reduced thereto by crushing under a palette knife, without grinding action.

It shall have the characteristics shown in the table.

5 SAMPLING

A representative sample of the pigment shall be taken in accordance with ISO 842.

TABLE — **Required characteristics and their tolerances**

Characteristic		Requirement	Test method
Relative density at 23 °C		min. 2,23 max. 2,40	ISO 787 Part X
Colour		In accordance with that of an agreed sample	ISO 787 Part I
Relative tinting strength[1]		In accordance with that of an agreed sample[2]	ISO 787 Part XVI
Matter volatile at 105 °C	% (*m/m*)	max. 1	ISO 787 Part II
Matter soluble in hot water	% (*m/m*)	max. 1,5	ISO 787 Part III
Residue on sieve of mesh aperture 63 µm (water method)	% (*m/m*)	max. 0,5	ISO 787 Part VII
Soluble organic colouring matter		Negative test	Clause 6
Free sulphur	% (*m/m*)	Type A : max. 0,5 Type B : max. 0,1	Clause 7
Oil absorption value[3]		Within the range of ± 10 % of the value of an agreed sample	ISO 787 Part V

1) When the ultramarine pigment is intended for use as a standard coloured pigment in the determination of the lightening power of white pigments, it shall be subjected to this test with each type of white pigment.

2) The tolerance of the relative tinting strength shall be fixed by agreement between the interested parties.

3) The oil absorption value of ordinary commercial grades is usually between 30 and 40 ml per 100 g of pigment.

TEST METHODS

6 TEST FOR SOLUBLE ORGANIC COLOURING MATTER

6.1 Reagents

6.1.1 Ethanol, 95 % (*V*/*V*).

6.1.2 Acetic acid, glacial.

6.1.3 Sodium hydroxide, 4 N solution.

6.2 Procedure

Bring to the boil ethanol (6.1.1) containing a small quantity of ultramarine pigment, divide into two portions and add to one portion 10 % (*V*/*V*) of the acetic acid (6.1.2), and to the other portion 10 % (*V*/*V*) of the sodium hydroxide solution (6.1.3).

Observe the colour of each portion. If they remain colourless, the pigment does not contain any soluble organic colouring matter.

7 DETERMINATION OF FREE SULPHUR

7.1 Reagent

Chloroform, completely neutral.

7.2 Apparatus

Soxhlet extraction apparatus.

7.3 Procedure

Weigh, to the nearest 0,1 g, approximately 60 g of pigment. Extract for 4 h in the Soxhlet apparatus (7.2) with the chloroform (7.1). Distil off the chloroform from the extract and dry at a temperature of 60 °C to constant mass. Weigh the dried residue to the nearest 1 mg.

7.4 Expression of results

Calculate the free sulphur content, as a percentage by mass, by the following formula :

$$\frac{m_2}{m_1} \times 100$$

where

m_1 is the mass, in grams, of the test portion;

m_2 is the mass, in grams, of the dried residue.

Report the free sulphur content of the ultramarine pigment, as a percentage by mass, to the nearest 0,1 %.

8 MARKING

The marking of the containers for ultramarine pigments shall comprise at least the following information :

- the designation and the type of the pigment;
- the name or mark of the manufacturer;
- the net mass.