INTERNATIONAL STANDARD

ISO 3710

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Lead chrome green pigments — Specifications and methods of test

Pigments verts de chrome — Spécifications et méthodes d'essai

Reference number
ISO 3710:1990(E)

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 3710 was prepared by Technical Committee ISO/TC 35, *Paints and varnishes*.

This second edition cancels and replaces the first edition (ISO 3710:1976), of which it constitutes a technical revision.

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Lead chrome green pigments — Specifications and methods of test

1 Scope

This International Standard specifies the requirements and the corresponding methods of test for lead chrome green containing not more than 50 % (*m*/*m*) of an iron blue pigment. These pigments are suitable for general use.

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 787-1:1982, *General methods of test for pigments and extenders — Part 1: Comparison of colour of pigments.*

ISO 787-2:1981, *General methods of test for pigments and extenders — Part 2: Determination of matter volatile at 105 °C.*

ISO 787-4:1981, *General methods of test for pigments and extenders — Part 4: Determination of acidity or alkalinity of the aqueous extract.*

ISO 787-5:1980, *General methods of test for pigments and extenders — Part 5: Determination of oil absorption value.*

ISO 787-7:1981, *General methods of test for pigments and extenders — Part 7: Determination of residue on sieve — Water method — Manual procedure.*

ISO 787-8:1979, *General methods of test for pigments and extenders — Part 8: Determination of matter soluble in water — Cold extraction method.*

ISO 787-16:1986, *General methods of test for pigments and extenders — Part 16: Determination of relative tinting strength (or equivalent colouring value) and colour on reduction of coloured pigments — Visual comparison method.*

ISO 787-20:1975, *General methods of test for pigments — Part 20: Comparison of ease of dispersion (Oscillatory shaking method).*

ISO 842:1984, *Raw materials for paints and varnishes — Sampling.*

ISO 2495:1972, *Iron blue pigments for paints.*

ISO 3711:—[1], *Lead chromate pigments and lead chromate-molybdate pigments — Specifications and methods of test.*

3 Definition

For the purposes of this International Standard, the following definition applies.

lead chrome green pigment: A pigment produced either by precipitating lead chromate pigment on to an iron blue pigment dispersion or by mixing lead chromate pigments and iron blue pigments.

1) To be published. (Revision of ISO 3711:1976)

4 Required characteristics and associated tolerances

4.1 Pigments complying with this International Standard shall not contain extenders or organic colouring matter; surface-active agents may be present. When produced by mixing pigments, the lead chromate pigment shall comply with ISO 3711 and the iron blue pigment with ISO 2495.

4.2 For lead chrome green pigments complying with this International Standard, the essential requirements are specified in table 1 and the conditional requirements are listed in table 2. The reference pigment and the conditional requirements listed in table 2 shall be specified by agreement between the interested parties.

4.3 The agreed reference pigment shall comply with the requirements of table 1.

5 Sampling

Take a representative sample of the product to be tested, as described in ISO 842.

6 Determination of volatile matter

For the determination of volatile matter, two methods are specified (A and B). Method A (6.1) shall be used as the referee method in cases of dispute.

6.1 Method A — Determination at 60 °C for 16 h

6.1.1 Procedure

Carry out the determination in duplicate.

Into a weighing bottle of about 65 mm diameter weigh, to the nearest 1 mg, a test portion of the pigment such that, when the test portion is spread in a uniform layer, the depth of the layer does not exceed 5 mm.

Table 1 — Essential requirements

Characteristic	Unit	Requirement	Method of test
Volatile matter	% (m/m)	max. 3	Clause 6
Matter soluble in water (cold-extraction method)	% (m/m)	max. 2	ISO 787-8, taking a test portion of 20 g
Acidity or alkalinity of the aqueous extract	ml of 0,1 mol/l solution per 100 g of pigment	max. 20	ISO 787-4, taking a test portion of 20 g
Residue on sieve (45 µm)	% (m/m)	max. 2	ISO 787-7

Table 2 — Conditional requirements

Characteristic	Unit	Requirement	Method of test
Colour		Equal to that of the agreed reference pigment (see 4.2) to within a tolerance agreed on between the interested parties	ISO 787-1
Colour on reduction			ISO 787-16
Relative tinting strength			ISO 787-16
Ease of dispersion		Shall not be inferior to that of the reference pigment (see 4.2)	ISO 787-20, measuring fineness of grind after 2,5 min, 5 min and thereafter every 5 min.
Oil absorption value		Shall not differ by more than 15 % from the agreed value	ISO 787-5
Total lead content, as Pb	% (m/m)	Shall not differ by more than 3 % (absolute) from the agreed value	ISO 3711:1990, clause 6
Soluble-lead content as Pb in 0,07 mol/l HCl	% (m/m)	If required, to be agreed on between the interested parties	ISO 3711:1990, clause 7

Heat the weighing bottle and contents for 16 h at 60 °C ± 2 °C. Cool in a desiccator containing active silica gel and reweigh.

6.1.2 Expression of results

Calculate the volatile matter content VM of the pigment, expressed as a percentage by mass, using the equation

$$VM = \frac{m_1 - m_2}{m_0} \times 100$$

where

m_0 is the mass, in grams, of the test portion;

m_1 is the mass, in grams, of the weighing bottle and test portion before heating;

m_2 is the mass, in grams, of the weighing bottle and test portion after heating.

If the two determinations differ by more than 10 % of the higher value, repeat the procedure.

Calculate the mean of two valid determinations and report the result to the nearest 0,1 %.

6.2 Method B — Determination at 105 °C for 1 h

Carry out the determination by the method described in ISO 787-2, but heat the weighing bottle and contents for 1 h at 105 °C ± 2 °C only, without repeating the heating.

7 Test report

The test report shall contain at least the following information:

a) all details necessary for the identification of the product tested;

b) a reference to this International Standard (ISO 3710);

c) the methods used for the determination of volatile matter and total and soluble lead content;

d) the results of the tests and whether or not the product complies with the relevant specification limits;

e) any deviation from the methods of test specified;

f) the date(s) of the tests.

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