INTERNATIONAL STANDARD

ISO 8130-12

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Coating powders —

Part 12:
Determination of compatibility

Poudres pour revêtement —

Partie 12: Détermination de la compatibilité

Reference number
ISO 8130-12:1998(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 8130-12 was prepared by Technical Committee ISO/TC 35, *Paints and varnishes*, Subcommittee SC 9, *General test methods for paints and varnishes*.

ISO 8130 consists of the following parts, under the general title *Coating powders*:

— *Part 1: Determination of particle size distribution by sieving*

— *Part 2: Determination of density by gas comparison pyknometer (referee method)*

— *Part 3: Determination of density by liquid displacement pyknometer*

— *Part 4: Calculation of lower explosion limit*

— *Part 5: Determination of flow properties of a powder/air mixture*

— *Part 6: Determination of gel time of thermosetting coating powders at a given temperature*

— *Part 7: Determination of loss of mass on stoving*

International Organization for Standardization
Case postale 56 • CH-1211 Genève 20 • Switzerland
Internet central@iso.ch
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— *Part 8: Assessment of the storage stability of thermosetting powders*

— *Part 9: Sampling*

— *Part 10: Determination of deposition efficiency*

— *Part 11: Inclined-plane flow test*

— *Part 12: Determination of compatibility*

Coating powders –

Part 12:
Determination of compatibility

1 Scope

This part of ISO 8130 is one of a series of standards dealing with the sampling and testing of paints, varnishes and related products.

It specifies a method for the determination of the tendency for the mixing of two different coating powders to result in the deterioration of the surface quality of the final coating. The results depend on the following characteristics of the coating powders:

a) their chemical reactivity;

b) their chemical composition;

c) their melt properties.

The onset of the deterioration in appearance, its nature and its extent will depend greatly on the ratio in which the powders are mixed.

The test is useful in predicting the possibility of incompatibility arising from mixing different powders both during the manufacturing process and during the application of the coating powder.

The nature of the deterioration in surface appearance may manifest itself in various ways, including:

- change in gloss level;
- the presence of pinholes, including micro-pinholes;
- the appearance of orange peel;
- the presence of craters;
- the presence of bittiness (graininess);
- the presence of colour contamination.

NOTE – Deterioration in mechanical properties may also be experienced. However, this part of ISO 8130 is only concerned with changes in appearance.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 8130. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 8130 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 8130-9:1992, *Coating powders – Part 9: Sampling.*

ISO 1514:1993, *Paints and varnishes – Standard panels for testing.*

ISO 2813:1994, *Paints and varnishes – Determination of specular gloss of non-metallic paint films at 20°, 60° and 85°.*

3 Principle

The coating powders are mixed together in a range of ratios and each mixture is applied to standard test panels, stoved and the surface inspected for evidence of incompatibility.

4 Apparatus

Ordinary laboratory apparatus, together with the following:

4.1 Clean and degreased steel panels, as described in ISO 1514, with holes drilled at one end for hanging.

4.2 Powder spray system, consisting of a corona charge gun or a tribo charge gun and an air extraction spray booth with a suitable powder collection device.

4.3 Suitable clean container, capable of holding a mass of the powder suitable for processing in the spray system (4.2).

NOTE – Plastic bags have been found to be suitable for non-metallic powders.

4.4 Balance, accurate to 10 mg.

4.5 Oven, capable of stoving the coated test panels.

5 Sampling

Prepare a representative sample of the powder under test, as described in ISO 8130-9. The quantity of powder required will depend on the powder spray system (4.2).

NOTE – A quantity of between 10 g and 200 g is normally suitable for each test.

6 Procedure

Carry out the test in duplicate.

6.1 In the absence of agreement between the interested parties, prepare mixtures in the following mass ratios in a quantity required for the test, weighing each component to an accuracy of 10 mg:

Powder A	100,0	99,9	99,0	90,0	50,0	10,0	1,0	0,1	0,0
Powder B	0,0	0,1	1,0	10,0	50,0	90,0	99,0	99,9	100,0

6.2 Place each of the samples prepared in 6.1 in a clean container (4.3) and agitate for sufficient time to ensure complete homogenization.

NOTE – Vigorous shaking by hand of a partially filled container for 15 s to 30 s has proved to be adequate.

6.3 Spray each of the mixed samples onto a test panel (4.1), using the spray gun (4.2), to a thickness appropriate to the application.

It is extremely important that the spraying apparatus is thoroughly cleaned between each application. In any case, it is mandatory that the order of application of the samples be in increasing order of each minor constituent, thus:

100,0 A : 0,0 B to 50,0 A : 50,0 B

and then:

100,0 B : 0,0 A to 90,0 B : 10,0 A.

6.4 Place the coated panels in the oven (4.5) and stove in accordance with the prescribed stoving schedule of the slower-reacting component. If no schedule is available, it shall be agreed on between the interested parties.

6.5 Remove the panels from the oven and allow to cool.

6.6 Examine the coated surfaces for pinholes, craters and other imperfections.

NOTE – Where appropriate, a quantitative measure of change in gloss may be obtained by measuring gloss values in accordance with ISO 2813.

7 Expression of results

A verbal description of the appearance of the coatings will be sufficient for the purposes of this standard method. Where quantitative measurements of gloss have been undertaken, these shall be quoted numerically.

NOTE – As very small amounts of contamination can greatly influence the level of gloss, it may be useful to plot the gloss measurements graphically. In this case, it is recommended that a probability chart be employed in which the gloss measurements are plotted as abscissae and the mass ratios of the powders in the mixture are plotted as a probability distribution on the ordinate scale. In this way, it is possible to obtain a compatibility curve in which the influence of small concentrations of one powder on the other are clearly demonstrated.

8 Precision

Precision data are inappropriate for non-quantitative measurements. The precision of any gloss measurements shall be as detailed in ISO 2813.

9 Test report

The test report shall contain the following information:

a) all details necessary to identify the products tested;

b) a reference to this part of ISO 8130 (ISO 8130-12);

c) the recommended stoving schedule for each powder;

d) the stoving schedule used in the test, if no schedule is available (see 6.4);

e) the gun used, i.e. either corona or tribo (see 4.2);

f) the coating thickness;

g) the results of the test as indicated in clause 7;

h) any deviation from the test method specified;

i) the date of the test.

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