International Standard 4622

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

Paints and varnishes — Pressure test for stackability

Peintures et vernis — Essai de pression pour aptitude à l'empilement

First edition — 1980-11-01

UDC 667.613 **Ref. No. ISO 4622-1980 (E)**

Descriptors : paints, varnishes, tests, physical tests, pressure tests, test specimen conditioning.

Price based on 3 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.

International Standard ISO 4622 was developed by Technical Committee ISO/TC 35, *Paints and varnishes*, and was circulated to the member bodies in October 1979.

It has been approved by the member bodies of the following countries :

Australia	Israel	Romania
Austria	Italy	South Africa, Rep. of
China	Kenya	Spain
France	Korea, Rep. of	Sweden
Germany, F. R.	Mexico	Switzerland
Hungary	Netherlands	United Kingdom
India	New Zealand	

No member body expressed disapproval of the document.

Printed in Switzerland

Paints and varnishes — Pressure test for stackability

0 Introduction

This International Standard is one of a series of standards dealing with the sampling and testing of paints, varnishes and related products. It should be read in conjunction with ISO 1512, ISO 1513, ISO 1514, ISO 2808 and ISO 3270.

The method of test described below requires to be completed, for any particular application, by the following supplementary information. This information shall be derived from the national standard or other document for the product under test or, where appropriate, shall be the subject of agreement between the interested parties.

a) Material and surface preparation of the substrate.

b) Method of application of the test coating to the substrate.

c) Thickness, in micrometres, of the dry coating and method of measurement in accordance with ISO 2808, and whether it is a single coating or a multicoat system.

d) Duration and conditions of drying the coated panel before testing.

e) The combined mass of the plunger and weight (i.e. test load) or the pressure to be used.

f) The time of contact under load of the two test pieces.

1 Scope and field of application

This International Standard specifies a test procedure for determining, under standard conditions, whether a single coat film or a multicoat system of paints or related materials after a specified drying period is sufficiently dry to resist damage when two painted surfaces or one painted surface and another surface are placed in contact under pressure.

It is intended to simulate the conditions when painted articles are stacked upon each other.

NOTE — In some countries, the test is called a "block resistance" test.

2 References

ISO 1512, *Paints and varnishes — Sampling.*

ISO 1513, *Paints and varnishes — Examination and preparation of samples for testing.*

ISO 1514, *Paints and varnishes — Standard panels for testing.*

ISO 2808, *Paints and varnishes — Determination of film thickness.*

ISO 3270, *Paints and varnishes and their raw materials — Atmospheres for conditioning and testing.*

3 Apparatus

3.1 The apparatus, as shown in the figure, consists of a **base-plate**, and a free-sliding **plunger**. The plunger, of face diameter 50 ± 1 mm, shall have a mass of 250 g max. and be designed in such a way that the underside face of the plunger shall align with the top surface of the test panel.

NOTE — It is recommended that a balljoint connection be present between the plunger and its face.

3.2 Weight, of a mass suitable for the coating and its intended application. A mass in the range 100 g to 1 kg will normally be suitable.

4 Sampling

Take a representative sample of the product to be tested (or of each product in the case of a multicoat system) as described in ISO 1512.

Examine and prepare the sample for testing as described in ISO 1513.

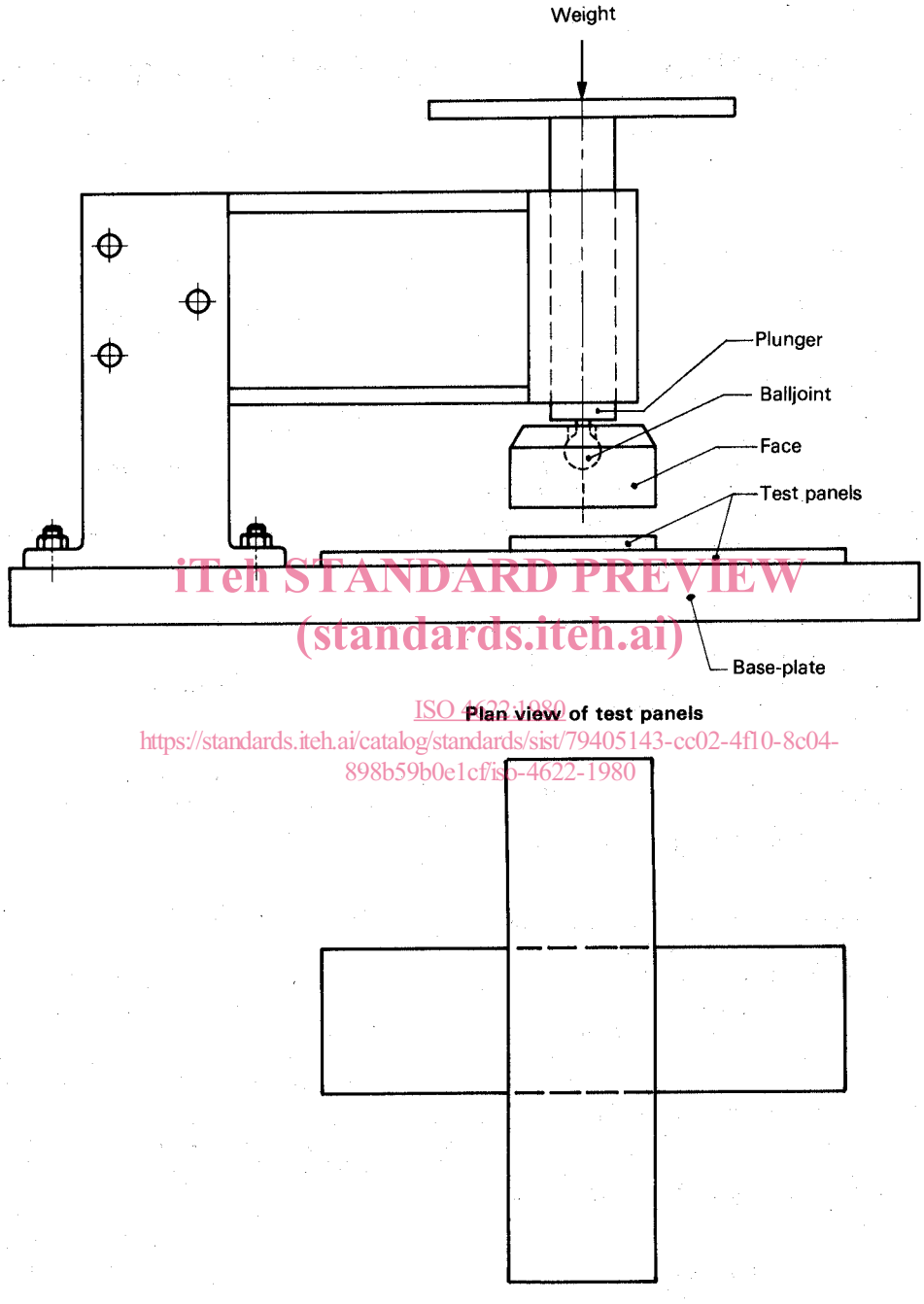

Figure — Example of a suitable test apparatus

5 Test panel

5.1 Substrate

Unless otherwise agreed, the substrate shall comply with ISO 1514 and shall be chosen, where possible, in accordance with the desired practical application.

5.2 Preparation and coating of panel

Unless otherwise specified, prepare the test panel in accordance with ISO 1514 and then coat it by the specified method with the product or system under test.

5.3 Drying the test panel

Dry (or stove and age) the coated test panel for the specified time and under the specified conditions.

5.4 Preparation of the test pieces

As soon as possible after the specified drying period, prepare from the test panel one or two strips of width 30 ± 1 mm and length of approximately 5 times the width, in such a manner as to avoid damage to the paint film and to produce the least distortion of the substrate.

Remove any rim raised on the test pieces before testing.

If the interaction between the painted surface and another surface is to be determined, prepare a similar test piece of the other material.

5.5 Thickness of coating

Determine the thickness, in micrometres, of the dry coating by one of the procedures specified in ISO 2808.

6 Procedure

6.1 Carry out the test at 23 ± 2 °C and a relative humidity of 50 ± 5 %, unless otherwise agreed. See ISO 3270.

6.2 Superimpose the test pieces at 90 ± 2° on each other so that the test surfaces are in close contact (see plan view in the figure).

NOTE — A set square may be used to ensure that the test area is square.

6.3 Place the test pieces on the base plate in such a manner that the plunger covers entirely the contact square. Place the agreed weight on the plunger and gently place the total mass in contact with the test pieces. Allow it to remain there for the specified time.

6.4 At the end of this period, remove the plunger, separate the test pieces and examine them for any damage to the coating in the area of contact, for example the presence of visible impressions, any sticking of the test pieces, and any detachment of the coating.

7 Expression of results

If desired, the pressure on the painted surfaces, may be calculated from the equation

$$p = \frac{m_1 + m_2}{l^2} g \times 10^3$$

$$\approx \frac{m_1 + m_2}{l^2} \times 10^4$$

where

p is the pressure, in pascals;

m_1 is the mass, in grams, of the plunger;

m_2 is the mass, in grams, of the weight;

l is the width, in millimetres, of the test pieces;

g is the acceleration of free fall, in newtons per kilogram (approximately 10 N/kg).

8 Test report

The test report shall contain at least the following information :

a) the type and identification of the product tested;

b) a reference to this International Standard;

c) the items of supplementary information referred to in the introduction to this International Standard;

d) a reference to the national standard, product specification or other document supplying the information referred to in c) above;

e) the result of the test in terms of the stated requirements and describing any damage (see 6.4);

f) any deviation, by agreement or otherwise, from the procedure specified;

g) the date of the test.