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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 20624.2-2006

**Paints and varnishes -- Rapid-deformation (impact resistance)
tests -- Part 2: Falling-weight test, small-area indenter
(English Translation)**

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Foreword

GB/T 20624 "Paints and Varnishes - Rapid-deformation (Impact Resistance) Tests - Part 2: Falling-weight Test, Small-area Indenter" is divided into the following two parts:

- Part 1: Falling-weight Test, Large-area Indenter;
- Part 2: Falling-weight Test, Small-area Indenter.

This Part is the Part 2 of GB/T 20624.

This Part is identical to International Standard ISO 6272-2:2002 "Paints and Varnishes - Rapid-deformation (Impact Resistance) Tests - Part 2: Falling-weight Test, Small-area Indenter" (English edition).

Appendix A of this Part is normative.

This Part was proposed by China Petroleum and Chemical Industry Association.

This Part shall be under the jurisdiction of National Technical Committee on Coatings and Pigments of Standardization Administration of China.

Drafting organization of this Part: Paint & Coatings Chemical Industry Research Institute of CNCCC.

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Paints and Varnishes - Rapid-deformation

(Impact Resistance) Tests - Part 2: Falling-weight

Test, Small-area Indenter

1 Scope

This Part of GB/T 20624 specifies a method for rapidly deforming, by using a spherical indenter of diameter 12.7 mm or 15.9 mm to impact a coating film and its substrate. And evaluate the effect of such deformation.

Note: The term "impact resistance" is included in the title and text of this Part, but one important characteristic of the apparatus used is that it should produce rapid deformation rather than a true impact.

This test method should be restricted to testing in only one laboratory when numerical values are used because of the poor reproducibility of the method. Interlaboratory agreement is improved when ranking is used in place of numerical values.

2 Normative References

The following normative documents contain provisions which, through reference in this text, constitute provisions of this Part of GB/T 20624. For dated references, the subsequent amendments or revisions of these publications do not apply. However, parties who enter into an agreement based on this Part are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies.

GB/T 3186-2006 Paints Varnishes and Raw Materials for Paints and Varnishes - Sampling (ISO 15528:2000, IDT)

GB/T 9271 Paints and Varnishes; Standard Panels for Testing (GB/T 9271-1988, eqv ISO 1514:1984)

GB 9278 Temperatures and Humidities for Conditioning and Testing of Paint Specimens (GB 9278-1988, eqv ISO 3270:1984 Paints and Varnishes and Their Raw Materials - Temperatures and Humidities for Conditioning and Testing)

GB/T 13452.2 Paints and Varnishes - Determination of Film Thickness (GB/T 13452.2-1992, idt ISO 2808:1974)

ISO 1513 Paints and Varnishes - Examination and Preparation of Samples for Testing

3 Term and Definition

For the purposes of this Part, the following term and definition apply.

3.1 Impact resistance of a coating

Number of kilogram-metres required to produce cracking in a deformed coating.

4 Required Supplementary Information

For any particular application, the test method specified in this Part needs to be completed by supplementary information. The items of supplementary information are given in Appendix A.

5 Principle

The coatings under test are applied to suitable thin metal panels. After the coatings have cured, a standard weight is dropped a distance so as to strike an indenter that deforms the coating and the substrate. The indentation can be either an intrusion or an extrusion. By gradually increasing the distance the weight drops, the point at which failure usually occurs can be determined. Films generally fail by cracking, which is made more visible by the use of a magnifier, by the application of a copper sulfate (CuSO₄) solution on steel, or by the use of a pinhole detector.

6 Significance and Use

Coatings attached to substrates are subjected to damaging impacts during the manufacture of articles and their use in service. In its use over many years, this test method for impact resistance has been found to be useful in predicting the performance of organic coatings for their ability to resist cracking caused by such impacts.

7.1 Tester, consisting basically of a vertical tube to guide a cylindrical weight that is

dropped on a punch resting on the test panel, and including the components described in 7.1.1 to 7.1.4.

7.1.1 Guide tube, 0.6 to 1.2 m long, mounted vertically in a base plate. A slot is cut

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