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

GB/T 1732-2020

Replacing GB/T 1732-1993

Determination of impact resistance of coating films

漆膜耐冲击测定法

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Foreword

This Standard was drafted in accordance with the rules given in GB/T 1.1-2009. This Standard replaces GB/T 1732-1993, "Determination of impact resistance of film".

Compared with GB/T 1732-1993, the main technical changes, except editorial changes, are as follows: -- Delete the normative references "GB 308", "GB 708", "GB 1727" and "GB 1764"; add the normative references "GB/T 308.1-2013", "GB/T 9278", "GB/T 13452.2", "GB/T 20777" and "GB/T 37356" (see Chapter 2; Chapter 2 of version 1993); -- Add the representation of principles and results (see Chapter 3 and Chapter 8); -- Modify the requirements for the punch and steel ball of the impact tester (see 4.1;

3.2.2 of version 1993); -- Delete the correction method of the impact tester (see

3.4 of version 1993); -- Modify the size of the substrate (see 6.1;

5.1 of version 1993); -- Modify the distance between the edge of the impact point of the test plate and the edge of the test plate, and the distance between the edges of adjacent impact points (see 7.3;

6.2 of version 1993); -- Add the requirements for the adjustment of the height of the hammer and the lighting conditions for the result observation (see 7.3); -- Modify the test report (see Chapter 9, Chapter 7 of version 1993); This Standard was proposed by China Petroleum and Chemical Industry Federation. This Standard shall be under the jurisdiction of National Technical Committee 5 on Paints & Pigments of Standardization Administration of China (SAC/TC 5). The drafting organizations of this Standard. CNOOC Changzhou Paint and Coatings Industry Research Institute Co., Ltd., Shanghai Research Institute of

Paint and Coatings, Biuged Laboratory Instruments (Guangzhou) Co., Ltd., Zhejiang Mingquan Industrial Spraying Equipment Co., Ltd., Zhejiang Yu Tong New Materials Co., Ltd., Qingdao Air++ New Materials Co., Ltd., Shenzhen Grandland High-tech New Material Co., Ltd., Avic Biam New Materials Technology Engineering Co., Ltd., Xuancheng Yabang Chemical Co., Ltd., Ningbo Xin'an Dope Co., Ltd., Hebei Kingdar Coatings Co., Ltd., Qingdao Xingguo Paint Co., Ltd., Jiangnan University, Jiangsu Hongtai Polymer Material Co., Ltd., Dongguan Taiho Paint Products Co., Ltd., CRRC Changchun Railway Vehicles Co., Ltd., BEVS Industrial Co., Ltd., Fujian Wanan Industry Group Co., Ltd., Zhejiang Saifei Electric Co., Ltd., UNION (Shaoguan) Chemical Co., Ltd., China Academy of Building Research, Hebei Chenyang Industry & Trade Group CO., LTD., Pushen Testing Instruments (Shanghai) Co., Ltd., Zhejiang Feijing New Material Science & Technology CO., Ltd. The drafters of this Standard. Chen Gang, Wang Meimei, Xie Zhengkun, Yu Gaobo, Mao Li'an, Yang Yaliang, Wang Baozhu, Hu Jiru, Zhang Jian, Liu Chunhua, Hu Jinping, Zhang Ran, Liu Caixia, Liu Ren, Wu Gangqiang, Zhang Fang, Hao Bo, Zeng Yuling, Huang Wen, Kang Lunguo, Wang Liansheng, Chu Huilai, Sun Dewang, Yan Zhaoming. The previous versions of the standards which are replaced by this Standard are. -- GB 1732-1979, GB/T 1732-1993. Determination of impact resistance of coating films

1 Scope

GB/T 1732-2020 is the Chinese national standard on determination of impact resistance of coating films, in the field of paint and colour industries. The /T suffix marks it as a recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 19 November 2020 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 October 2021. Classification: ICS 87.040, CCS G50. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This Standard specifies the test method of impact resistance of coating films, which is expressed by the maximum height (cm) of the heavy hammer when the punch hits the test plate without causing damage to the coating film, by using a heavy hammer of fixed mass to fall on the punch. This Standard applies to the determination of impact resistance of coating films.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only the dated version applies to this document. For undated references, the

latest edition (including all amendments) applies to this document.

GB/T 308.1-2013, Rolling bearings - Balls - Part

3 Principle

Apply the test sample to a suitable metal substrate. After curing, drop a heavy hammer of a fixed mass from a certain height to impact the punch, to deform the coating film and substrate.

4 Instruments and equipment

4.1 Impact tester The maximum scale of the conduit is (50.0 ± 0.1) cm; the graduation is 1 cm; the heavy hammer mass is $(1\,000 \pm 1)$ g; it can move freely in the conduit. The steel ball on the punch has a diameter of (8.000 ± 0.015) mm and a hardness (HRC) of 61 ~ 66, which shall meet the requirements of GB/T 308.1-2013.

4.2 Magnifier 4x magnifier.

5 Sample

According to the provisions of GB/T 3186, take representative samples of the tested product (or each product in the multi-coating system).

6 Test panel

6.1 Substrate Unless otherwise specified, the substrate shall be tinplate or steel plate. The tinplate or steel plate shall meet the technical requirements of GB/T 9271. The dimensions of the tinplate are 120 mm x 50 mm x (

0.20 mm ~

0.30 mm); the dimensions of the steel plate are 150 mm x 70 mm x (

0.45 mm ~

0.55 mm).

6.3 Drying and conditioning Each coated test plate shall be dried (or baked) and maintained under the specified conditions for a specified time.

6.4 Coating film thickness The thickness of the coating film shall be specified or agreed. The thickness of the coating film is measured according to one of the dry coating thickness measurement methods that are specified in GB/T 13452.2, in micrometers (μm).

7 Test procedure

7.1 Test times Perform three tests at the same height position.

7.2 Test environment Unless otherwise agreed, the test shall be performed under the environment that is specified in GB/T 9278.

7.3 Test Place the impact tester (4.1) on a stable platform; the conduit shall be perpendicular to the horizontal plane. Adjust the heavy hammer of the impact tester to a certain height through the heavy hammer controller; place the test plate with the coating film facing up (positive impact) or the coating film facing down (recoil) on the base.

8 Expression of results

The results are expressed as the maximum height (cm) at which no cracks, wrinkles, and peeling are observed in the three tests.