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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 1766-2008

Replacing GB/T 1766-1995, GB/T 14826-1993

Paints and Varnishes – Rating Schemes of Degradation of Coats

色漆和清漆 涂层老化的评级方法

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Standardization Administration of the People's Republic of China..

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Foreword

This Standard replaces GB/T 1766-1995 Paints and Varnishes - Rating Schemes of Degradation of Coats and GB/T 14826-1993 Determination Method and Rating of Pulverization Degree of Paints and Coating.

The major technical differences of this Standard, compared with GB/T 1766-1995 and GB/T 14826-1993, are as follows:

- In color grade rating method, for visual colorimetric, add the gray card rating discoloration content.

- Rating method for pulverization degree is modified to be the adhesive tape paper This Standard was proposed by China Petroleum and Chemical Industry Association.

This Standard shall be under the jurisdiction of National Coating and Paint Standardization Technical Committee.

Drafting organizations of this Standard: China National Offshore Oil Corporation Changzhou Coating Chemical Industry Research Institute, Kunshan Shiming Science and Technology Development Co., Ltd., and Atlas Material Experiment Technology Group Co., Ltd.

Main drafters of this Standard: Ji Xiaopei, Zhang Ping, Shi Yilei, and Zeng Cheng.

GB/T 1766 was first-time issued in 1979, and fir-time revised in 1995. This is the second-time to combine and revise. GB/T 14826 was first-time issued in 1993, and this is the first-time to combine and revise.

1 Scope

This Standard specifies the general principles of the rating of coating aging, rating method of aging single-item index, and comprehensive rating method of decorative coating and protective coating aging.

This Standard applies to rating of coating aging performance (natural aging and artificial accelerated aging).

2 Normative references

The articles contained in the following documents have become part of this Standard when they are quoted herein. For the dated documents so quoted, all the modifications (excluding corrections) or revisions made thereafter shall not be applicable to this Standard. For the undated documents so quoted, the latest editions shall be applicable to this Standard.

3 General rules and rating method

3.1 Classification

This Standard uses figures 0 to 5 to rate the damage degree and quantity. “0” shows no damage, and “5” shows serious damage. Determination of four grades by figures 1, 2, 3 and 4 shall make the whole grading range to obtain the best partition zone. If necessary, half grade in the middle can be applied to record more detailed damage phenomenon observed. 3.2.1 Rate visible uniform damage on the coating surface, and rate with damage change degree, as shown in Table 1. 3.2.

3.3 Expression method

The expression method shall include the following content: Damage type: grade of damage degree or damage quantity. If it is necessary to indicate damage size grade, it shall be shown in the bracket and add letter “S” before the grade.

4 Single-item rating grade

4.1 Gating of light loss grade

4.2 Rating of colour changing degree

4.2.1 Instrument determination method

Total colour difference value (ΔE*) among sample plates shall be determined and calculated in accordance with GB/T 11186.2 and GB/T 11186.3 before and after aging; see Table 5 for the grade based on colour difference.

4.2.2 Visual colorimetric method

When instrument method is not applicable for determination because the film surface is uneven OR there are 2 or more types of colors on the film surface, then it should use the visual colorimetric method.

Colorimetry shall be conducted BETWEEN the sample plate after aging AND the sample plate without aging (standard plate) in accordance with provisions of GB/T 9761; rating shall be carried out according to colour change degree before and after aging, with reference to GB 250 Gray Scale for Assessing Change in Colour, as shown in Table 6.

4.3 Rating of pulverization grade

4.3.1 Rating of pulverization grade by swan flannelette method is conducted according to ISO 4628-7; see Table 7 for pulverization degree and grade.

1 Very slightly, a trace amount of pigment particles noticeable on the testing cloth.

2 Slightly, a few amount of pigment particles stained on the testing cloth.

3 Obviously, more pigment particles stained on the testing cloth.

4 Rather seriously, a plenty of pigment particles stained on the testing cloth.

5 Seriously, full of pigment particles on the testing cloth, or sample plate exposed the base.

4.3.2 Rating of adhesive tape paper method for pulverization grade shall be carried out according to ISO 4628-6.

Note: rating of ISO 4628-6 adhesive tape paper method for pulverization grade is more applicable for final rating.

4.4 Rating of cracking grade

4.5 Rating of blister grade

4.5.1 Blister grade of film is expressed by film blister density (see Table 10) and blister size (see Table 11).

4.5.2 Rating expression method of blister grade: blister density grade and blister size grade (with bracket).

For example: blister 2(S3), indicates that blister density is grade 2, and blister size is grade S3.

4.6 Rating of rusting grade

4.7 Rating of peeling grade

4.8 Rating of mildew-growing grade

4.9 Rating of spot grade

4.10 Rating of bronzing grade

Grade of coating bronzing is expressed by bronzing degree (see Table 20).

4.11 Rating of dirty grade

5 Comprehensive rating grade

Assess the comprehensive grade of film ageing in accordance with the single-item damage grade in aging test process; it is divided into six grades - 0, 1, 2, 3, 4, 5 and 6, which represent excellent, good, medium, acceptable, bad and worse of film aging resistance performance respectively.

It is divided into decorative film comprehensive rating and protective film comprehensive