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

GB/T 19243-2003

**Rubber, vulcanized or thermoplastic -- Methods of test for
staining in contact with organic material**

(English Translation)

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Foreword

This standard modifies and uses ISO 3865:1997 "Rubber, vulcanized or thermoplastic - Methods of test for staining in contact with organic material" (English version).

This standard was redrafted in accordance with ISO 3865:1997. The technical differences and reasons are as follows:

- ADD a sentence "This standard applies to the evaluation of the grade of staining of vulcanized or thermoplastic rubber in contact with organic materials" (clause 1 of this version), for the user to be more specific.
- Make reference to the ISO 2393 "Rubber test mixes - Preparation, mixing and vulcanization - Equipment and procedures" and ISO 4665-3 "Rubber, vulcanized - Resistance to weathering - Part 3: Methods of exposure to artificial light" as cited in ISO 3865:1997, which are corresponding national standard GB 6038 and GB/T 12831.

a) The main technical differences between the reference standard GB 6038 and ISO 2393 are as follows:

- ISO 2393 specifies that carbon black needs to be dried and conditioned before weighing; whilst GB 6038 has no this requirement, because many manufacturers in China do not have such conditions.
- ISO 2393 specifies that the temperature control range of the flat vulcanizing press is ± 0.50 °C; whilst GB 6038 specifies it as ± 10 °C, because many flat vulcanizing presses in China cannot reach this accuracy.
- ISO 2393 specifies the micro-internal mixing procedures; whilst GB 6038 does not specify it, because micro-internal mixers are not yet widely available in China.

b) The main technical differences between the reference standards GB/T 12831 and ISO 4665-3 are as follows:

- The radiation dose method in GB/T 12831 is determined only by instrumental method, whilst in ISO 4665-3 uses the blue wool fabric standard to determine the radiation dose, meanwhile details the method of using the blue wool fabric standard to determine the radiation dose, because there is no blue wool fabric standard when GB/T 12831 is formulated.
 - GB/T 12831 makes reference to the 5 grades as specified in GB/T 3511 to evaluate the appearance change of the specimen after exposure; whilst
- Rubber, vulcanized or thermoplastic - Methods of test
- for staining in contact with organic material
- Warning - Personnel using this standard shall have hands-on experience in formal laboratory work. This standard does not address all possible safety issues. The user is responsible for taking appropriate safety and health measures and ensuring compliance with the conditions set by the relevant national regulations.

1 Scope

This standard specifies three test methods for evaluating the staining of vulcanized rubber or thermoplastic rubber in contact with organic materials:

Method A - Contact stain and migration stain;

Method B - Extraction stain;

Method C - Penetration stain.

This standard applies to the evaluation of the grade of staining of vulcanized or thermoplastic rubber in contact with organic materials

2 Normative references

The provisions in following documents become the provisions of this standard through reference in this standard. For the dated references, the subsequent amendments (excluding corrections) or revisions do not apply to this standard; however, parties who reach an agreement based on this standard are encouraged to study if the latest versions of these documents are applicable.

For undated references, the latest edition of the referenced document applies.

GB/T 250 Gray scale for assessing change in color (GB 250-1995, idt ISO 105-A02:1993)

GB 730 Textiles - Tests for color fastness - Blue wool standards for color fastness to light and weathering (GB 730-1998, eqv ISO 105-13:1994)

GB/T 3512 Rubber, vulcanized or thermoplastic - Accelerated ageing and heat resistance tests - Air-oven method (GB/T 3512-2001, eqv ISO 188:1998)

4.2 Method B (assessment of extraction stain): Allow the test liquid to pass over the surface of the tested rubber, to be in contact with the specified organic material. If required, the organic material is then thermally-irradiated.

4.3 Method C (assessment of penetration stain): Bond a designated light-colored thin-layer to the tested rubber. Then the thin-layer is thermally-irradiated.

4.4 Assessment of stain: Use the visual observation method for qualitative

assessment. Use the grey scale for assessment. Use the reflectance spectrophotometer for assessment.

5.2 Artificial light source: A xenon lamp that, through filtering, gives the spectral

distribution equivalent to sunlight, meets the requirements of GB/T 12831, meets the requirements of 9.1. It is applicable to method A, method B, method C.

5.3 Radiation chamber: It includes lamp and sample holder, which meet the

requirements of 9.3 and 9.4. It is applicable to method A, method B, method C.

5.4 Thermocouple or blackboard thermometer: See GB/T 12831. It is used to

measure the surface temperature of the specimen. It is applicable to Method A, Method B, Method C.

5.5 Apparatus for determining light intensity: It in accordance with the

wavelength range as given in 9.1. It is applicable to Method A, Method B, Method C. It is recommended to use it.

5.6 Blue wool standard parts: It is in accordance with GB/T 730. It is applicable

to Method A, Method B, Method C.

5.7 Gray scale: It complies with the provisions of GB/T 250. It is applicable to

Method A, Method B, Method C.

5.8 Reflective spectrophotometer: The wavelength range is 400 nm ~ 600 nm.

It is applicable to Method A, Method B, Method C.

5.10 Drip holder and drying rack: It is applicable to method C.

provisions of GB 6038. Roll the un-vulcanized rubber to a thickness of 2.0 mm $\pm$ 0.2 mm. The both sides are protected by inert materials such as starched cambric cloth or polyethylene film. Cut the film to the desired molded size.