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NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA

GB 4806.11-2023

**National food safety standard - Food contact rubber
materials and articles**

食品安全国家标准 食品接触用橡胶材料及制品

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**Issued by: National Health Commission of PRC;
State Administration for Market Regulation.**

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National food safety standard - Food contact rubber materials and articles

1 Scope

This standard is applicable to the food contact rubber materials and articles.

2 Terms and definitions

2.1 food contact rubber materials and articles

materials and articles mainly made of natural rubber, synthetic rubber or vulcanized thermoplastic elastomers, which have been or are intended to be in contact with food or food additives or whose components may be transferred to food under normal conditions of use

3 Basic requirements

The food contact rubber materials and articles shall meet the requirements of GB 4806.1.

4 Technical requirements

4.1 Requirements for raw materials

4.1.1 Basic raw materials such as natural rubber and synthetic rubber used in food contact rubber materials and articles shall meet the requirements of Annex A hereof and relevant announcements, and vulcanized thermoplastic elastomers used in them shall meet the requirements of Annex A of GB 4806.7-2023 and relevant announcements.

4.1.2 The additives used in food contact rubber materials and articles shall meet the requirements of GB 9685 and relevant announcements.

4.2 Sensory requirements

accelerators, etc., which may produce *N*-nitrosamines and *N*-nitrosatable substances.

4.3.2 Other physical and chemical indexes

4.3.2.1 The food contact rubber materials and articles shall meet the requirements of Annex A hereof and relevant announcements on the physical and chemical indexes such as specific migration limit (SML), total specific migration limit [SML(T)] and maximum permitted quantity (QM) of basic raw materials such as natural rubber and synthetic rubber used, as well as the requirements of Annex A of GB 4806.7-2023 and relevant announcements on the physical and chemical indexes such as SML, SML(T), and QM of the vulcanized thermoplastic elastomer resins used.

4.3.2.2 The food contact rubber materials and articles shall meet the requirements of GB 9685 and relevant announcements on the physical and chemical indexes such as SML, SML(T) and QM of the additives used.

4.4 Other technical requirements

The food contact rubber materials and articles that use coatings, inks and/or adhesives shall also comply with the corresponding national food safety standards for coatings, inks and/or adhesives.

5 Others

5.1 Migration test

5.1.1 General requirements

The migration test shall be carried out in accordance with those specified in GB 31604.1 and GB 5009.156, unless there are special requirements in this standard.

5.1.2 Special requirements

5.1.2.1 Food simulants containing grease

Vegetable oils shall be selected as food simulants for foods containing grease according to GB 31604.1. If it is technically infeasible to use vegetable oil for migration test of materials or articles, or if changes in physical properties (deformation, melting and swelling) that will not occur under normal conditions of use have occurred, 50% ethanol solution (volume fraction) may be selected as food simulant. When 50% ethanol solution (volume fraction) is used as food simulant, the correction factor for food simulants containing grease and that for fat do not apply.

Annex A

Allowable basic raw materials in food contact rubber materials and articles and their application requirements

A.1 Table A.1 specifies the allowable basic raw materials (such as natural rubber and synthetic rubber) in food contact rubber materials and articles and their application requirements. The basic raw materials listed in Table A.1 are based on their CAS No., and for those without CAS No., their English names are used as references.

A.2 Substances with a relative molecular mass greater than 1,000 Da formed by polymerization or other means from the basic raw materials such as monomers, other starting materials and base polymers listed in Table A.1 are also allowed to be used as basic raw materials for food contact rubber materials and articles, and shall meet the restrictive requirements for the corresponding monomers, other starting materials and base polymers and other basic raw materials.

A.3 The total specific migration limit [SML(T)] and SML(T) grouping number in GB 9685 apply to this standard.

A.4 If monomers and other starting materials used in the synthesis of polymers in Table A.1 are acids, alcohols or phenols, their sodium, potassium and calcium salts (including acid salts and double salts) may also be used in the synthesis of corresponding polymers, and shall meet the restrictive requirements for corresponding acid, alcohol or phenolic monomers and other starting materials. Sodium, potassium and calcium salts (including acid salts and double salts) of monomers and other starting materials listed in Table A.1 shall be used according to the requirements of this standard.

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