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### Requirements for Restricting the Excessive Packaging of Foods and Cosmetics

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## Foreword

**Articles 4.2.1 and 4.2.2 in this Standard are compulsory, while the remainder are recommended.**

Appendices A, B and C of this Standard are normative appendices.

This Standard has been proposed by the China National Institute of Standardization.

This Standard is under the jurisdiction of the National Packaging Standardization Technical Committee.

Bodies responsible for drafting this Standard : China National Institute of Standardization, China Packaging Federation, China Academy of Machinery Science and Technology, China Packaging Research & Testing Centre, China National Export Commodities Packaging Research Institute, China National Research Institute of Food and Fermentation Industries and Shiseido Liyuan Cosmetics Co.,Ltd.

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# Requirements for Restricting the Excessive Packaging of Foods and Cosmetics

## 1 Scope

This Standard defines the requirements for restricting excessive packaging of foods and cosmetics and the calculation methods for the limitation indices.

This Standard is applicable to the sales packaging for foods and cosmetics.

## 2 Normative reference documents

The following documents contain provisions which, through reference in this Standard, constitute provisions of this Standard. With regard to dated references, subsequent amendments (not to include corrections) or revisions to any of these publications shall not be applicable, however, all parties which reach an agreement with regard to this Standard are encouraged to investigate whether the latest edition of these documents can be applied. With regard to undated references, the latest edition of the document referred to shall apply.

GB/T 4122.1 Package terms Basic  
GB 19855 Moon cake

## 3 Terms and definitions

The terms and definitions established in GB/T 4122.1 and subsequent documents shall be applicable in this Standard.

### 3.1 Excessive packaging

Packaging which exceeds reasonable requirements for packaging functions in terms of interspace ratio, packaging layers and packaging cost which exceed necessary packaging levels.

### 3.2 Original packaging

Packaging which comes into direct contact with the product.

### 3.3 Packaging layers

Layers of packaging required to completely package the product.

Note: Complete packaging refers to a packaging method which will not allow the product to be scattered.

### 3.4 Interspace ratio

The ratio of unnecessary space volume within the sales packaging to the volume of the sales packages.

## 4 Requirements

**4.1 Basic requirements**

4.1.1 The packaging design shall be scientific and reasonable. On the premise that it satisfies the requirements for normal packaging functions, the material, structure and cost of the packaging shall match the quality and specification of the contents so as to effectively utilize resources and minimize the use of packaging material.

4.1.2 Appropriate packaging material shall be selected according to the features and nature of the relevant food or cosmetic. The packaging shall employ a single kind of material or, if different materials are selected, separate these from each other. The use of recyclable packaging material is encouraged.

4.1.3 The structure and functions of the packaging shall be simplified as appropriate. Complex forms and structures are prohibited. Excessive layers of packaging, excessive interspace ratio and excess costs shall be avoided wherever possible.

4.1.4 The cost of the packaging over its entire lifetime shall be considered so as to implement effective measures to control direct packaging costs. The effect on the environment when recycling or abandoning the packaging as well as the relevant costs shall also be taken into consideration.

4.1.5 With regard to packaging which can be used for other functions upon completion of its packaging functions, all economic and practical factors shall be fully taken into consideration so as to avoid increasing the packaging cost for other functions.

**4.2 Limitation requirements**

4.2.1 The interspace ratio and layers of packaging for food and cosmetics shall adhere to the requirements in Table 1.

Table 1

Commodities	Limitation index	
	Interspace ratio	Layers of packaging
Beverage	• 55%	3 layers or under
Cake	• 55%	3 layers or under
Grain <sup>a</sup>	• 10%	2 layers or under
Health food	• 50%	3 layers or under
Cosmetics	• 50%	3 layers or under
Other food	• 45%	3 layers or under
Note 1: If the net volume or weight of all single items within the contents does not exceed 30ml or 30g, the packaging ratio shall be no more than 75%; if the net volume or weight of all single items within the contents exceeds 30ml or 30g but does not exceed 50ml or 50g, the packaging ratio shall not exceed 60%.		
a Grain refers to raw grain or primary processed products.		

**4.2.2 Except for the original packaging, the sum of all packaging costs shall be no more than 15% of the sales price of the commodity.**

**5 Limitation index calculation method**

**5.1 For interspace ratio calculation method, see Appendix A.**

**5.2 For packaging layer calculation method, see Appendix B.**

**5.3 For calculation method for ratio of package cost to sale price, see Appendix C.**

**Appendix A**  
**(Normative appendix)**  
**Interspace ratio calculation method**

**A.1** Interspace ratio calculation formula :

$$X = \frac{[V_n - (1+k)V_0]}{V_n} \times 100\% \dots\dots\dots (A.1)$$

Where,

$X$ —interspace ratio;

$V_n$ —volume of sales packaging, the volume of the smallest externally-tangent cuboid for the sales package (not including fittings like handle, fastener and rope), unit  $\text{cm}^3$ ;

$V_0$ —total volume of the original package, the sum of original package volumes of all commodities. Original package volume means to the volume of the smallest externally-tangent cuboid for the original package, unit  $\text{cm}^3$ ;

$k$ —necessary space coefficient. Necessary space volume means to the space which is used to protect or fix the original package. In this part,  $k$  is 0.6.

**A.2** Where 2 or more commodities are included in the sales packaging, the volume or original packaging volume (if the commodity also includes original packaging) of the commodities in the list shall be added to the total volume of the original packaging.

The volume of the attached articles intended to fulfil the normal functions of the commodity shall be added to the total volume of the original packaging – these shall include special opening tools for the commodity, specification user manual and other attachments.

**A.3** Where the sales packaging contains 2 or more commodities, and interspace ratio requirements apply for 2 or more commodities, the interspace ratio shall be calculated according to the commodities listed; if interspace ratio requirements apply for 2 or more commodities in the list, the larger interspace ratio shall be considered.

**Appendix B**  
**(Normative appendix)**  
**Packaging layer calculation method**

**B.1** Packaging which completely packs a commodity shall be considered a layer.

**B.2** The original packaging within the sales packaging shall be considered the 0<sup>th</sup> layer, the complete packaging which comes into contact with the original packaging the 1<sup>st</sup> layer, and so forth. The outermost layer of the sales packaging shall be considered the N<sup>th</sup> layer, with N being the number of layers of packaging.

**B.3** Where commodities with different layers of packaging are included in one sales packaging, the layers of packaging shall be calculated only for the commodity for which there are limitation requirement in terms of package layers, according to which the conformance of the layers of commodity packaging shall be determined.

**Appendix C**  
**(Normative appendix)**

**Calculation method for ratio of packaging cost to sale price**

**C.1** Calculation formula for the ratio of packaging cost to sale price:

$$Y = \frac{C}{P} \times 100\% \quad \dots\dots\dots (C.1)$$

Where,

*Y*—ratio of packaging cost to sale price

*C*—packaging cost

*P*—product sale price

**C.2** Packaging cost calculation method

**C.2.1** The calculation of the packaging cost shall be determined from the point of view of the product manufacturer.

**C.2.2** Packaging cost refers to the sum of all packaging costs from the 1<sup>st</sup> to N<sup>th</sup> layers.

**C.3** Sale price calculation method

The commodity sales price shall be determined according to the contractual sale price agreed by the manufacturer and distributor or the normal market sale price of the commodity.