

**Technical Requirement for Environmental Products**  
**The Certificable Technical Requirement for Environmental Labelling Products**

**Packing Products**

HJBZ 12- 2000  
replace HJBZ 12- 1997

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**1 Scope**

This technical requirement specifies classification, definition, basic requirements, technical contents and test method for environmental labelling products of packing products.

This technical requirement shall apply to replacement of non-degradable plastic film, bag packing products (excluding disposable food/drink containers).

Composite film packing products specified in this technical requirement shall only apply to paper composite packing products.

For all plastic ingredient applied to this technical requirement, PVC shall not be used in the production.

**2 Standards cited**

Provisions in the following standards are cited in this technical requirement, and therefore form the provisions in this standard. They have the same effectiveness as the technical requirement itself.

ASTM D 5338—92 Standard method for testing aerobic biodegradation of plastic under controlled composting condition

GB 1040—92 Plastics—Determination of tensile properties

GB 9344—88 Plastics - Methods of exposure to laboratory light source (xenon arc lamp)

GB 13022—91 Plastics—Determination of tensile properties of films

In case of the criteria above are revised, the latest version should be applied.

**3 Product category**

Products are divided into three major categories according to ways of replacement of plastic:

- (1) Packing products for replacement: include packing products for complete replacement and packing products of composite film.
- (2) Packing products liable to dispose and recycle.
- (3) Packing products of degradable: biodegradable packing products, photodegradable packing products, photo-bio-degradable packing products.

**4 Definition**

4.1 "Packing products" is a generic term for containers, materials and assistants to protect products, store, and promote selling by a certain technology in the process of circulation.

4.2 "Packing products for replacement" refer to packing products which are made from plant fiber, animal fibre as well as synthetic high molecular material or water soluble high molecular material by utilizing amylum, waste molasses and those with biodegradability so as to replace or partially replace any plastic fibre.

4.3 "Composite film packing products" refer to packing products in which more than two kinds of films compounded together.

4.4 "Degradable plastic" refer to the plastic whose chemical structure may change obviously under specified environment condition, and its properties can be detected by using standard testing methods.

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4.5 "Biodegradable plastic packing products" refer to the high molecular material which maintain the same function as existing plastic in a use, and may be decomposed into low-molecular weight compounds by microbe existing in nature and ultimately decomposed into inorganic substances such as water and carbon dioxide.

4.6 "Photodegradable plastic packing products" refer to packing products that under exposure of natural sunlight, molecular chain of polymer as the main part of plastic may be orderly broken and therefore lead to fracture and discompose of the packing products.

4.7 "Photo-bio-degradable packing products" refer to packing products that, due to additives of photosensitizer or bio-oxidation accelerant, the chemical structure of the synthetical high molecular material may change (molecular weight decrease), material strength may reduce, may be broken, fractured, and meanwhile may be moulded, rotten by microbe in nature.

4.8 "Packing products liable to dispose and recycle" refer to the packing products which shall not emit any dangerous substance to human health in the process of disposing and recycling and be liable to recycled.

4.9 "Degradation rate" mean the mass percent of carbon content in converted CO<sub>2</sub> over that of the sample under given test conditions:

$$D = W_{CO_2} \times 12 / 44 \times 100\%$$

$$W_{CO_2} = G_{CO_2} / G_c$$

Where:  $D$ —Degradation rate (%);

$W_{CO_2}$ —Generated CO<sub>2</sub> cumulative weight due to degradation correspond to unit weight of the sample (g/g);

$G_{CO_2}$ —cumulative weight of CO<sub>2</sub> (g);

$G_c$ —Carbon mass in sample (g).

4.10 Degradation retention rate of tensile strength and degradation breaking elongation retention rate:

$$F = F_2 / F_1$$

Where:  $F$ —Degradation tensile strength retention rate or degradation breaking elongation retention rate;

$F_1$ —Tensile strength or breaking elongation of product before the degradation test;

$F_2$ —Tensile strength or breaking elongation of product after the degradation test.

## 5 Basic requirements

5.1 Quality of products shall conform with requirement of relevant product quality standard.

5.2 Hygiene indexes of food packing products should meet the requirements of relevant hygiene standards.

5.3 Pollutant emission of the company should be obliged to conform with pollutant emission standards nationally or locally.

## 6 Technical contents

6.1 Requirement of packing products for replacement

(1) Packing products for complete replacement should not contain plastic fibre.

(2) Plastic material in composite film packing products should fit into the requirements for degradable products.

6.2 Requirement of degradable packing products

(1) Degradation rate of biodegradable film packing products should be  $\geq 15\%$ .

(2) Degradation breaking elongation retention rate of photodegradable film packing

products should be  $\leq 10\%$ .

(3) Degradation rate of photo-bio-degradable film packing products should be  $\geq 10\%$ ; and degradation breaking elongation retention rate should be  $\leq 30\%$ .

6.3 Packing products liable to dispose and recycle.

(1) Percentage of recycled wastes mass in product raw material over product mass should be more than 60%.

(2) Local recycle government in the distribution and sales region of products should take in charge of recycling products.

## 7 Test

7.1 Requirement in 6.1 of technical contents should be proved by way of field inspection.

7.2 Method of ASTM D 5388 - 92 should be adopted to test product biodegradability.

7.3 Methods of GB 9344—88 and GB 1040—92 or GB13022—91 should be adopted to detect degradation tensile strength retention rate and degradation breaking elongation rate.

7.4 Requirement in 6.3 of technical contents should be completed by way of documentation review.

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## Annotations:

This technical requirement has been prepared by Department of Science, Technology and Standards of State Environment Protection Administration.

The State Environment Protection Administration keeps the right of interpretation for this technical requirement.