



# Technical Requirement for Environmental Products

HBC 19-2005

Replace HBC 19-2003

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## The Certifiable Technical Requirement for Environmental Labeling Products Lightweight Wall Boards

The Certifiable Technical Requirement for Environmental Labeling Products

Lightweight Wall Boards

Approved on 01/ 25/ 2005 Entered into force on 03/01/2005

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# Issued by State Environment Protection Administration

**HBC 19-2005**

## Preface

The object of issuing this technical requirement is to save cultivated lands, efficiently use resources, reduce impact on human health and environment during production and usage of lightweight wall boards, and to promote usage of industrial byproducts.

Technical requirement specifies the requirements for lightweight wall boards about activity, fluorion concentration, asbestos, foaming agent, adhesive, solid waste and utilization ratio of industrial byproduct of gypsum.

From the date of this technical requirement entered into force, provisions on wall boards specified in "Light Panels" (HBC 19-2003) and "Phosphorous Gypsum Building Products" (HJBZ 29 - 1998) should be repealed.

Compared with "Light Panels" (HBC 19-2003), primary changes made in this technical requirement are listed below:

——Product categories have been changed to plasterboard, fiber reinforced cement board, aerocrete panel, light aggregate concrete ribbon board, concrete hollow ribbon board, fibrous reinforcement calcium silicate board and composite board.

——Requirements for adhesives used in products have been brought forward;

——Requirements for foaming agents used in products have been brought forward;

——Limits for proper scale of waste use amount in products have been brought forward;

This technical requirement has been prepared by Department of science and technology, standards of State Environment Protection Administration.

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

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### **The Certifiable Technical Requirement for Environmental Labeling Products Lightweight Wall Boards**

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#### 1 Scope

This technical requirement specifies definition, basic requirements, technical contents and test method for environmental labeling products of lightweight wall boards.

This technical requirement shall apply to lightweight wall boards such as plasterboard, fiber reinforced cement board, aerocrete panel, light aggregate concrete ribbon board, concrete hollow ribbon board, fibrous reinforcement calcium silicate board and composite board.

#### 2 Standards cited

Inclusive provisions in the following standards form the provisions in this technical requirement through the citation by this standard. By the time of publishing this technical requirement, all versions of the following standards are valid. All of these standards will be revised, and parties using this technical requirement should take into consideration the possibility of using the latest edition of the following standards.

GB 5086-1997	Test Method Standard for Leaching Toxicity of Solid Waste
GB 6566-2001	Limit of radionuclides in building materials
GB/T 15555.11-1995	Measurement of total mercury in solid waste by cold atomic absorption spectrophotometry
HBC 18-2003	The certifiable technical requirement for environmental labeling products--adhesives

#### 3 Basic requirements

3.1 Quality of products shall meet the requirement of relevant product quality standards;  
3.2 Pollutant emission of the company should conform with requirement of pollutant emission standards nationally or locally.

#### 4 Technical contents

4.1 Activity of products should conform to the requirement for construction main material in GB 6566-2001;  
4.2 No asbestos is allowed to contain in product;  
4.3 Adhesive used in production should conform to the requirement for structural adhesive specified in HBC 18-2003;  
4.4 No CFCs are allowed to be used as foaming agent in production;

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4.5 Content of solid waste such as pulverized fuel ash, furnace slag used in ribbon boards should be higher than 30% (by weight);

4.6 Requirement for plasterboard:

4.6.1 Content of industrial byproducts of gypsum used in products should be higher than 50% (by weight);

4.6.2 Concentration of fluorion release from products should be less than 5 mg/L.

### **5 Test**

5.1 Requirement of 4.1 in the technical contents should be tested according to the method specified in GB6566-2001.

5.2 Test for technical contents described in 4.6.2 should accord with the methods specified in GB 5086—1997 and GB/T 15555.11—1995.

5.3 Requirements of 4.3, 4.4, 4.5, 4.6.1 of the technical contents should be verified by the way of field inspection and documentation review;

5.4 Section 4.2 in the technical contents should be verified by method in annex A.

## Annex A (annex of the standard)

### Determination for asbesine in building materials

#### A. 1 Instruments

A. 1.1 Polar light optical microscope: 50 ~ 1000x magnification times;

A. 1.2 Refractometer: scope for detecting coefficient of refraction  $N=1.400\sim 1.700$ .

#### A. 2 Reagents

A. 2.1 fluid wax: coefficient of refraction  $N = 1; 470 (20^{\circ}\text{C})$ ;

A. 2.2 Naphthalene chloride: coefficient of refraction  $N = 1.634 (20^{\circ}\text{C})$ ;

A. 2.3 Immersion oil (several immersion oil with coefficient of refraction of  $1.490 \sim 1.570$  by mixing fluid wax and naphthalene chloride in different weight ratio. Coefficient of refraction should be detected by using refractometer)

#### A. 3 Process

Take several pieces of samples from several parts of the building material; cut into slices or mash into powder. Take ~20kg coarse mashed powder after curtailed sampling, then make powdered sample by screening further fine grinded powder through square mesh less than 0.08mm (4900 holes).

#### A. 4 Analysis method

Asbestos used for producing building materials are primarily chrysotile, which is a fibrous mineral containing abundant magnesium silicate with structural formula of  $\text{Mg}_6(\text{OH})_6 \cdot (\text{Si}_4\text{O}_{11})_2 \cdot \text{H}_2\text{O}$ ; Another kind of asbestos is amphibole asbestos, which is a fibrous mineral containing abundant silicate. Test method for asbestine is as follows:

##### A. 4.1 Method of thin-section analysis

Place a prepared flake on microscope carrier. Observe the sample with objective of different amplifications. If the optical property of the sample matches that of asbestos mineral described above, it should be possible to determine which category the asbestos belongs to. If no asbestos mineral characteristics are observed in several samples, it can be determined that the material under testing does not contain asbestos mineral.

##### A. 4.2 Method of powdery analysis

Take a little sample powder on the slide. Drop prepared immersion oil (a kind of immersion oil has the closest coefficient of refraction to asbestos mineral) on the sample. Cover the cover glass, and then observe the sample under microscope. If the optical property of the sample matches that of asbestos mineral characteristic, it should be possible to determine which category the asbestos belongs to. If no asbestos mineral characteristics are observed in several samples, it can be determined that the material under testing does not contain asbestos mineral.

#### A. 5 Notice

A. 5.1 Observe the sample using low-power objective first, and then observe it by high-power objective.

A. 5.2 Sample volume loaded on glass should be proper so as to ensure the accuracy of observation.

A. 5.3 If samples are observed by powder method, in the case of the coefficient of refraction of immersion oil is higher (or lower) than that of asbestos mineral, it should be replaced by immersion oil with lower (or higher) coefficient of refraction, and repeat the process of A. 4. 2.