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

**GB/T 3810.5-2016**

Replacing GB/T 3810.5-2006

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**Test methods of ceramic tiles -- Part 5: Determination of impact  
resistance by measurement of coefficient of restitution**

陶瓷砖试验方法 第5部分：用恢复系数确定砖的抗冲击性

**(English Translation)**

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### Foreword

GB/T 3810 "ceramic tile test method" is divided into 16 parts.

- Part 1. Sampling and receiving conditions;
- Part 2. Inspection of dimensions and surface quality;
- Part 3. Determination of water absorption, apparent porosity, apparent relative density and bulk density;
- Part 4. Determination of fracture modulus and failure strength;
- Part 5. Determining the impact resistance of a brick with a recovery factor;
- Part 6. Determination of wear depth of unglazed tiles;
- Part 7. Determination of abrasion resistance of glazed tiles;
- Part 8. Determination of linear thermal expansion;
- Part 9. Determination of thermal shock resistance;
- Part 10. Determination of wet expansion;
- Part 11. Determination of glaze resistance of glazed tiles;
- Part 12. Determination of frost resistance;
- Part 13. Determination of resistance to chemical corrosion;
- Part 14. Determination of resistance to contamination;
- Part 15. Determination of lead and cadmium elution of glazed tiles;

- Part 16. Determination of small chromatic aberration.

This part is part 5 of GB/T 3810.

This part is drafted in accordance with the rules given in GB/T 1.1-2009.

Replacement of GB/T 3810.5-2006 "Test methods for ceramic tiles Part 5. Determining the impact resistance of bricks with the restoring factor".

This part of the main changes compared with GB/T 3810.5-2006 as follows.

- modified terms and definitions (see 2.1, version 2.1);
- Modification of the preparation of concrete blocks (see 5.3, version 5.3).

This part uses the translation method equivalent to ISO 10545-5:1996 "Ceramic tiles Part 5. Determine the impact resistance of the brick with the recovery factor  $S_{ex}$ " (English version).

This section makes the following editorial changes.

- a) Standard name modified to "Ceramic tile test method Part 5. Determining the impact resistance of a brick with a recovery factor";
- b) incorporating the contents of the Technical Corrigendum ISO 10545-5:1996/Cor.1:1997 published in 1997, the " $ID \phi 0$ " in Figure A.1, Replace with " $ID \phi 30$ " (see Figure A.1).

This section is proposed by the China Building Materials Federation.

This part of the National Building Sanitary Ceramics Standardization Technical Committee (SAC/TC249) centralized.

This part of the drafting unit. Xianyang Ceramic Research and Design Institute, Hangzhou Nobel Group Co., Ltd., Guangdong Mona Lisa New Materials Group Ltd., Guangdong Xingming Ceramics Group Co., Ltd., Guangdong Dongpeng Holding Co., Ltd., Industry and the Ministry of Information Technology Sanitary Ceramics and sanitary products quality control technology evaluation laboratory.

## 1 Scope

This part of GB/T 3810 specifies a test method for determining the impact resistance of ceramic tiles with a recovery factor.

## 2 Terms and definitions

The following terms and definitions apply to this document.

The coefficient of recovery between two colliding objects is coefficient of restitution the relative velocity after the collision is divided by the relative velocity before the collision.

### 3 Principle

A ball is dropped from a fixed height on the specimen and its rebound height is measured to determine the recovery factor.

### 4 Equipment

#### 4.1

chrome ball. diameter of  $19\text{mm} \pm 0.05\text{mm}$ .

#### 4.2

Falling ball equipment (see Figure 1). by the horizontal adjustment knob with steel seat and a suspension of the electromagnet, catheter and test parts bracket vertical Steel frame composition.

The test piece is fastened to a position where the fallen steel ball collides with the center of the horizontal tile surface. The fixture is shown in Figure 1, Other suitable systems can also be used.

#### 4.3

electronic timer (optional), with a microphone to determine the ball on the specimen on the first collision and the second collision between the time interval.

### 5.1 Number of samples

Respectively, from 5 pieces of brick at least cut 5  $75\text{mm} \times 75\text{mm}$  samples. Bricks with actual sizes less than  $75\text{mm}$  can also be used.

### 5.2 Brief description of test parts

The test piece is made of an epoxy resin adhesive on the prepared concrete block.

### 5.3 Concrete blocks

The volume of the concrete block is about  $75\text{ mm} \times 75\text{ mm} \times 50\text{ mm}$ , and the concrete blocks are made from this size mold or from a large mix