



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

GB/T 36134-2018

**Monolithic (unshaped) refractory products -- Determination of
resistance to explosive spalling during heating**

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Table of Contents

Foreword	3
1 Scope	4
2 Normative References	4
3 Terms and Definitions	4
4 Principle	5
5 Equipment	5
6 Specimen	5
7 Test Procedures	6
8 Test Report	7
Appendix A (Informative) Clause Comparison List between this Standard and ISO 16334.2013	8
Appendix B (Informative) Technical Differences and the Causes between this Standard and ISO 16334.2013	9

1 Scope

This Standard specifies the terms and definitions, principle, equipment, specimen, test procedures and test report for the test method of resistance to explosive spalling of monolithic (unshaped) refractory products.

This Standard is applicable to the determination of resistance to explosive spalling of the monolithic (unshaped) refractory products.

2 Normative References

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) are applicable to this document.

GB/T 4513.5 Monolithic (Unshaped) Refractory Products - Part 5. Preparation and Treatment of Test Pieces (GB/T 4513.5-2017, ISO 1927-5.2012, MOD)

3 Terms and Definitions

For the purposes of this document, the following terms and definitions apply.

3.1 Explosive spalling

The monolithic (unshaped) refractory products are cracked, burst or pulverized during the rapid heating process due to the failure of immediate discharging of the internal gas and the internal stress.

3.2 Temperature of anti-explosion

During the anti-explosion test, the specimen does not explode at such temperature, but explodes at 50°C above this temperature.

number of the anti-explosion tests.

The preparation and maintenance of the specimen shall be carried out as per GB/T 4513.5; the during time shall be 24h or determined through the negotiation of relevant parties. The specimen shall be sealed after releasing from mold and before entering into the furnace. The specimens prepared in the same batch shall be tested within 4h after the end of curing; otherwise they shall be prepared separately.

NOTE. According to the negotiation of the relevant parties, a thermocouple can be fixed in the inner center of the specimen when preparing the specimen, it can measure the internal temperature of the sample changing with the time in the anti-explosion test.

7 Test Procedures

7.1 The test furnace shall be preheated to 600°C (or determined through negotiation of relevant parties); kept for 30min.

7.2 Test two specimens at each temperature; and test one specimen once.

7.3 Put the demolded specimen surface upward; quickly put it into the shield in the test surface at the set temperature; close the furnace door when timing. The distance between the specimen and the furnace surface shall be no less than 50mm. After the furnace temperature returns to the set temperature; the specimen shall be kept at this temperature for 30min.

7.4 Observe whether the specimen explodes; record the test results of the specimen according to the following classification.

--- Not exploded. the test specimen has no damage;

--- Exploded. the specimen is cracked (crack width exceeds 2mm, or penetrating crack), burst or pulverized damage.

7.5 If both specimens are not exploded, then it is considered that there is no explosion at this temperature; raise the furnace temperature by 50°C; if at least one specimen of the two ones is exploded, then it is considered that there is explosion at this temperature; reduce the furnace temperature by 50°C; keep at the newly set temperature for 30min.

7.6 Repeat the tests of 7.2~7.5 until the anti-explosion temperature is measured or the furnace temperature reaches 1000°C. The anti-explosion temperature is at 50°C intervals.

7.7 Turn off the test furnace.

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