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

GB/T 42913-2023

**Corrosion of metals and alloys - Test method for high
temperature corrosion testing of metallic materials by
embedding in salt, ash, or other solids**

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1. Structure and Drafting Rules of Standardization Documents"

Drafting.

This document is modified from ISO 17248.2015 "Corrosion of metals and alloys Metallic materials embedded in salt, ash or other solids"

High Temperature Corrosion Test Methods".

Compared with ISO 17248.2015, this document has made the following structural adjustments.

- a) Delete 3.1 and 3.3 of ISO 17248.2015, and adjust 3.2 and 3.4 of ISO 17248.2015 to 3.1 and 3.2;
- b) Table 1 of ISO 17248.2015 is deleted and Table 2 of ISO 17248.2015 is adjusted to Table 1;
- c) The suspended paragraph of 6.1 of ISO 17248.2015 is deleted;
- d) Added informative appendix A "Technical differences between this document and ISO 17248.2015 and their reasons";
- e) Appendix B corresponds to Appendix A of ISO 17248.2015.

Compared with ISO 17248.2015, there are many technical differences between this document and the vertical margins of the outer margins of the clauses involved.

Single lines (|) are marked. A list of these technical differences and their causes is shown in Appendix A.

This article has made the following editorial changes.

---Replaced ISO 21608.2012 with the informative reference GB/T 38430-2019 (see 4.3.1 and 4.5.2);

---Change ISO 17224.2015's "Note. The above pressures can be achieved using flat metal plates with appropriate mass and area ratio."

For "Note. Use a metal plate with an appropriate mass and area ratio to achieve the above pressure." (see 4.4.1);

---Replace ISO 8407.2009 with GB/T 16545-2015, which is equivalent to the international document (see B.1 and B.2);

---Delete column 1 and its contents in A.1 and Table A.2 in Appendix A of ISO 17224.2015 (see Table B.1 and Table B.2).

Please note that some content in this document may be subject to patents. The publisher of this document assumes no responsibility for identifying patents.

1 Scope

This document specifies metallic materials embedded in corrosive powders consisting of salt, ash, and/or other solids and exposed to controlled elevated temperatures.

Test method for evaluating corrosion resistance in gas environments.

This document is applicable to high-temperature corrosion tests when metallic materials are fully embedded or partially embedded in corrosive powders.

2 Normative reference documents

The contents of the following documents constitute essential provisions of this document through normative references in the text. Among them, the dated quotations

For undated referenced documents, only the version corresponding to that date applies to this document; for undated referenced documents, the latest version (including all amendments) applies to

this document.

GB/T 10123 Corrosion terminology for metals and alloys (GB/T 10123-2022, ISO 8044.2020, IDT)

GB/T 16545-2015 Corrosion of metals and alloys Removal of corrosion products from corrosion specimens (ISO 8407.2009, IDT)

GB/T 16701 Method for measuring thermal electromotive force of precious metal and cheap metal thermocouple wires

GB/T 16839.1 Thermocouples Part 1. Electromotive force specifications and tolerances

GB/T 41654 Corrosion of metals and alloys - Methods for metallographic examination of specimens after exposure to high-temperature corrosive environments (GB/T 41654-2022,ISO 26146.2012,IDT)

JJG141 working precious metal thermocouple

3 Terms and definitions

The terms and definitions defined in GB/T 10123 and the following apply to this document.

3.1

corrosive powder corrosive powder

A powdered mixture of salt, ash, and/or other solids containing compounds that react with metals at high temperatures.

3.2

descaling

Before measuring the mass of the remaining metal, remove corrosion products and corrosion phases from the specimen surface.

4.1 Principles

Measurements of mass changes should be made with fully embedded specimens. The number of samples for each material should be no less than 3 to ensure the reliability of the test results.

Presently. Two of the specimens are used for the measurement of mass changes or dimensional changes, and one specimen is used for surface and/or cross-section observation.