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

GB/T 41994-2022

**Industrial furnace and associated processing equipment -
Safety requirements for machinery and equipment for
production of steel by electric arc furnaces**

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foreword

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

This document is identical to ISO 13578.2017 "Safety Requirements for Electric Arc Furnace Steelmaking Machinery and Equipment for Industrial Furnaces and Related Process Equipment".

The following minimal editorial changes have been made to this document.

- Added "Notes" in 3.18.1~3.18.3, 6.1.1~6.1.3, 6.1.5, 6.1.6, 6.1.10.6, 6.1.10.8, 6.1.12, 8.3;
- Added "Note 2" of Figure B.1;
- Due to editorial errors in the original text, the relevant content of the abolished reference standard "EN13463-1" is deleted.

Please note that some content of this document may be patented. The issuing agency of this document assumes no responsibility for identifying patents.

1 Scope

This document specifies general safety requirements for electric arc furnace (EAF) steelmaking without radioactive material.

Note. Radioactive substances are tested before entering the steel plant.

This document addresses the significant hazards, hazardous situations and hazardous events listed in Table 1 associated with EAF, when

When used under long-term conditions, it also includes foreseeable failures and failures during misuse.

This document specifies guidelines for the integration of equipment and equipment in the production process.

This document specifies the requirements for the safety of personnel during the design, transport, assembly, commissioning, operation, maintenance and decommissioning of equipment.

This document assumes that the equipment is operated and maintained by adequately trained personnel, with manual setup, adjustment and maintenance as part of the normal use of the equipment.

part.

This document applies to the following equipment (see Table B.1 and Table B.2 of Appendix B, Figure C.1 and Figure C.2 of Appendix C).

- Alternating current (AC) technology EAF;
- Direct current (DC) technology EAF;
- Scrap preheating technology;
- Associated equipment, devices (such as inert gas stirring, carbon and oxygen injection systems).

This document does not apply to the following devices.

- Induction furnace;
- Resistance EAF (such as submerged arc furnace);
- Electron beam furnace;
- Plasma furnace;
- Other electric furnaces for secondary refining, such as ladle refining furnaces.

This document does not specify safety requirements for the following equipment, which may be an integral part or supplementary part of equipment within this scope.

- crane;
- Furnace shell spreader;
- Scrap steel basket, ladle, slag tank;
- Scrap baskets, ladles and slag tankers;
- Dust removal system;
- "kennel" and "elephant house" (furnace hoods for environmental reasons);
- Alloy system;
- Independent scrap drying equipment;
- Furnace transformers and high-voltage systems;

--- Robots, manipulators (eg temperature measurement and sampling use).

2 Normative references

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

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