



SLOVENSKI STANDARD SIST EN ISO 13520:2023

01-junij-2023

Določevanje feritov v avstenitnih ulitkih iz nerjavnega jekla (ISO 13520:2023)

Determination of ferrite content in austenitic stainless steel castings (ISO 13520:2023)

Bestimmung des Ferritgehaltes in austenitischem nichtrostenden Stahlguss (ISO 13520:2023)

Détermination du taux de ferrite des pièces moulées en acier inoxydable austénitique (ISO 13520:2023)

Ta slovenski standard je istoveten z: **EN ISO 13520:2023**

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This European Standard was approved by CEN on 10 March 2023.

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European foreword

This document (EN ISO 13520:2023) has been prepared by Technical Committee ISO/TC 17 "Steel" in collaboration with Technical Committee CEN/TC 459/SC 11 "Steel castings and forgings" the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by October 2023, and conflicting national standards shall be withdrawn at the latest by October 2023.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

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Endorsement notice

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The text of ISO 13520:2023 has been approved by CEN as EN ISO 13520:2023 without any modification.

INTERNATIONAL
STANDARD

ISO
13520

Third edition
2023-03

**Determination of ferrite content in
austenitic stainless steel castings**

*Détermination du taux de ferrite des pièces moulées en acier
inoxydable austénitique*

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 17, *Steel*, Subcommittee SC 11, *Steel castings*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 459/SC 11, *Steel castings and forgings*, in accordance with the Agreement with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This third edition cancels and replaces the second edition (ISO 13520:2015), of which it constitutes a minor revision. The changes are as follows:

- ASTM A799 and BNIF 345 where moved to the bibliography as they are not cited normatively;
- editorial revision.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Determination of ferrite content in austenitic stainless steel castings

1 Scope

Procedures are covered for estimating ferrite content in certain grades of austenitic iron-chromium-nickel alloy castings that have compositions balanced to create the formation of ferrite as a second phase in amounts controlled within specified limits. Methods are described for estimating ferrite content by chemical, magnetic and metallographic means.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 4990, *Steel castings — General technical delivery requirements*

ISO 9042, *Steels — Manual point counting method for statistically estimating the volume fraction of a constituent with a point grid*

3 Terms and definitions

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

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1

ferrite

ferromagnetic, body-centred cubic microstructural constituent of variable chemical composition in iron-chromium-nickel alloys

Note 1 to entry: Ferrite includes both delta and alpha species.

3.2

ferrite content

proportion of total volume of an iron-chromium-nickel alloy present as the ferrite phase

3.3

ferrite percentage

ferrite content expressed as a volume percent

4 Significance effects of ferrite content

The tensile and impact properties, the weldability, and the corrosion resistance of iron-chromium-nickel alloy castings may be influenced beneficially or detrimentally by the ratio of the amount of ferrite to the amount of austenite in the microstructure. The ferrite content may be limited by purchase order requirements or by the design construction codes governing the equipment in which castings will be used. The quantity of ferrite in the structure is fundamentally a function of the chemical composition of the alloy and its thermal history. Because of segregation, the chemical composition and, therefore,