INTERNATIONAL STANDARD

ISO 6283

Second edition
1995-09-15

Refined nickel

Nickel raffiné

Reference number
ISO 6283:1995(E)

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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 6283 was prepared by Technical Committee ISO/TC 155, *Nickel and nickel alloys.*

This second edition cancels and replaces the first edition (ISO 6283:1979), which has been technically revised with the addition of clauses covering packing and traceability plus documentation.

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Refined nickel

1 Scope

This International Standard specifies the designation and chemical composition of commercially available grades of refined nickel.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 6372-2:1989, *Nickel and nickel alloys — Terms and definitions — Part 2: Refinery products.*

ISO 7156:1991, *Refined nickel — Sampling.*

3 Definition

For the purposes of this International Standard, the following definition applies.

3.1 refined nickel: Metallic nickel which is produced by refining processes such as electrolytic, carbonyl decomposition, reduction or precipitation processes.

4 Designation

The designations for the various grades of nickel as given in table 1 are NR9980, NR9990 and NR9995.

5 Composition

5.1 The various grades of nickel shall comply with the requirements given in table 1.

5.2 The chemical composition given shows the minimum content for nickel and the maximum limits for the usual impurities. If the purchaser requires lower limits for specified elements and/or limits for elements not specified, these shall be agreed upon between supplier and purchaser.

5.3 For the purpose of determining compliance with the specified composition limits, the values of the reported analysis shall be rounded to the same number of decimal places as are used in defining the specified limit in the table. The rounding rules shall be as follows.

5.3.1 If the figure immediately after the last figure to be retained is less than 5, the last figure to be retained shall be kept unchanged.

5.3.2 If the figure immediately after the last figure to be retained is equal to or greater than 5, the last figure to be retained shall be increased by one.

6 Forms

The form of the nickel shall be as specified by the purchaser. Typical forms include briquettes, cathodes, granules, pellets, powders or shot. The terms and definitions of various forms of nickel are given in ISO 6372-2.

NOTE 1 Forms are generally related to the refining process and thus not all forms may be available for each of the designations given in table 1.

Table 1 — Chemical composition, % (*m/m*)

Designation	NR9980	NR9990	NR9995
Ni min.	99,80	99,90	99,95
Ag max.	—	0,001	0,000 1
Al max.	—	0,001	0,000 5
As max.	0,004	0,004	0,000 1
Bi max.	0,004	0,000 2	0,000 05
C max.	0,03	0,015	0,015
Cd max.	—	0,001	0,000 1
Co max.	0,15	0,05	0,000 5
Cu max.	0,02	0,01	0,001
Fe max.	0,02	0,015	0,015
Mn max.	0,004	0,004	0,000 5
P max.	0,004	0,002	0,000 2
Pb max.	0,004	0,001	0,000 1
S max.	0,01	0,002	0,001
Sb max.	0,004	0,000 5	0,000 1
Se max.	—	0,001	0,000 1
Si max.	0,004	0,002	0,001
Sn max.	0,004	0,000 1	0,000 1
Te max.	—	0,000 1	0,000 05
Tl max.	—	0,000 1	0,000 05
Zn max.	0,004	0,001 5	0,000 5

7 Sampling

7.1 Sampling of refined nickel at the producer's refinery is normally done by routine procedures.

7.2 Sampling of other lots or shipments of refined nickel shall be by mutual agreement of the interested parties.

7.3 If there is no agreement then sampling shall be done according to ISO 7156.

8 Analysis

8.1 For the provision of a certificate of conformity from the refinery, the methods of analysis shall be by recognized chemical or instrumental procedures at the discretion of the producer.

8.2 For shipments not direct from a refinery the methods of analysis shall be by recognized analytical procedures as mutually agreed by the interested parties.

8.3 In cases of dispute, the method of analysis shall be according to the relevant International Standard. If no such standard exists, a method shall be agreed upon by the disputing parties.

9 Packing and traceability

The refined nickel shall be securely packaged to prevent contamination in storage or transit. Each shipment, lot or package shall be identified to provide traceability to the refinery lot or batch number(s).

10 Documentation

10.1 Information to be given by the purchaser

Orders for refined nickel conforming to this International Standard shall include the following information:

a) the number of this International Standard, i.e. ISO 6283:1995;

b) the designation of the refined nickel required (see clause 4);

c) the form of the refined nickel required (see clause 6);

d) any additional requirements.

10.2 Information to be given by the supplier

The supplier shall provide a certificate of conformity with each delivery. This certificate shall contain sufficient information to ensure traceability to the batch of material to which it relates.

ICS 77.120.40

Descriptors: nickel, chemical composition, impurities, maximum percentage, designation.

Price based on 2 pages