BS ISO 6362-7:2014

BSI Standards Publication

# Wrought aluminium and aluminium alloys — Extruded rods/bars, tubes and profiles

## Part 7: Chemical composition

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**National foreword**

This British Standard is the UK implementation of ISO 6362-7:2014. It supersedes BS ISO 6362-7:2012 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee NFE/35, Light metals and their alloys.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.



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**Compliance with a British Standard cannot confer immunity from legal obligations.**

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INTERNATIONAL STANDARD

**ISO 6362-7**

Second edition
2014-09-15

# Wrought aluminium and aluminium alloys — Extruded rods/bars, tubes and profiles —

## Part 7: Chemical composition

*Aluminium et alliages d'aluminium corroyés — Barres, tubes et profilés filés —*

*Partie 7: Composition chimique*

Reference number
ISO 6362-7:2014(E)

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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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 79, *Light metals and their alloys*, Subcommittee SC 6, *Wrought aluminium and aluminium alloys*.

This second edition cancels and replaces the first edition (ISO 6362-7:2012), which has been technically revised.

ISO 6362 consists of the following parts, under the general title *Wrought aluminium and aluminium alloys — Extruded rods/bars, tubes and profiles*:

— *Part 1: Technical conditions for inspection and delivery*

— *Part 2: Mechanical properties*

— *Part 3: Extruded rectangular bars — Tolerances on shape and dimensions*

— *Part 4: Profiles — Tolerances on shape and dimensions*

— *Part 5: Round, square and hexagonal bars — Tolerances on shape and dimensions*

— *Part 6: Round, square, rectangular and hexagonal tubes — Tolerances on shape and dimensions*

— *Part 7: Chemical composition*

INTERNATIONAL STANDARD ISO 6362-7:2014(E)

# Wrought aluminium and aluminium alloys — Extruded rods/bars, tubes and profiles —

# Part 7: Chemical composition

## 1 Scope

This part of ISO 6362 specifies the chemical composition of wrought aluminium and aluminium alloys.

The chemical composition limits of aluminium and aluminium alloys specified herein are completely identical with those registered with the Aluminium Association, 1525 Wilson Boulevard, Suite 600, Arlington, VA 22209, USA (known as the "Teal Sheets"), for the corresponding alloys.

NOTE In the case of a discrepancy in the values listed in Table 1 with those listed in the "Registration Record Series Teal Sheets, International Alloy Destinations and Chemical Composition Limits for Wrought Aluminum and Wrought Aluminum Alloys", the composition limits registered with the Aluminium Association and published in the "Teal Sheets" can be considered for controlling the composition.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 209, *Aluminium and aluminium alloys — Chemical composition*

ISO 6362-1, *Wrought aluminium and aluminium alloys — Extruded rods/bars, tubes and profiles — Part 1: Technical conditions for inspection and delivery*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 6362-1 apply.

## 4 Chemical composition

The chemical designations are specified in ISO 209.

The chemical composition of the aluminium and aluminium alloys is given in percentage by mass in Table 1.

For the purpose of determining conformance to these limits, an observed value or a calculated value obtained from analysis is rounded off, in accordance with the rules for rounding given in Annex A.

The conformance does not preclude the possible presence of other elements that are not specified. If the purchaser's requirements necessitate limits for any other element not specified, these shall be agreed upon between the supplier and purchaser. "The remainder" is the difference between 100 % and the sum of all other metallic elements present in amounts of 0,010 % or more each, expressed to the second decimal place before determining the sum.

**Table 1 — Chemical composition** (% by mass)

| Alloy | Limit | Si | Fe | Cu | Mn | Mg | Cr | Zn | Ti | Remarks | Others | | Aluminium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | Each | Total | |
| 1070 | min. | — | — | — | — | — | — | — | — | V 0,05 max. | — | — | 99,70 |
| | max. | 0,20 | 0,25 | 0,04 | 0,03 | 0,03 | — | 0,04 | 0,03 | | 0,03 | — | — |
| 1070A | min. | — | — | — | — | — | — | — | — | — | — | — | 99,70 |
| | max. | 0,20 | 0,25 | 0,03 | 0,03 | 0,03 | — | 0,07 | 0,03 | | 0,03 | — | — |
| 1060 | min. | — | — | — | — | — | — | — | — | — | — | — | 99,60 |
| | max. | 0,25 | 0,35 | 0,05 | 0,03 | 0,03 | — | 0,05 | 0,03 | | 0,03 | — | — |
| 1050 | min. | — | — | — | — | — | — | — | — | V 0,05 max. | — | — | 99,50 |
| | max. | 0,25 | 0,40 | 0,05 | 0,05 | 0,05 | — | 0,05 | 0,03 | | 0,03 | — | — |
| 1050A | min. | — | — | — | — | — | — | — | — | — | — | — | 99,50 |
| | max. | 0,25 | 0,40 | 0,05 | 0,05 | 0,05 | — | 0,07 | 0,05 | | 0,03 | — | — |
| 1350 | min. | — | — | — | — | — | — | — | — | B 0,05 max.<br>Ga 0,03 max.<br>V+Ti 0,02 max. | — | — | 99,50 |
| | max. | 0,10 | 0,40 | 0,05 | 0,01 | — | 0,01 | 0,05 | — | | 0,03 | 0,10 | — |
| 1100 | min. | — | | 0,05 | — | — | — | — | — | [a] | — | — | 99,00 |
| | max. | Si+Fe:0,95 | | 0,20 | 0,05 | — | — | 0,10 | — | | 0,05 | 0,15 | — |
| 1200 | min. | — | | — | — | — | — | — | — | — | — | — | 99.00 |
| | max. | Si+Fe:1,00 | | 0,05 | 0,05 | — | — | 0,10 | 0,05 | | 0,05 | 0,15 | — |
| 2007 | min. | — | — | 3,3 | 0,50 | 0,40 | — | — | — | Ni 0,20 max.<br>Bi 0,20 max.<br>Pb 0,8 to 1,5<br>Sn 0,20 max. | — | — | Remainder |
| | max. | 0,8 | 0,8 | 4,6 | 1,0 | 1,8 | 0,10 | 0,8 | 0,20 | | 0,10 | 0,30 | |
| 2011 | min. | — | — | 5,0 | — | — | — | — | — | Bi 0,20 to 0,6<br>Pb 0,20 to 0,6 | — | — | Remainder |
| | max. | 0,40 | 0,7 | 6,0 | — | — | — | 0,30 | — | | 0,05 | 0,15 | |
| 2011A | min. | — | — | 4,5 | — | — | — | — | — | Bi 0,20 to 0,6<br>Pb 0,20 to 0,6 | — | — | Remainder |
| | max. | 0,40 | 0,50 | 6,0 | — | — | — | 0,30 | — | | 0,05 | 0,15 | |
| 2014 | min. | 0,50 | — | 3,9 | 0,40 | 0,20 | — | — | — | [b] | — | — | Remainder |
| | max. | 1,2 | 0,7 | 5,0 | 1,2 | 0,8 | 0,10 | 0,25 | 0,15 | | 0,05 | 0,15 | |
| 2014A | min. | 0,50 | — | 3,9 | 0,40 | 0,20 | — | — | — | Zr+Ti 0,25 max.<br>Ni 0,10 max. | — | — | Remainder |
| | max. | 0,9 | 0,50 | 5,0 | 1,2 | 0,8 | 0,10 | 0,25 | 0,15 | | 0,05 | 0,15 | |
| 2017 | min. | 0,20 | — | 3,5 | 0,40 | 0,40 | — | — | — | [b] | — | — | Remainder |
| | max. | 0,8 | 0,7 | 4,5 | 1,0 | 0,8 | 0,10 | 0,25 | 0,15 | | 0,05 | 0,15 | |
| 2017A | min. | 0,20 | — | 3,5 | 0,40 | 0,40 | — | — | — | Zr+Ti 0,20 max. | — | — | Remainder |
| | max. | 0,8 | 0,7 | 4,5 | 1,0 | 1,0 | 0,10 | 0,25 | — | | 0,05 | 0,15 | |
| 2024 | min. | — | — | 3,8 | 0,30 | 1,2 | — | — | — | [b] | — | — | Remainder |
| | max | 0,50 | 0,50 | 4,9 | 0,9 | 1,8 | 0,10 | 0,25 | 0,15 | | 0,05 | 0,15 | |
| 2030 | min. | — | — | 3,3 | 0,20 | 0,50 | — | — | — | Bi 0,20 max.<br>Pb 0,8 to 1,5 | — | — | Remainder |
| | max. | 0,8 | 0,7 | 4,5 | 1,0 | 1,3 | 0,10 | 0,50 | 0,20 | | 0,10 | 0,30 | |
| 3102 | min. | — | — | — | 0,05 | — | — | — | — | — | — | — | Remainder |
| | max. | 0,40 | 0,7 | 0,10 | 0,40 | — | — | 0,30 | 0,10 | | 0,05 | 0,15 | |

[a] Be 0,000 3 % max. when used for welding rods and welding wires.

[b] With agreement between the purchaser and supplier, Zr+Ti can be 0,20 % max.

[c] With agreement between the purchaser and supplier, Zr+Ti can be 0,25 % max.

**Table 1** *(continued)*

| Alloy | Limit | Si | Fe | Cu | Mn | Mg | Cr | Zn | Ti | Remarks | Others | | Aluminium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | Each | Total | |
| 3003 | min. | — | — | 0,05 | 1,0 | — | — | — | — | — | — | — | Remainder |
| | max. | 0,6 | 0,7 | 0,20 | 1,5 | — | — | 0,10 | — | | 0,05 | 0,15 | |
| 3103 | min. | — | — | — | 0,9 | — | — | — | — | Zr+Ti 0,10 max. | — | — | Remainder |
| | max. | 0,50 | 0,7 | 0,10 | 1,5 | 0,30 | 0,10 | 0,20 | — | | 0,05 | 0,15 | |
| 3203 | min. | — | — | — | 1,0 | — | — | — | — | — | — | — | Remainder |
| | max. | 0,6 | 0,7 | 0,05 | 1,5 | — | — | 0,10 | — | | 0,05 | 0,15 | |
| 5005 | min. | — | — | — | — | 0,50 | — | — | — | — | — | — | Remainder |
| | max | 0,30 | 0,7 | 0,20 | 0,20 | 1,1 | 0,10 | 0,25 | — | | 0,05 | 0,15 | |
| 5005A | min. | — | — | — | — | 0,7 | — | — | — | — | — | — | Remainder |
| | max. | 0,30 | 0,45 | 0,05 | 0,15 | 1,1 | 0,10 | 0,20 | — | | 0,05 | 0,15 | |
| 5019 | min. | — | — | — | 0,10 | 4,5 | — | — | — | Mn+Cr 0,02max. | — | — | Remainder |
| | max. | 0,40 | 0,50 | 0,10 | 0,6 | 5,6 | 0,20 | 0,20 | 0,20 | | 0,05 | 0,15 | |
| 5049 | min. | — | — | — | 0,50 | 1,6 | — | — | — | — | — | — | Remainder |
| | max. | 0,40 | 0,50 | 0,10 | 1,1 | 2,5 | 0,30 | 0,20 | 0,10 | | 0,05 | 0,15 | |
| 5051A | min. | — | — | — | — | 1,4 | — | — | — | — | — | — | Remainder |
| | max. | 0,30 | 0,45 | 0,05 | 0,25 | 2,1 | 0,30 | 0,20 | 0,10 | | 0,05 | 0,15 | |
| 5251 | min. | — | — | — | 0,10 | 1,7 | — | — | — | — | — | — | Remainder |
| | max. | 0,40 | 0,50 | 0,15 | 0,50 | 2,4 | 0,15 | 0,15 | 0,15 | | 0,05 | 0,15 | |
| 5052 | min. | — | — | — | — | 2,2 | 0,15 | — | — | — | — | — | Remainder |
| | max. | 0,25 | 0,40 | 0,10 | 0,10 | 2,8 | 0,35 | 0,10 | — | | 0,05 | 0,15 | |
| 5154 | min. | — | — | — | — | 3,1 | 0,15 | — | — | [a] | — | — | Remainder |
| | max. | 0,25 | 0,40 | 0,10 | 0,10 | 3,9 | 0,35 | 0,20 | 0,20 | | 0,05 | 0,15 | |
| 5154A | min. | 0,50 | 0,50 | 0,10 | 0,50 | 3,1 | 0,25 | 0,20 | 0,20 | Mn+Cr 0,10 to 0,50 | 0,05 | 0,15 | Remainder |
| | max | | | | | 3,9 | | | | | | | |
| 5454 | min. | — | — | — | 0,50 | 2,4 | 0,05 | — | — | — | — | — | Remainder |
| | max. | 0,25 | 0,40 | 0,10 | 1,0 | 3,0 | 0,20 | 0,25 | 0,20 | | 0,05 | 0,15 | |
| 5754 | min. | — | — | — | — | 2,6 | — | — | — | Mn+Cr 0,10 to 0,6 | — | — | Remainder |
| | max. | 0,40 | 0,40 | 0,10 | 0,50 | 3,6 | 0,30 | 0,20 | 0,15 | | 0,05 | 0,15 | |
| 5056 | min. | — | — | — | 0,05 | 4,5 | 0,05 | — | — | — | — | — | Remainder |
| | max. | 0,30 | 0,40 | 0,10 | 0,20 | 5,6 | 0,20 | 0,10 | — | | 0,05 | 0,15 | |
| 5083 | min. | — | — | — | 0,40 | 4,0 | 0,05 | — | — | — | — | — | Remainder |
| | max. | 0,40 | 0,40 | 0,10 | 1,0 | 4,9 | 0,25 | 0,25 | 0,15 | | 0,05 | 0,15 | |
| 5086 | min. | — | — | — | 0,20 | 3,5 | 0,05 | — | — | — | — | — | Remainder |
| | max. | 0,40 | 0,50 | 0,10 | 0,7 | 4,5 | 0,25 | 0,25 | 0,15 | | 0,05 | 0,15 | |
| 6101A | min. | 0,30 | — | — | — | 0,40 | — | — | — | — | — | — | Remainder |
| | max. | 0,7 | 0,40 | 0,05 | — | 0,9 | — | — | — | | 0,03 | 0,10 | |
| 6101B | min. | 0,30 | 0,10 | — | — | 0,35 | — | — | — | — | — | — | Remainder |
| | max | 0,6 | 0,30 | 0,05 | 0,05 | 0,6 | — | 0,10 | — | | 0,03 | 0,10 | |

[a] Be 0,000 3 % max. when used for welding rods and welding wires.

[b] With agreement between the purchaser and supplier, Zr+Ti can be 0,20 % max.

[c] With agreement between the purchaser and supplier, Zr+Ti can be 0,25 % max.

**Table 1** *(continued)*

| Alloy | Limit | Si | Fe | Cu | Mn | Mg | Cr | Zn | Ti | Remarks | Others | | Aluminium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | Each | Total | |
| 6005 | min. | 0,6 | — | — | — | 0,40 | — | — | — | — | — | — | Remainder |
| | max. | 0,9 | 0,35 | 0,10 | 0,10 | 0,6 | 0,10 | 0,10 | 0,10 | | 0,05 | 0,15 | |
| 6005A | min. | 0,50 | — | — | — | 0,40 | — | — | — | Mn+Cr 0,12 to 0,50 | — | — | Remainder |
| | max | 0,9 | 0,35 | 0,30 | 0,50 | 0,7 | 0,30 | 0,20 | 0,10 | | 0,05 | 0,15 | |
| 6005C | min. | 0,40 | — | — | — | 0,40 | — | — | — | Mn+Cr 0,50 max. | — | — | Remainder |
| | max. | 0,9 | 0,35 | 0,35 | 0,5 | 0,8 | 0,30 | 0,25 | 0,10 | | 0,05 | 0,15 | |
| 6106 | min. | 0,30 | — | — | 0,05 | 0,40 | — | — | — | — | — | — | Remainder |
| | max | 0,6 | 0,35 | 0,25 | 0,20 | 0,8 | 0,20 | 0,10 | — | | 0,05 | 0,10 | |
| 6008 | min. | 0,50 | — | — | — | 0,40 | — | — | — | V 0,05 to 0,20 | — | — | Remainder |
| | max. | 0,9 | 0,35 | 0,30 | 0,30 | 0,7 | 0,30 | 0,20 | 0,10 | | 0,05 | 0,15 | |
| 6110A | min. | 0,7 | — | 0,30 | 0,30 | 0,7 | 0,05 | — | — | Zr+Ti 0,20 max. | — | — | Remainder |
| | max. | 1,1 | 0,50 | 0,8 | 0,9 | 1,1 | 0,25 | 0,20 | — | | 0,05 | 0,15 | |
| 6012 | min. | 0,6 | — | — | 0,40 | 0,6 | — | — | — | Bi 0,7 max. | — | — | Remainder |
| | max | 1,4 | 0,50 | 0,10 | 1,0 | 1,2 | 0,30 | 0,30 | 0,20 | Pb 0,40 to 2,0 | 0,05 | 0,15 | |
| 6014 | min. | 0,30 | — | — | 0,05 | 0,40 | — | — | — | V 0,05 to 0,20 | — | — | Remainder |
| | max. | 0,6 | 0,35 | 0,25 | 0,20 | 0,8 | 0,20 | 0,10 | 0,10 | | 0,05 | 0,15 | |
| 6018 | min. | 0,50 | — | 0,15 | 0,30 | 0,6 | — | — | — | Bi 0,40 to 0,7 | — | — | Remainder |
| | max | 1,2 | 0,7 | 0,40 | 0,8 | 1,2 | 0,10 | 0,30 | 0,20 | Pb 0,40 to 1,2 | 0,05 | 0,15 | |
| 6023 | min. | 0,6 | — | 0,20 | 0,20 | 0,40 | — | — | — | Bi 0,30 to 0,8 | — | — | Remainder |
| | max | 1,4 | 0,50 | 0,50 | 0,6 | 0,9 | — | — | — | Sn 0,6 to 1,2 | 0,05 | 0,15 | |
| 6351 | min. | 0,7 | — | — | 0,40 | 0,40 | — | — | — | — | — | — | Remainder |
| | max. | 1,3 | 0,50 | 0,10 | 0,8 | 0,8 | - | 0,20 | 0,20 | | 0,05 | 0,15 | |
| 6060 | min. | 0,30 | 0,10 | — | — | 0,35 | — | — | — | — | — | — | Remainder |
| | max. | 0,6 | 0,30 | 0,10 | 0,10 | 0,6 | 0,05 | 0,15 | 0,10 | | 0,05 | 0,15 | |
| 6360 | min. | 0,35 | 0,10 | — | 0,02 | 0,25 | — | — | — | — | — | — | Remainder |
| | max. | 0,8 | 0,30 | 0,15 | 0,15 | 0,45 | 0,05 | 0,10 | 0,10 | | 0,05 | 0,15 | |
| 6061 | min. | 0,40 | — | 0,15 | — | 0,8 | 0,04 | — | — | — | — | — | Remainder |
| | max. | 0,8 | 0,7 | 0,40 | 0,15 | 1,2 | 0,35 | 0,25 | 0,15 | | 0,05 | 0,15 | |
| 6261 | min. | 0,40 | — | 0,15 | 0,20 | 0,7 | — | — | — | — | — | — | Remainder |
| | max. | 0,7 | 0,40 | 0,40 | 0,35 | 1,0 | 0,10 | 0,20 | 0,10 | | 0,05 | 0,15 | |
| 6262 | min. | 0,40 | — | 0,15 | — | 0,8 | 0,04 | — | — | Bi 0,40 to 0,7 | — | — | Remainder |
| | max. | 0,8 | 0,7 | 0,40 | 0,15 | 1,2 | 0,14 | 0,25 | 0,15 | Pb 0,40 to 0,7 | 0,05 | 0,15 | |
| 6262A | min. | 0,40 | — | 0,15 | — | 0,8 | 0,04 | — | — | Bi 0,40 to 0,9 | — | — | Remainder |
| | max. | 0,8 | 0,7 | 0,40 | 0,15 | 1,2 | 0,14 | 0,25 | 0,10 | Sn 0,40 to 1,0 | 0,05 | 0,15 | |
| 6063 | min. | 0,20 | — | — | — | 0,45 | — | — | — | — | — | — | Remainder |
| | max. | 0,6 | 0,35 | 0,10 | 0,10 | 0,9 | 0,10 | 0,10 | 0,10 | | 0,05 | 0,15 | |
| 6063A | min. | 0,30 | 0,15 | — | — | 0,6 | — | — | — | — | — | — | Remainder |
| | max. | 0,6 | 0,35 | 0,10 | 0,15 | 0,9 | 0,05 | 0,15 | 0,10 | | 0,05 | 0,15 | |

[a] Be 0,000 3 % max. when used for welding rods and welding wires.

[b] With agreement between the purchaser and supplier, Zr+Ti can be 0,20 % max.

[c] With agreement between the purchaser and supplier, Zr+Ti can be 0,25 % max.

**Table 1** *(continued)*

| Alloy | Limit | Si | Fe | Cu | Mn | Mg | Cr | Zn | Ti | Remarks | Others | | Aluminium |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | Each | Total | |
| 6463 | min. | 0,20 | — | — | — | 0,45 | — | — | — | — | — | — | Remainder |
| | max. | 0,6 | 0,15 | 0,20 | 0,05 | 0,9 | — | 0,05 | — | | 0,05 | 0,15 | |
| 6065 | min. | 0,40 | — | 0,15 | — | 0,8 | — | — | — | Bi 0,50 to 1,5<br>Pb 0,05 max.<br>Zr 0,15 max. | — | — | Remainder |
| | max. | 0,8 | 0,7 | 0,40 | 0,15 | 1,2 | 0,15 | 0,25 | 0.10 | | 0,05 | 0,15 | |
| 6081 | min. | 0,7 | — | — | 0,10 | 0,6 | — | — | — | — | — | — | Remainder |
| | max. | 1,1 | 0,50 | 0,10 | 0,45 | 1,0 | 0,10 | 0,20 | 0,15 | | 0,05 | 0,15 | |
| 6082 | min. | 0,7 | — | — | 0,40 | 0,6 | — | — | — | — | — | — | Remainder |
| | max. | 1,3 | 0,50 | 0,10 | 1,0 | 1,2 | 0,25 | 0,20 | 0,10 | | 0,05 | 0,15 | |
| 6182 | min. | 0,9 | — | — | 0,50 | 0,7 | — | — | — | Zr 0,05 to 0,20 | — | — | Remainder |
| | max | 1,3 | 0,50 | 0,10 | 1,0 | 1,2 | 0,25 | 0,20 | 0,10 | | 0,05 | 0,15 | |
| 7003 | min. | — | — | — | — | 0,50 | — | 5,0 | — | Zr 0,05 to 0,25 | — | — | Remainder |
| | max. | 0,30 | 0,35 | 0,20 | 0,30 | 1,0 | 0,20 | 6,5 | 0,20 | | 0,05 | 0,15 | |
| 7204 | min. | — | — | — | 0,20 | 1,0 | — | 4,0 | — | V 0,10 max.<br>Zr 0,25 max. | — | — | Remainder |
| | max. | 0,30 | 0,35 | 0,20 | 0,7 | 2,0 | 0,30 | 5,0 | 0,20 | | 0,05 | 0,15 | |
| 7005 | min. | — | — | — | 0,20 | 1,0 | — | 4,0 | — | V 0,10 max.<br>Zr 0,25 max. | — | — | Remainder |
| | max. | 0,30 | 0,35 | 0,20 | 0,7 | 2,0 | 0,30 | 5,0 | 0,20 | | 0,05 | 0,15 | |
| 7108 | min. | — | — | — | — | 0,7 | — | 4,5 | — | Zr 0,12 to 0,25 | — | — | Remainder |
| | max | 0,10 | 0,10 | 0,05 | 0,05 | 1,4 | — | 5,5 | 0,05 | | 0,05 | 0,15 | |
| 7108A | min. | — | — | — | — | 0,7 | — | 4,8 | — | Ga 0,03 max.<br>Zr 0,15 to 0,25 | — | — | Remainder |
| | max. | 0,20 | 0,30 | 0,05 | 0,05 | 1,5 | 0,04 | 5,8 | 0,03 | | 0,05 | 0,15 | |
| 7020 | min. | — | — | — | 0,05 | 1,0 | 0,10 | 4,0 | — | Zr 0,08 to 0,20<br>Zr+Ti 0,08 to 0,25 | — | — | Remainder |
| | max. | 0,35 | 0,40 | 0,20 | 0,50 | 1,4 | 0,35 | 5,0 | — | | 0,05 | 0,15 | |
| 7021 | min. | — | — | — | — | 1,2 | — | 5,0 | — | Ti 0,10 max.<br>Zr 0,08 to 0,18 | — | — | Remainder |
| | max. | 0,25 | 0,40 | 0,25 | 0,10 | 1,8 | 0,05 | 6,0 | — | | 0,05 | 0,15 | |
| 7022 | min. | 0,50 | 0,50 | 0,50 | 0,10 | 2,6 | 0,10 | 4,3 | | Zr+Ti 0,20 | 0,05 | 0,15 | Remainder |
| | max | | | 1,0 | 0,40 | 3,7 | 0,30 | 5,2 | | | | | |
| 7049A | min. | — | — | 1,2 | — | 2,1 | 0,05 | 7,2 | — | Zr+Ti 0,25 max. | — | — | Remainder |
| | max. | 0,40 | 0,50 | 1,9 | 0,50 | 3,1 | 0,25 | 8,4 | 0,06 | | 0,05 | 0,15 | |
| 7050 | min. | — | — | 2,0 | — | 1,9 | — | 5,7 | — | Zr 0,08 to 0,15 | — | — | Remainder |
| | max | 0,12 | 0,15 | 2,6 | 0,10 | 2,6 | 0,04 | 6,7 | 0,06 | | 0,05 | 0,15 | |
| 7075 | min. | — | — | 1,2 | — | 2,1 | 0,18 | 5,1 | 0,20 | [c] | — | — | Remainder |
| | max, | 0,40 | 0,50 | 2,0 | 0,30 | 2,9 | 0,28 | 6,1 | | | 0,05 | 0,15 | |

[a] Be 0,000 3 % max. when used for welding rods and welding wires.

[b] With agreement between the purchaser and supplier, Zr+Ti can be 0,20 % max.

[c] With agreement between the purchaser and supplier, Zr+Ti can be 0,25 % max.

# Annex A
(normative)

# Rules for rounding for determination of compliance

In recording test results, the number representing the result of a test to determine an element concentration shall be expressed to the same number of decimal places as the corresponding limit in this part of ISO 6362.

The following rules shall be used for rounding.

a) When the figure immediately after the last figure to be retained is less than 5, the last figure to be retained remains uncharged.

b) When the figure immediately after the last figure to be retained is greater than 5, or equal to 5 and followed by at least one figure other than zero, the last figure to be retained is increased by one.

c) When the figure immediately after the last figure to be retained is equal to 5 and followed by zeros only, the last figure to be retained remains uncharged if even and is increased by one if odd.

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