International Standard 2092

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Light metals and their alloys — Code of designation based on chemical symbols

Métaux légers et leurs alliages — Code de désignation basé sur les symboles chimiques

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up 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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 2092 was developed by Technical Committee ISO/TC 79, *Light metals and their alloys*, and was circulated to the member bodies in April 1980.

It has been approved by the member bodies of the following countries :

Austria	Ireland	South Africa, Rep. of
Brazil	Japan	Spain
Canada	Korea, Dem. P. Rep. of	Sweden
China	Korea, Rep. of	Switzerland
Czechoslovakia	Mexico	United Kingdom
Egypt, Arab Rep. of	Netherlands	USA
France	Norway	USSR
Germany, F.R.	Poland	
Hungary	Romania	

The member body of the following country expressed disapproval of the document on technical grounds :

Australia

This International Standard cancels and replaces ISO Recommendation R 2092-1971, of which it constitutes a technical revision.

Printed in Switzerland

Light metals and their alloys — Code of designation based on chemical symbols

1 Scope

This International Standard specifies a code of designation applicable to all the light metals and their alloys specified in International Standards. It is a descriptive code based primarily on chemical symbols.[1)]

2 Field of application

Designations in accordance with this International Standard are intended primarily for use in documents prepared by Technical Committee ISO/TC 79. Their use in national standards is optional.

3 Basis of codification

3.1 The designations of metals and alloys shall be based on the chemical composition limits given in International Standards.

3.2 All designations shall have the prefix "ISO".

NOTE — This prefix may be omitted for brevity in International Standards and correspondence when it is obvious that ISO designations are being used.

3.3 International chemical symbols shall be used for the designation of the principal metal and the major alloying elements, followed by numbers indicating the metal grade or the nominal alloy content. Only the number indicating the purity of the principal metal shall be separated by a space from the chemical symbol.

3.4 Assignments or revisions of designations shall be approved by Technical Committee ISO/TC 79.

4 Unalloyed metals for melting

Designations for unalloyed metals for melting shall consist of the chemical symbol of the metal (for example Al, Mg, Ti), followed by the percentage purity of the metal, expressed to two or more decimal places as required.

5 Unalloyed metals and alloys for working or foundry casting

5.1 Designations for unalloyed metals for working shall consist of the chemical symbol of the metal (for example Al, Mg, Ti), followed by the percentage purity of the metal expressed to one decimal place. In cases where an alloying element is added up to a maximum content of 0,10 % (0,20 % for copper), the designation shall include the chemical symbol of such an element (for example Al 99,0Cu).

In cases where unalloyed metal is the subject of special control of impurities for particular applications, such as electric conductors, the percentage purity of the metal shall be followed by a capital letter (for example Al 99,5E).

5.2 Designations for alloys consist of the chemical symbols of the principal metal (for example Al, Mg, Ti) and alloying elements, followed by, preferably, whole numbers indicating the amounts if these elements are present in nominal amounts of at least 1 % (for example AlMg3). In the case of an alloying addition of less than 1 %, the designation shall be that of the principal metal followed by the chemical symbol of the alloying element or elements (for example AlMgSi), and, if necessary to distinguish between similar alloys, a decimal number indicating the amount of the primary or secondary alloying element (for example AlMg0,5Si). In the case of alloys based on a particular purity of metal, the designation shall consist of the chemical symbol of the principal metal followed by the percentage purity

1) An international numbering system for metals will form the subject of ISO 7003.

of the metal defined by the two figures to the right of the decimal comma, and the chemical symbol of the alloying element and the nominal content of that element (for example Al 90Mg2 for an alloy containing 2 % of magnesium and 98 % of 99,90 % aluminium).

5.3 The alloying elements shall be listed according to the nominal alloy contents specified in International Standards. The alloying elements shall be listed in decreasing percentages or, if in equal percentages, in alphabetical order of the chemical symbols.

NOTES

1 For codification, an alloying element is defined as an element (other than the principal metal) having a minimum content greater than zero.

2 The designation of a casting alloy in ingot form is derived from the composition specified for the corresponding alloy in the form of castings. This is to avoid confusion in instances where a narrower composition range for ingot metal would give a different mean alloy content thus giving the ingot metal a different alloy designation from that of castings made from it.

3 In the case of more than two alloying elements, it is not required to list all of the minor constituents in the designation, except where they are essential for the proper identification of the alloy.

4 In all cases where two or more alloys have the same composition and differ only in the limits of an impurity, the symbol of the impurity element allowed in higher amounts should be added to the designation (in parentheses).

5.4 When a range is specified for an alloying element, the rounded mean content shall be used in the designation. When only a minimum percentage is specified for the alloying element, the minimum percentage shall be used in the designation. When the mean of the range is a decimal number finishing with 0,5 it shall normally be rounded to the nearest even number. The designation of the main alloying element by its chemical symbol followed by two digits separated by a comma may be necessary to distinguish alloys differing in the content of this main alloying element by less than 1 %.

6 Aluminium and aluminium alloys for working

Aluminium and aluminium alloys for working may be designated in a basic four digit multinational system known as the International System for Wrought Aluminium and Wrought Aluminium Alloys.