International Standard 121

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Magnesium-aluminium-zinc alloy ingots and alloy castings — Chemical composition, and mechanical properties of sand cast reference test bars

Lingots et pièces moulées en alliages magnésium-aluminium-zinc — Composition chimique et caractéristiques mécaniques des éprouvettes de référence moulées en sable

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FOREWORD

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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 121 was developed by Technical Committee ISO/TC 79, *Light metals and their alloys.*

It was submitted directly to the ISO Council, in accordance with clause 5.10.1 of part 1 of the Directives for the technical work of ISO. It cancels and replaces ISO Recommendation R 121-1971, which had been approved by the member bodies of the following countries :

Austria	India	Portugal
Belgium	Israel	South Africa, Rep. of
Canada	Italy	Switzerland
Egypt, Arab Rep. of	Japan	Thailand
Finland	New Zealand	Turkey
France	Norway	USA
Germany, F.R.	Poland	USSR

The member bodies of the following countries had expressed disapproval of the document on technical grounds :

United Kingdom
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Austria	Hungary	Portugal
Belgium	Italy	Romania
Canada	Japan	Spain
Chile	Netherlands	Sweden
Czechoslovakia	New Zealand	Switzerland
France	Norway	United Kingdom
Germany, F.R.	Poland	USSR

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

USA

Printed in Switzerland

Magnesium-aluminium-zinc alloy ingots and alloy castings — Chemical composition, and mechanical properties of sand cast reference test bars

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies the chemical compositions of magnesium-aluminium-zinc alloy[1] ingots for casting purposes and of magnesium-aluminium-zinc alloy castings, together with requirements for the mechanical properties of sand cast reference test bars in these alloys in various tempers as defined in ISO/R 2107.

NOTE – The alloys referred to in table 1 belong to the same family of magnesium-aluminium-zinc alloys, but the development of compositions for use in foundries has proceeded, in different countries and at different times, along two distinct lines :

a) alloys of relatively high zinc content;

b) alloys of relatively low zinc content.

To take account of these differences, it has been necessary to specify the five compositions given in table 1.

Alloy Mg-Al8Zn1, although having wider compositional tolerances, has properties which are suitable for numerous applications for which more closely specified alloys are not necessary.

Differences between these five compositions are less marked in regard to mechanical properties than in regard to some other characteristics, such as casting properties, provided that comparisons are made between alloys in corresponding states.

2 REFERENCES

ISO/R 190, *Tensile testing of light metals and their alloys.*

ISO 2092, *Light metals and their alloys — Code of designation.*[2]

ISO/R 2107, *Light metals and their alloys — Temper designations.*

ISO 2371, *Magnesium alloy sand castings — Reference test bar.*

3 CHEMICAL COMPOSITION

3.1 Magnesium-aluminium-zinc alloy ingots for casting purposes

See table 1.

TABLE 1

Alloy	Chemical composition, %						
	Al	Zn	Mn	Si, max.	Fe, max.	Cu, max.	Ni, max.
Mg-Al8Zn	7,5 to 8,5	0,3 to 0,8	0,20 to 0,6	0,2	0,03	0,15	0,01
Mg-Al9Zn	8,3 to 9,8	0,3 to 0,8	0,20 to 0,6	0,2	0,03	0,15	0,01
Mg-Al9Zn2	8,0 to 9,5	1,7 to 2,3	0,13 to 0,5	0,2	0,03	0,15	0,01
Mg-Al6Zn3	5,0 to 6,5	2,3 to 3,3	0,15 to 0,5	0,2	0,03	0,15	0,01
Mg-Al8Zn1	7,0 to 9,2	0,4 to 1,8	0,2 min.	0,3	0,05	0,3	0,02

1) For designations, see ISO 2092.

2) At present at the stage of draft. (Revision of ISO/R 2092-1971.)