International Standard 3134/5

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Light metals and their alloys — Terms and definitions — Part 5 : Methods of processing and treatment

Métaux légers et leurs alliages — Termes de référence et définitions — Partie 5 : Méthodes d'élaboration et de traitement

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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.

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

Australia	Hungary	South Africa, Rep. of
Austria	India	Spain
Canada	Korea, Rep. of	Sweden
China	Netherlands	Switzerland
Czechoslovakia	Norway	United Kingdom
Egypt, Arab Rep. of	Poland	USA
France	Portugal	USSR
Germany, F. R.	Romania	Yugoslavia

No member body expressed disapproval of the document.

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Light metals and their alloys — Terms and definitions — Part 5 : Methods of processing and treatment

1 Scope and field of application

This International Standard gives terms and definitions relating to methods of processing and treatment of light metals and their alloys.

2 Terms and definitions

hot working : Plastic deformation of a metal or alloy within a temperature range such that strain hardening does not occur.

cold working : Plastic deformation of a metal or alloy at a temperature such that strain hardening occurs.

strain hardening : Modification of a metal structure by cold working, resulting in an increase in strength and hardness generally with some loss of ductility.

annealing : Thermal treatment to soften metal by removal of strain hardening resulting from cold working, by recrystallization and/or by coalescing precipitates from the solid solution.

partial annealing : A thermal treatment of a cold-worked metal or alloy to reduce the strength properties to a controlled level.

temper : Designates a state after processing (for example by mechanical and/or thermal treatments), required to produce characteristic physical and/or mechanical properties in a metal or an alloy.

homogenizing : A process in which a metal or an alloy is heated for a period at a high temperature, in particular to eliminate or decrease chemical segregation by diffusion.

natural ageing : Strengthening of an alloy by spontaneous precipitation of soluble constituents from a super-saturated solid solution at room temperature.

solution heated and artificially aged : Solution heat treatment followed by artificial ageing (precipitation heat treatment).

artificial ageing (precipitation heat treatment) : A thermal treatment of an alloy at above room temperature to produce strengthening by precipitation of soluble constituents from the super-saturated solid solution.

quenching : A process of cooling a metal or alloy from an elevated temperature by contact with a solid, a liquid or a gas at a rate rapid enough to retain some or all of the soluble constituents in solid solution.

solution heat treatment : A process in which an alloy is heated to a suitable temperature and is held at this temperature long enough to allow soluble constituents to enter into solid solution where they are retained in a super-saturated state after quenching.

stabilizing : A thermal treatment used to promote stability under service conditions in, for example, dimensions, mechanical properties, structure or internal stress.