

1. Record Nr.	UNINA9910830467903321
Autore	Lipowsky Hansjorg
Titolo	Copper in the automotive industry [[electronic resource] /] / Hansjorg Lipowsky and Emin Arpaci ; [in cooperation with ECI - European Copper Institute]
Pubbl/distr/stampa	Weinheim, : Wiley-VCH, c2007
ISBN	1-281-23921-6 9786611239213 3-527-61165-7 3-527-61164-9
Descrizione fisica	1 online resource (193 p.)
Altri autori (Persone)	ArpaciEmin
Disciplina	669.3
Soggetti	Automobile industry and trade Copper - Industrial applications
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Copper in the Automotive Industryh; Contents; Preface; 1 Raw Material Resources; 1.1 Primary Raw Materials [1]; 1.2 Availability; 2 Production; 2.1 From Ore to Copper Concentrate [1, 4]; 2.2 From Copper Concentrate to Refined Copper [1, 4]; 2.3 Secondary Copper Production; 2.4 Energy Consumption [12]; 2.5 Recycling [8-10]; 2.6 Environmental Protection [12]; 3 Classification of Copper Materials; 3.1 Wrought Copper Materials; 3.1.1 Copper [1, 14]; 3.1.2 Low Alloyed Wrought Copper [14, 15]; 3.1.3 Wrought Copper-Zinc Alloys [14, 16]; 3.1.4 Wrought Copper-Tin Alloys [14, 17] 3.1.5 Wrought Copper-Nickel Alloys [14, 18]3.1.6 Wrought Copper-Nickel-Zinc Alloys [14, 19]; 3.1.7 Wrought Copper-Aluminum Alloys [14, 20]; 3.2 Copper Casting Materials; 3.2.1 Copper and Copper-Chromium Casting Materials [1, 21]; 3.2.2 Copper-Zinc Casting Alloys [16, 21]; 3.2.3 Copper-Tin Casting Alloys [21, 22]; 3.2.4 Copper-Tin-Lead Casting Alloys [21-23]; 3.2.5 Copper-Aluminum Casting Alloys [20, 21]; 3.2.6 Copper-Manganese-Aluminum and Copper-Nickel Casting Alloys [18, 21]; 3.3 Composites; 3.4 Powder Metallurgical Materials [24]; 4 Wrought Copper Materials [14]

4.1 Manufacture of Semi-finished Products
 4.1.1 Smelting and Casting;
 4.1.2 Hot Forming; 4.1.3 Cold Forming; 4.1.4 Production of Sheet and Strip; 4.1.5 Wire Production; 4.1.6 Production of Rods and Profiles;
 4.1.7 Production of Tubes; 4.1.8 Forging; 4.1.9 Powder Metallurgical Forming (Sintering); 4.2 Shapes and Dimensions; 4.2.1 Strips, Sheets and Plates [25-27]; 4.2.2 Tubes [28]; 4.2.3 Rods; 4.2.4 Wires; 4.2.5 Drawn and Extruded Profiles; 4.2.6 Forgings; 4.2.7 Special Shapes; 4.3 Classification and Designation; 4.3.1 Designation by Material Number 4.3.2 Designation According to Chemical Composition 4.3.3 Designation of the Condition of the Material; 4.3.4 Product Designation; 4.3.5 Designation of Powder Metallurgical (Sintered) Materials; 5 Copper Casting Materials [30]; 5.1 Casting Procedures [21, 30]; 5.1.1 Lost Mold Casting; 5.1.1.1 Sand Casting; 5.1.1.2 Precision (Investment) Casting (Lost-wax Process); 5.1.1.3 Exact Casting (Other Processes); 5.1.2 Permanent Mold Casting; 5.1.2.1 Die Casting; 5.1.2.2 Pressure Die Casting; 5.1.2.3 Centrifugal Casting [31]; 5.1.3 Continuous Casting [31]; 5.1.4 Composite Casting 5.2 Shapes and Dimensions 5.3 Classification and Designation; 5.3.1 Designation by Material Number and Chemical Composition; 5.3.2 Designation of the Casting Process and the Product; 6 Properties of the Copper Materials; 6.1 Physical Properties [1, 14, 24]; 6.2 Mechanical and Technological Properties; 6.2.1 Strength Properties at Room Temperature [1, 15-22, 32]; 6.2.1.1 Rolled Products [25, 26, 39]; 6.2.1.2 Extruded Products; 6.2.1.3 Drawn Products; 6.2.1.3.1 Rods; 6.2.1.3.2 Tubes; 6.2.1.3.3 Wires [38]; 6.2.1.4 Forgings; 6.2.1.5 Castings; 6.2.1.6 Composites; 6.2.1.7 Sintered Materials 6.2.2 High Temperature Strength and Creep Properties [21, 40-44]

Sommario/riassunto

A comprehensive and substantial source of information on the properties, production, processing and applications of copper and copper alloys, of interest to metallurgical, development, design and testing engineers in the automotive and other industries using copper. The authority behind this book - the German Copper Institute - was founded in 1927 and is the technical-scientific advisory center for all questions concerning applications and the processing of copper and copper alloys in Germany. For more than 75 years, the technical scientific advisory and information service of the institute
