

François Cardarelli
Materials Handbook
A Concise Desktop Reference
Second Edition



The unique and practical *Materials Handbook* (second edition) provides quick and easy access to data on the physical and chemical properties of all classes of materials. The second edition has been much expanded to include whole new families of materials while many of the existing families are broadened and refined with new material and up-to-date information. Particular emphasis is placed on the properties of common industrial materials in each class. After a chapter introducing some general properties of materials, materials are classified as follows:

- ferrous metals and their alloys;
- nonferrous metals;
- semiconductors and superconductors;
- magnetic materials;
- insulators and dielectrics;
- miscellaneous electrical materials;
- ceramics, refractories and glasses;
- polymers and elastomers;
- minerals, ores and gemstones;
- rocks and meteorites;
- soils and fertilizers;
- cements, concrete, building stones and construction materials;
- timbers and woods;
- fuels, propellants and explosives;
- composite materials;
- gases;
- liquids.

Detailed appendices provide additional information on subjects as diverse as crystallography, natural radioactivity and economic data for industrial materials. Specific further reading sections and a general bibliography round out this comprehensive guide. The index and tabular format of the book make light work of extracting what the reader needs to know from the wealth of factual information within these covers.

François Cardarelli is Principal Electrochemist at Materials and Electrochemical Research (MER) Corp. in Tucson, Arizona. He has had wide-ranging commercial and industrial experience of materials, commodities and electrochemical processes: at CNRS in Paris he designed and used electrochemical sensors for pollution control; at the University Paul Sabatier in Toulouse he developed methods of preparation of industrial electrodes; as a registered professional consultant, he solved problems in electrochemical engineering; at the Avestor Corp. in Boucherville, Canada, he worked as an industrial electrochemist and materials expert on the processing of lithium metal anodes, and invented a pyrometallurgical and hydrometallurgical process for recycling spent lithium batteries; at Rio Tinto Iron & Titanium in Canada, he was Principal Chemist dealing with valorization processes for metallurgical wastes and mining residues, the benchmarking of refractories for steelmaking and inventing a process for electrowinning titanium metal from titania slags. Dr. Cardarelli is the author of *Encyclopaedia of Scientific Units, Weights and Measures* (ISBN: 978-1-85233-682-0).

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