

# Fundamentals of Aluminium Metallurgy: Production, Processing and Applications (Woodhead Publishing Series in Metals and Surface Engineering)

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Aluminium is an important metal in manufacturing, due to its versatile properties and the many applications of both the processed metal and its alloys in different industries. Fundamentals of aluminium metallurgy provides a comprehensive overview of the production, properties and processing of aluminium, and its applications in manufacturing industries.

Part one discusses different methods of producing and casting aluminium, covering areas such as casting of alloys, quality issues and specific production methods such as high-pressure diecasting. The metallurgical properties of aluminium and its alloys are reviewed in Part two, with chapters on such topics as hardening, precipitation processes and solute partitioning and clustering, as well as properties such as fracture resistance. Finally, Part three includes chapters on joining, laser sintering and other methods of processing aluminium, and its applications in particular areas of industry such as aerospace.

With its distinguished editor and team of expert contributors, Fundamentals of aluminium metallurgy is a standard reference for researchers in metallurgy, as well as all those involved in the manufacture and use of aluminium products.

- Provides a comprehensive overview of the production, properties and processing of aluminium, and its applications in manufacturing industries
- Considers many issues of central importance in aluminium production and utilization considering quality issues and design for fatigue growth resistance
- Metallurgical properties of aluminium and its alloys are further explored with particular reference to work hardening and applications of industrial alloys

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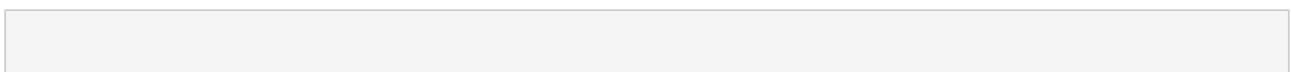
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#### **About the Author**

*Dr Roger Lumley* is Principal Research Scientist at CSIRO's Light Metals Flagship in Melbourne, Australia. He has internationally-recognised expertise in the design and processing of aluminium alloys. Dr Roger Lumley is the Technical Manager at AWBell in Dandenong South, Australia.. He is a physical metallurgist with over 20 years' experience in materials engineering, manufacturing, R&D and project management. Roger has degrees in Materials Science & Engineering from the University of QLD, and is a registered (chartered) Mechanical Engineer. In addition to being a Fellow of the Australian Academy of Technological Sciences and Engineering, he is also a Fellow of the Institute of Engineers, Australia. He is a member of Materials Australia, the American Foundry Society, The Minerals, Metals and Materials Society as well as The Welding Institute (UK). He is internationally recognised in both research and industry for his work in materials engineering and his contributions to manufacturing industries

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