

Handbook of Aluminum

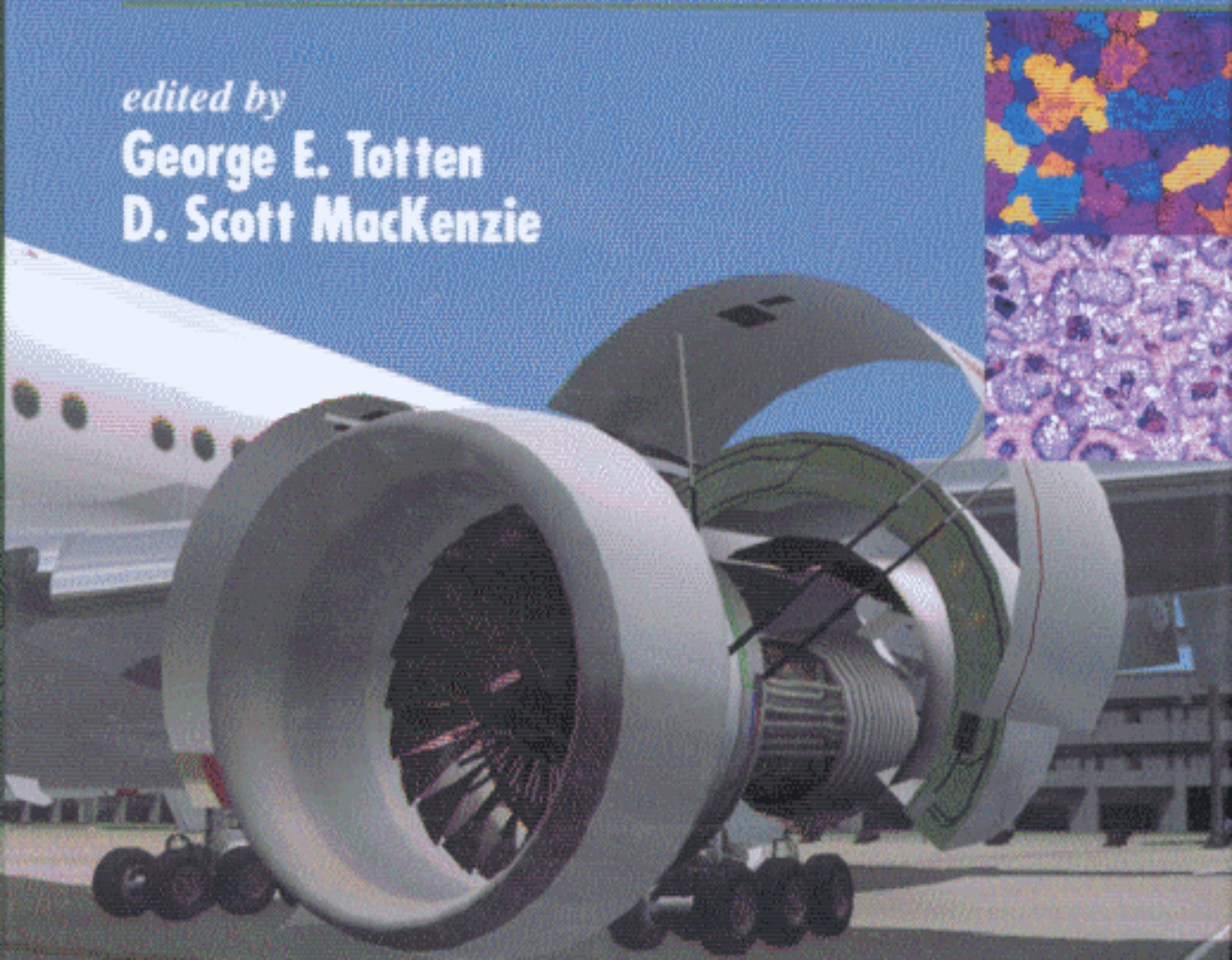
Volume 2

*Alloy Production and Materials
Manufacturing*

edited by

George E. Totten

D. Scott MacKenzie



Contents

<i>Preface</i>	iii
<i>Contributors</i>	vii
1. Extractive Metallurgy of Aluminum <i>Fathi Habashi</i>	1
2. Smelting of Aluminum <i>Michael M. Gasik and Michael I. Gasik</i>	47
3. Creation of Master Alloys for Aluminum <i>Michael M. Gasik and Vladislav I. Mazur</i>	81
4. Recycling of Aluminum <i>Jorge Alberto Soares Tenório and Denise Croce Romano Espinosa</i>	115
5. Analytical Techniques for Aluminum <i>Alexis Deschamps</i>	155
6. Work Hardening, Recovery, Recrystallization, and Grain Growth <i>Angelo Fernando Padilha and Ronald Lesley Plaut</i>	193
7. Modeling of Microstructural Evolution During Processing of Aluminum Alloys <i>Bala Radhakrishnan, Gorti Sarma, and Chris H. J. Davies</i>	221

8.	Texture-Property Relationships in Aluminum Alloys: Simulations and Experiments <i>Dierk Raabe</i>	277
9.	Property Prediction <i>James T. Staley and Robert E. Sanders, Jr.</i>	319
10.	Mechanical Properties <i>D. Scott MacKenzie</i>	343
11.	Corrosion of Aluminum and Its Alloys <i>T. David Burleigh</i>	421
12.	Surface Chemistry of Adhesion to Aluminum <i>Margaret M. Hyland</i>	465
13.	Surface Modification <i>Kiyoshi Funatani, Masayuki Yoshida, and Yoshiki Tsunekawa</i>	483
14.	Aluminum Nitriding <i>Heinz-Joachim Spies and Bert Reinhold</i>	565
15.	Friction Stir Welding of Aluminum Alloys <i>Anthony P. Reynolds</i>	579
16.	Aluminum Intermetallics <i>Georg Frommeyer and Sven Knippscheer</i>	603
17.	Aluminum-Based Metal Matrix Composites <i>Georg Frommeyer and Sven Knippscheer</i>	631
18.	Environmental and Toxicological Effects <i>Gilbert F. Bourcier</i>	671
 <i>Appendixes</i>		
1.	Alloy Equivalents	701
2.	Aluminum Specifications	704
3.	Wrought and Cast Aluminum Chemical Specifications	713
4.	Typical Properties of Wrought and Cast Aluminum Alloys	716
 <i>Index</i>		
		719