

CONTENTS

LIST OF CONTRIBUTORS	v
PREFACE	vii
CONTENTS OF VOLUME 1	xi

Polymer Modified Papers

EDWIN C. JAHN AND V. STANNETT

I. Wet Strength Papers	3
II. Special Purpose Papers	12
III. Laminates	26
IV. Plastic Coated Papers	38
V. Gas and Vapor Resistance of Laminated and Coated Papers	40
VI. Synthetic Fiber Papers	53
References	58

Modern Flame-Sprayed Ceramic Coatings

N. N. AULT AND W. M. WHEILDON

I. History	63
II. Modern Flame-Sprayed Coatings	66
III. Properties of Flame-Sprayed Coatings	79
IV. Operating Conditions	95
V. Coating Evaluation	99
VI. Status of Flame-Spray Coating Development	102
References	106

Ceramics for Cutting Purposes

W. M. WHEILDON

I. Introduction	107
II. Fabrication	111
III. Properties	112
IV. Applications	119
References	137
Appendix	138

Borides

Part A: Basic Factors

BERTIL ARONSSON

I. Introduction	143
II. Elemental Boron and Its Binary Compounds with Oxygen, Nitrogen, Carbon, and Silicon	144

III. Some General Aspects of the Preparation, Crystallography, and Properties of Borides	146
IV. A Systematic Treatment of Binary Metal-Boron Systems and Their Intermediate Phases	154
V. Ternary Systems of Two Transition Metals and Boron	175
VI. Ternary Systems Me-B-X (X = O,N,C,Si)	178
VII. Conclusions	180
References	181

Borides

Part B: Fabrication, Properties, and Applications

ROBERT STEINITZ

I. Introduction	191
II. Boride Materials	193
III. Fabrication	194
IV. Properties	210
V. Technical Applications	216
VI. Summary and Conclusions	222
References	223

Titanium Metallurgy

HAROLD MARGOLIN AND JOHN P. NIELSEN

I. Introduction	225
II. Laboratory Techniques	226
III. Physical Properties	233
IV. Titanium Purity	236
V. Phase Diagrams	237
VI. Decomposition of Beta	245
VII. Plasticity	267
VIII. Recrystallization and Grain Growth	271
IX. Mechanical Properties	272
X. Commercial and Semicommercial Titanium Alloys	308
XI. Alloy Development	309
XII. Appendix	314
References	317

Welding Materials

CLARENCE E. JACKSON

I. Introduction	328
II. Development of Welding	328
III. Modern Welding Processes	330
IV. Welding of Various Materials	347
V. Soldering, Induction Welding, and Metalizing	354
VI. Selection of Welding Process for Metallic Materials	354
VII. Recent Developments	359

VIII. Auxiliary Equipment and Supplies	372
IX. Conclusions	375
References	376

Soldering Materials: Their Production, Properties, and Application

DAVID M. BORCINA

I. Introduction	379
II. Soldering Materials	381
III. Basic Steps of Soldering	389
IV. Flux Residue Treatment	394
V. Solder Specifications	395
VI. Solder Applications	395
AUTHOR INDEX	399
SUBJECT INDEX	409