

CONTENTS

Chapter 1. The Constitution of Ceramic Materials	1
1. The nature of the atom and of chemical bonds. Crystal lattice	2
2. Real crystals	18
3. Polycrystals	61
4. Multiphase materials	78
Chapter 2. Unit Ceramic Processes	84
Introduction	84
1. Growth of single crystals from vapour and liquid phases	85
2. The silica melts: their formation and crystallization	106
3. Sintering of single-phase powders	119
4. Grain growth in the final stages of sintering	154
5. Hydration and hydrolysis	163
Chapter 3. The Properties of Ceramic Materials	173
1. Mechanical properties	173
2. Thermal properties	233
3. Electric and magnetic properties	263
4. Optical properties	314
Subject index	335