

CONTENTS

SECTION 1. ENGINEERING MATERIALS AND THEIR PROPERTIES

Index of Properties

1.1 Gases and Vapors	9
1.2 Liquids	66
1.3 Solids-Metals	80
1.4 Solids-Non-Metals	105

SECTION 2. ELECTRICAL SCIENCE AND RADIATION

2.1 Radiation and Illumination	157
2.2 Conductors and Circuit Components	177
2.3 Solid State and Semiconductors	201
2.4 Lasers and Masers	226
2.5 Magnetic Materials	237
2.6 Thermionics	249

SECTION 3. CHEMISTRY AND APPLICATIONS

3.1 Basic Chemical Data	263
3.2 Surface Phenomena and Electrochemistry	273
3.3 Ions and Solutions	287
3.4 Combustion and Fuels	302

SECTION 4. NUCLIDES AND NUCLEAR ENGINEERING

4.1 Nuclear Physics and Isotopes	327
4.2 Reactors and Materials	350
4.3 Radiological Health and safety	381

SECTION 5. ENERGY ENGINEERING AND TRANSPORT

5.1 Thermodynamics	393
5.2 Fluid and Aero Mechanics	404
5.3 Heat and Mass Transfer	441
5.4 Energy Conversion and Propulsion	458
5.5 Astronautics	478

SECTION 6. MECHANICS, STRUCTURES, AND MACHINES

6.1 Dynamics and Vibration	489
6.2 Friction and Lubrication	498
6.3 Structures and Materials	514

SECTION 7. ENVIRONMENTAL AND BIOENGINEERING

7.1 Atmosphere, Earth, and Ocean	533
7.2 Pollution and Its Control	542
7.3 Indoor Space Conditioning	581
7.4 Sound and Acoustics	597

7.5 Human Factors and Safety	610
SECTION 8. COMMUNICATION AND COMPUTATION	
8.1 Communication	629
8.2 Units and Conversion Factors	639
8.3 Mathematical and Statistical Tables	689
8.4 Number Systems and Logic	765
SECTION 9. MEASUREMENT AND INSTRUMENTATION	
9.1 Transducers and Measurement Techniques	791
9.2 Radiation Measurements	808
9.3 Calibration and Standards	817
9.4 Chemical Analysis	825
9.5 Dimensionless Parameters	835
SECTION 10. PROCESSES AND CONTROL	
10.1 Metal Processing	851
10.2 Automatic Control	863
APPENDIX ENGINEERING ORGANIZATIONS AND PUBLISHERS	903
INDEX	933