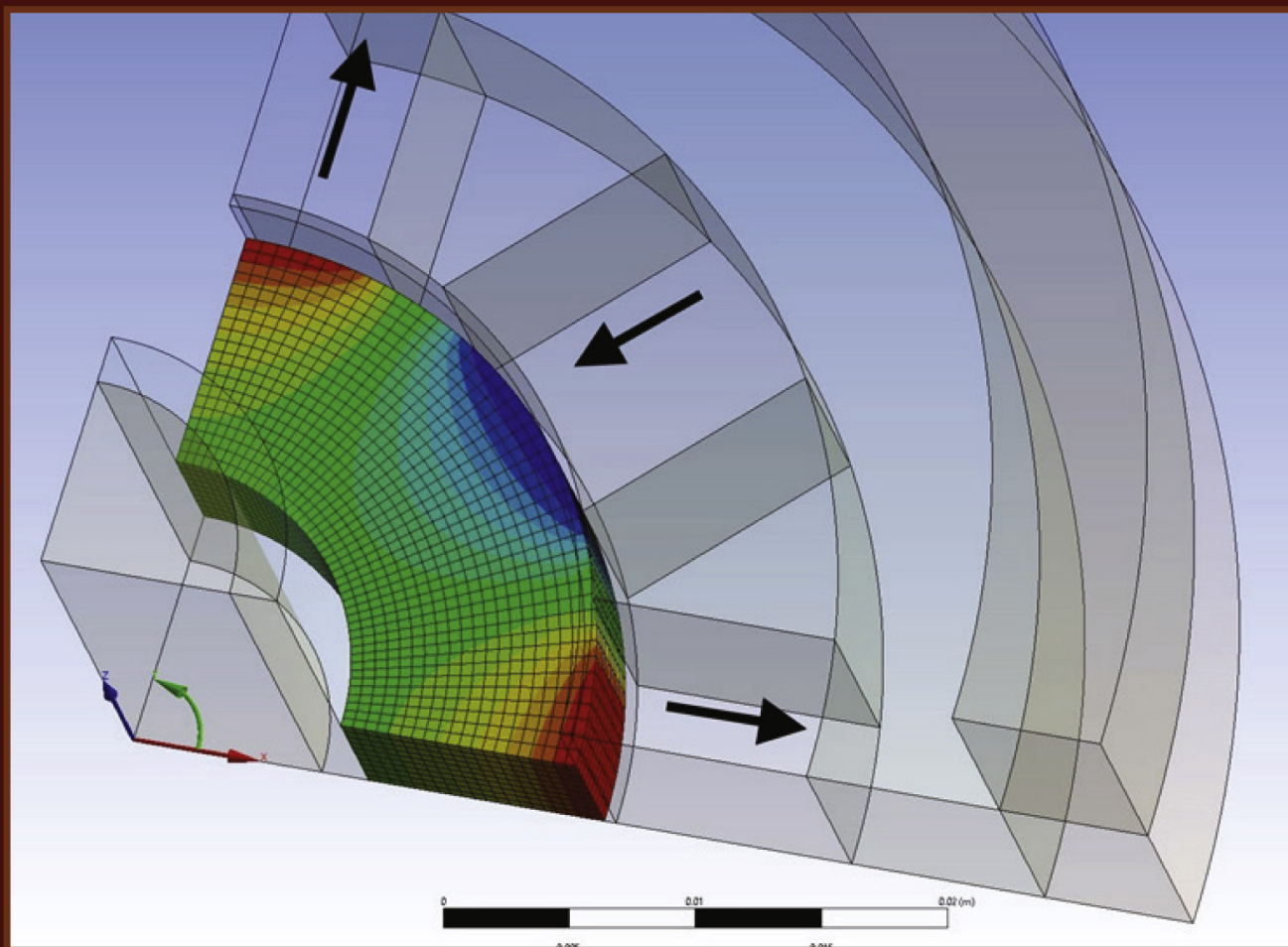
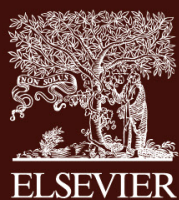


WOODHEAD PUBLISHING SERIES IN ELECTRONIC AND OPTICAL MATERIALS



MODERN PERMANENT MAGNETS



Edited by
JOHN J. CROAT
JOHN ORMEROD

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Contents

Contributors	ix
1 The history of permanent magnets	1
<i>John J. Croat, John Ormerod</i>	
1.1 Introduction	1
1.2 Lodestones: the first permanent magnets	3
1.3 Early permanent magnet studies	4
1.4 The era of steel permanent magnets	7
1.5 The discovery of alnico permanent magnets	9
1.6 The discovery of hard ferrite magnets	11
1.7 The discovery of Sm-Co permanent magnets	12
1.8 The discovery of NdFeB permanent magnets	16
1.9 The discovery of Sm-Fe-N permanent magnets	20
1.10 Future permanent magnet materials	20
1.11 Summary	27
References	28
2 Fundamental properties of permanent magnets	31
<i>Kalathur Narasimhan</i>	
2.1 Introduction	31
2.2 The different families and types of permanent magnets	31
2.3 Key magnetic parameters	34
2.4 On the origin of magnetism	36
2.5 The different types of magnetism	41
2.6 The origin of anisotropy in permanent magnets	43
2.7 Magnetic domains and domain walls	47
2.8 Magnetic hysteresis	51
2.9 Coercivity mechanism in modern permanent magnets	57
2.10 Stability of permanent magnets	58
References	62
3 Recent advances in hard ferrite magnets	65
<i>Alberto Bollero, Ester M. Palmero</i>	
3.1 Introduction	65
3.2 Historical overview of M-type Sr- and Ba- Hexaferrites	65
3.3 Crystal structure, intrinsic magnetic properties, microstructure and morphology	70
3.4 Advances towards the improvement of intrinsic magnetic properties	74

3.5	Industrial fabrication routes	77
3.6	Recycling efforts, recovery, and reusability in production line	96
3.7	Applications of hexaferrites: present and perspectives	100
	References	104
4	Modern Sm-Co permanent magnets	113
	<i>Jinfang Liu, Michael Walmer, Melania Jasinski</i>	
4.1	Introduction	113
4.2	Manufacturing process of Sm-Co magnets	114
4.3	High $(BH)_{\max}$ $\text{Sm}_2\text{Co}_{17}$ type permanent magnets	116
4.4	Temperature compensated Sm-Co magnets	120
4.5	Ultra-high temperature Sm-Co magnets with small reversible temperature coefficient of B_r	122
4.6	Performance of Sm-Co magnets in special environments	123
4.7	Laminated Sm-Co magnets	127
4.8	Additive manufacturing	128
4.9	Small magnets	129
4.10	Sm-Co nanoparticles and nanoflakes for nanocomposite magnets	130
4.11	Summary	132
	References	133
5	The status of sintered NdFeB magnets	135
	<i>Masato Sagawa, Yasuhiro Une</i>	
5.1	Introduction	135
5.2	History of the development of Nd-Fe-B	135
5.3	Compositions of the NdFeB sintered magnets and their magnetic properties	138
5.4	Production process for sintered NdFeB magnets	143
5.5	Progress in the microstructure investigation	155
5.6	Development of HRE-Free and reduced HRE magnets	159
5.7	Ultimate NdFeB sintered magnets for EV traction motors	164
	References	166
6	Compression bonded NdFeB permanent magnets	169
	<i>John J. Croat</i>	
6.1	Introduction	169
6.2	The compression molding process	170
6.3	Isotropic compression bonded NdFeB permanent magnets	174
6.4	Anisotropic hot deformed NdFeB compression bonded magnets	191
6.5	Compression molded HDDR permanent magnets	197
	References	206
7	Injection molded permanent magnets	209
	<i>Thomas Schliesch</i>	
7.1	Introduction	209

7.2	Overview of applications, basic parameters and materials	210
7.3	Manufacturing	218
7.4	Polarization patterns	221
7.5	Design of in-mold magnetized magnets	226
7.6	Design of pulse magnetized magnets	230
7.7	Applications - Sensors	236
7.8	Applications – Electrical machines	243
7.9	Summary	247
	Acknowledgments	247
	References	248
8	Hot formed NdFeB magnets	251
	<i>Yutaka Yoshida, Norio Yoshikawa</i>	
8.1	Introduction	251
8.2	Development of hot-formed Nd-Fe-B magnets	252
8.3	Characteristics of hot-deformed Nd-Fe-B magnets	266
8.4	Fundamental research	276
8.5	Applications	290
8.6	Future outlook	294
8.7	Concluding remarks	298
	Acknowledgments	298
	References	299
9	Bonded Sm-Fe-N permanent magnets	305
	<i>J.M.D. Coey, Takahiko Iriyama</i>	
9.1	Introduction	305
9.2	Interstitial modification	309
9.3	Basic characteristics of Sm-Fe-N compounds	311
9.4	Magnet processing	317
9.5	Applications	331
9.6	Conclusion	335
	Acknowledgments	337
	References	337
10	Critical materials for permanent magnets	343
	<i>Alexander H. King, Roderick G. Eggert</i>	
10.1	Introduction	343
10.2	What is a critical material?	344
10.3	Critical materials in permanent magnets	345
10.4	Effects of criticality on technology evolution, and vice versa	352
10.5	Source diversification	355
10.6	Substitution	358
10.7	Summary	368
	Acknowledgments	368
	References	368

11	Permanent magnet coatings and testing procedures	371
	<i>Steve Constantinides</i>	
11.1	Introduction	371
11.2	Magnet characteristics relevant to coating	371
11.3	Coating permanent magnets	377
11.4	Coating test and evaluation	393
11.5	Summary	399
	References	401
12	Permanent magnet markets and applications	403
	<i>John Ormerod</i>	
12.1	Introduction	403
12.2	Permanent magnet materials	407
12.3	Applications and markets	407
12.4	Price/Performance ratio for permanent magnet types – niche and mass market magnet materials	414
12.5	Current and future major applications and devices	415
	References	433
	Web link	434
	Glossary of magnetic terms	435
	Index	439

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WOODHEAD PUBLISHING SERIES IN ELECTRONIC AND OPTICAL MATERIALS

The primary focus of *Modern Permanent Magnets* is to provide an update on the status and recent technical developments which have occurred in the various families of permanent magnets that are produced today. The book provides an overview of the key advances that have occurred in the last 20 years and covers the full supply chain from raw materials, magnet processing through to applications and markets.

The book begins with two chapters of general interest including the history of permanent magnets and the fundamental properties of permanent magnets. These chapters are followed by an overview of the important families of permanent magnets that are produced today. Coatings used to protect permanent magnets and the various tests used to confirm that these magnets meet all specifications are discussed. Also included is a chapter on critical materials used in modern permanent magnets, a subject that has become increasingly important in recent decades. Finally, the major applications for each family of permanent magnets and the size of the market for these applications are provided. The book includes an Appendix providing a Glossary of Magnetic Terms to assist the readers in better understanding the technical terms used in the other chapters.

Modern Permanent Magnets is suitable for materials scientists and engineers working in academia and in industry R&D.

Key Features

- Provides an in-depth overview of all of the important families of permanent magnets that are produced today by leading technical figures in each area.
- Includes background information on the fundamental properties of permanent magnets, the status of key critical raw materials including the rare earth, major applications of each family of permanent magnets, and advances in coating and coating technology.
- Each chapter is written by renowned subject matter experts who have contributed their unparalleled expertise and insight to create a collection that will become a standard in the field of permanent magnet materials.

About the Editors:

Dr. John J. Croat received the PhD degree in Metallurgy from Iowa State University in 1972. While working at the General Motors Research Laboratories, he was instrumental in the discovery of rapidly solidified NdFeB magnetic powder and the development of bonded NdFeB magnets. He received 11 patents in this area, including all of the US composition patents for NdFeB magnets. Between 1984 and 1995, he helped found Magnequench, the business unit set up by General Motors to commercialize NdFeB magnets, and was Managing Director of this business between 1991 and 1995. Since 2007, he has served as a Consultant to the worldwide permanent magnet industry.

Dr. John Ormerod received the PhD degree in Metallurgy from the University of Manchester in 1978. He has more than 40 years of research, product development, and manufacturing experience in magnetic materials. From 1979 to 1990, he worked for Phillips Electronics and eventually became the General Manager of the rare earth magnet division. Between 1990 and 2002, he held the position of Vice President/General Manager of Arnold Engineering, a manufacturer of a wide range of magnetic materials. In 2002, John was named President of Res Manufacturing in Milwaukee, Wisconsin. In 2014, he founded JOC LLC, a consulting firm that provides a unique combination of business and technical expertise to the Global Magnetics and Metals Industries.



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