

## Powder Metallurgy – A Global Market Overview

“The report reviews, analyzes and projects the global market for Powder Metallurgy for the period 2018-2027. Powder Metallurgy metal types analyzed in the study include Ferrous Metals and Non-Ferrous Metals. Market for sub-types of these categories further analyzed for Ferrous Metals – Iron Powder and Steel Powder; and Non-Ferrous Metals - Aluminum, Cobalt, Copper, Nickel, Titanium and Other Non-Ferrous Metals. Powder Metallurgy applications analyzed in this report include Aerospace, Automotive, Electrical & Electronics, Industrial Machinery, Medical and Others (includes biomaterials, business machines and oil & gas).”

Published: September 2022

Report Code: CP057

Pages: 365

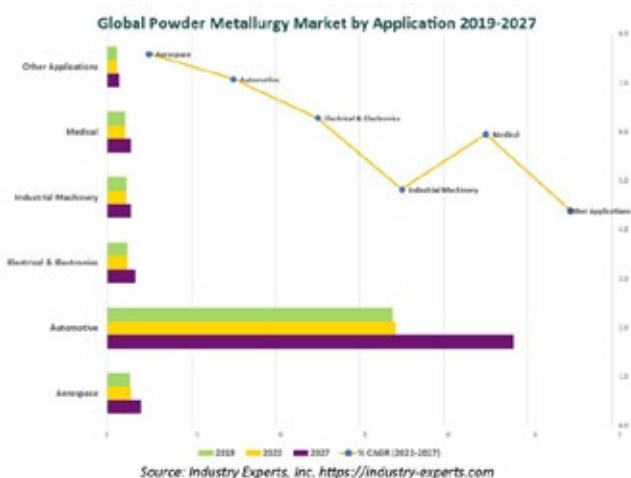
Charts: 261

Price: \$4860 Single User License, \$7560 Enterprise License

### Report Synopsis

Powder Metallurgy is a technique utilized for processing powdered raw materials and producing a variety of components based on iron & steel powders (ferrous) and aluminum, cobalt, copper, nickel and titanium, among others (non-ferrous). The components made using powder metallurgy are very strong and can withstand working environments that conventionally produced parts cannot. The demand for this procedure has been exhibiting quite impressive growth over the recent past, though the advent of COVID-19 has changed the scenario to some extent.

The global demand for Powder Metallurgy components and parts is anticipated to be the largest for the Automotive sector, though the fastest growing for the Aerospace sector. Advancements in material technology have enabled in producing metal powders that can act as replacements for traditionally used bulky metal components to reduce space and weight, thereby enhancing efficiency of the final product in its applicable area.



### Research Findings & Coverage

- Powder Metallurgy global market is explored in this report with respect to metal types and key applications
- The study extensively analyzes each metal type and key application of powder metallurgy in all major regions for the analysis period
- Powder Metallurgy's Green Credentials Expand the Technology's Adoption

- Studies on Flake Powder Metallurgy (FPM), an Emerging Technology, Show Good Prospects
- Powder Metallurgy Set to Gain Traction in Medicine
- 3D Printing to Revolutionize Powder Metallurgy but Challenges Remain
- Key business trends focusing on product innovations/developments, M&As, JVs and other recent industry developments
- Major companies profiled – 34
- The industry guide includes the contact details for 272 companies

### Product Outline

The report analyzes the market for key metal types of Powder Metallurgy including:

- Ferrous
  - Iron Powder
  - Steel Powder
- Non-Ferrous
  - Aluminum
  - Cobalt
  - Copper
  - Nickel
  - Titanium
  - Other Non-Ferrous Metals

Application Areas of Powder Metallurgy analyzed comprise the following:

- Aerospace
- Automotive
- Electrical & Electronics
- Industrial Machinery
- Medical
- Others

### Analysis Period, Units and Growth Rates

- The report reviews, analyzes and projects the global Powder Metallurgy market for the period 2018-2027 in terms of market value in US\$ and the compound annual growth rates (CAGRs) projected from 2022 through 2027

### Geographic Coverage

- **North America** (The United States, Canada and Mexico)
- **Europe** (France, Germany, Italy, Russia, Spain, the United Kingdom and Rest of Europe)
- **Asia-Pacific** (China, India, Japan, South Korea and Rest of Asia-Pacific)
- **South America** (Argentina, Brazil and Rest of South America)
- **Rest of World**

## SAMPLE COMPANY PROFILE

### GKN POWDER METALLURGY

2200 N. Opdyke Road, Auburn Hills, Michigan, 48326  
United States  
Phone: (248) 371-0800  
www.gknpm.com

#### Business Overview

GKN Powder Metallurgy, a part of United Kingdom-based GKN Plc, ranks among the largest global manufacturers and providers of powder metals used for creating robust, wear-resistant and unique metal products and solutions. The company's operations are conducted via three divisions, namely, GKN Powders-Hoeganaes, GKN Sinter Materials and GKN Additive.

#### GKN Powders-Hoeganaes

GKN Powders-Hoeganaes employs patented and trademarked engineered solutions for developing a wide range of high-performance metal powder offerings, including Ancorsteel™ 1000, Ancorsteel™ 1000B, Ancorsteel™ 1000C, Ancorsteel™ 150HP, Ancorsteel 30HP, Ancorsteel 50HP, Ancorsteel 85HP, Ancorsteel 4600V, Ancorsteel 2000, Ancorsteel 4300, Ancorloy 2, Ancorloy 4, Ancorloy DH-1, Ancorloy HP-1, Ancorbond™ FLM, Ancorsteel 721 SH, Ancorsteel 737 SH, Ancorsteel FD.4600A, Ancorsteel FD.4800A, Ancorsteel FLD.49DH and Ancorsteel FLD.49HP. Advanced additive materials from GKN Powders-Hoeganaes include solutions developed for the digital manufacture of 3D printed prototype, medium-sized and aftermarket-destined parts. The materials used for the same include stainless steels, iron alloys, nickel alloys, aluminum alloys, titanium alloys, copper alloys, dual phase alloys and custom alloys.

#### GKN Sinter Materials

GKN Sinter Materials is a leading global provider of precision powder metal products, sintered structural parts, sub-assemblies, soft magnetic components and e-motor solutions. The main product of GKN Sinter Materials comprises sintered filter elements made of stainless steels, bronze, nickel based alloys, titanium and other special alloys that can be made up to 1,600 mm in length and 320 mm in outer diameter (OD). These find application in gas filtration, sparging, liquid filtration and fluidizing.

#### GKN Additive

GKN Additive and its FORECAST 3D business, which was acquired in 2019, work jointly in leveraging GKN Powder Metallurgy's proficiency in powder manufacture and metal processing to exploit the additive manufacturing ecosystem. This has enabled the company in offering solutions, such as 3D printed copper coils for induction hardening, plastic 3D parts and prototype parts using direct metal laser sintering.

The parts and components provided by GKN Powder Metallurgy and its operating segments are utilized a wide range of applications, including automotive (electric systems, drivetrain, engine body & chassis and pump systems), industrial, electrification, electric motors, aluminum, bearings, metal injection molding (MIM) and sintered metal filters.

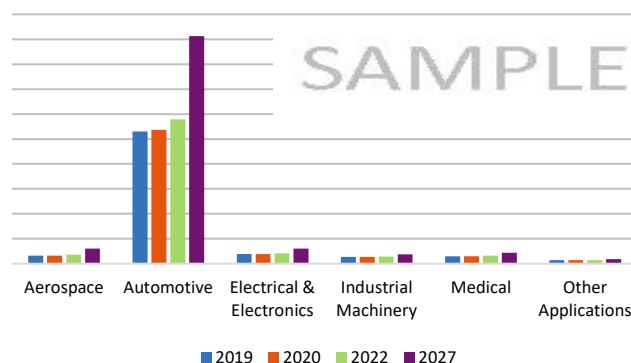
.....more

## SAMPLE TABLE/CHART

Glance at 2022 Global Powder Metallurgy Market Share (%) by Geographic Region – North America, Europe, Asia-Pacific, South America and Rest of World



Asia-Pacific Powder Metallurgy Market Analysis (2018-2027) by Application – Aerospace, Automotive, Electrical & Electronics, Industrial Machinery, Medical and Other Applications in USD Million



## KEY PLAYERS PROFILED

- American Chemet Corporation
- AMETEK, Inc.
- BASF SE
- Carl Schlenk AG
- Carpenter Technology Corp
- Daido Steel Co Ltd.
- Fine Sinter Co Ltd
- Fukuda Metal Foil & Powder Co., Ltd.
- GKN Hoeganaes
- GKN Powder Metallurgy
- H.C. Starck GmbH (H.C. Starck Tungsten Powders)
- Höganäs AB
- Kennametal Inc.
- Kobe Steel, Ltd.
- Kymera International
- Makin Metal Powders (UK) Ltd.
- Miba AG
- Molyworks Materials Corp
- Oerlikon Metco Switzerland
- Pometon S.p.A
- Rio Tinto Metal Powders
- Sandvik AB
- Showa Denko Materials Co Ltd
- Sumitomo Electric Industries Ltd

.....more

## TABLE OF CONTENTS

### PART A: GLOBAL MARKET PERSPECTIVE..... 1

#### 1. INTRODUCTION .....1

1.1 Product Outline.....	4
1.1.1 An Introduction to Powder Metallurgy.....	4
1.1.1.1 A Brief History of Powder Metallurgy.....	4
1.1.1.2 Benefits of Powder Metallurgy.....	5
1.1.1.3 Limitations of Powder Metallurgy.....	6
1.1.1.3.1 Technical Limitations.....	6
1.1.1.3.1.1 Powder Making and Handling.....	6
1.1.1.3.1.2 Compaction.....	6
1.1.1.3.1.3 Sintering.....	7
1.1.1.3.2 Economical Limitations.....	7
1.1.1.3.2.1 Size Limitations.....	7
1.1.1.3.2.2 Mechanical Properties.....	7
1.1.1.3.2.3 Volume Production.....	7
1.1.2 Powder Metallurgy Production Techniques.....	8
1.1.2.1 Mechanical Processes.....	8
1.1.2.1.1 Grinding.....	8
1.1.2.1.2 Milling.....	9
1.1.2.1.3 Mechanical Alloying.....	9
1.1.2.2 Physical-Mechanical Processes.....	9
1.1.2.2.1 Water Atomization.....	10
1.1.2.2.2 Gas Atomization.....	11
1.1.2.2.3 Centrifugal Atomization.....	13
1.1.2.2.4 Vacuum Atomization.....	14
1.1.2.2.5 Ultrasonic Atomization.....	14
1.1.2.3 Chemical Processes.....	14
1.1.2.3.1 Reduction of Metal Compounds.....	14
1.1.2.3.1.1 Reduction of Iron Oxides.....	15
1.1.2.3.1.2 Reduction of Non-Ferrous Metal Oxides.....	17
1.1.2.3.2 Making Powders from the Vapor Phase.....	18
1.1.2.4 Electrochemical Processes.....	19
1.1.2.4.1 Preparation of Powders from Water Solution.....	21
1.1.2.4.1.1 Copper Powder.....	21
1.1.2.4.2 Melt Electrolysis.....	22
1.1.2.4.2.1 Tantalum Powder.....	22
1.1.2.4.2.2 Beryllium Powder.....	23
1.1.3 Shaping and Compaction of Powder Materials.....	23
1.1.3.1 Basics of Pressing Processes.....	24
1.1.3.1.1 Effects of Compacting Pressure on Powder Materials.....	24
1.1.3.1.2 Activation Effect of Pressing.....	25
1.1.3.2 Pressure Forming.....	26
1.1.3.2.1 Die Pressing.....	26
1.1.3.2.2 Extrusion.....	27
1.1.3.2.3 Isostatic Pressing.....	28
1.1.3.2.3.1 Cold Isostatic Pressing (CIP).....	28
1.1.3.2.3.2 Hot Isostatic Pressing (HIP).....	30
1.1.3.2.4 Powder Forging.....	31
1.1.3.2.5 Explosive Compaction.....	32
1.1.3.2.6 Metal Injection Molding (MIM).....	32
1.1.3.2.7 Additive Manufacturing.....	34
1.1.4 Sintering.....	35
1.1.4.1 Sintering Mechanisms.....	36
1.1.4.1.1 Solid-State Sintering.....	36
1.1.4.1.2 Liquid Phase Sintering.....	37
1.1.4.2 Sintering and its Chemical Aspects.....	39
1.1.4.3 Sintering Furnaces.....	40
1.1.4.4 Sintering Atmospheres.....	41
1.1.5 Secondary and Finishing Operations.....	42
1.1.5.1 Deburring and Cleaning.....	42
1.1.5.2 Repressing, Sizing and Coining.....	43
1.1.5.3 Local Surface Densification Methods.....	43
1.1.5.4 Machining.....	44
1.1.5.4.1 Joining.....	45

1.1.5.4.2 Welding.....	45
1.1.5.4.3 Brazing.....	46
1.1.5.4.4 Diffusion Bonding.....	46
1.1.5.4.5 Shrink Fit/Press Fit.....	46
1.1.5.4.6 Adhesive Bonding.....	46
1.1.5.5 Surface Treatments.....	47
1.1.5.5.1 Steam Treatment.....	47
1.1.5.5.2 Plating.....	47
1.1.5.5.3 Coating.....	47
1.1.5.5.4 Infiltration and Impregnation.....	48
1.1.5.6 Heat and Thermochemical Treatments.....	48
1.1.5.6.1 Sinter Hardening.....	48
1.1.5.6.2 Induction Hardening.....	48
1.1.5.6.3 Carburizing.....	49
1.1.5.6.4 Nitriding.....	49
1.1.6 Powder Metallurgy Products.....	50
1.1.6.1 Ferrous or Iron Based Powder Metallurgy (P/M) Products.....	50
1.1.6.1.1 Low or Medium Strength Iron-Based P/M Products.....	50
1.1.6.1.2 P/M Products Based on High Strength Iron.....	51
1.1.6.1.3 Stainless Steel P/M Products.....	52
1.1.6.1.4 Sintered High-Speed Steels.....	53
1.1.6.2 Non-Ferrous Metal Powder Metallurgy (P/M) Products.....	53
1.1.6.2.1 Aluminum.....	53
1.1.6.2.2 Cobalt.....	56
1.1.6.2.3 Copper.....	56
1.1.6.2.4 Nickel.....	58
1.1.6.2.5 Titanium.....	59
1.1.6.2.6 Other Non-Ferrous Metals.....	60
1.1.6.2.6.1 Chromium.....	60
1.1.6.2.6.2 Tungsten and Molybdenum.....	60
1.1.6.2.6.3 Tantalum and Niobium.....	61
1.1.7 Applications of Powder Metallurgy.....	61
1.1.7.1 Aerospace.....	61
1.1.7.2 Automotive.....	65
1.1.7.2.1 Powder Metallurgy Materials Used in the Automotive Industry.....	66
1.1.7.2.1.1 Iron and Steel.....	66
1.1.7.2.1.2 Aluminum, Titanium and Other P/M Materials.....	66
1.1.7.2.2 Novel P/M Products for Auto Applications.....	67
1.1.7.3 Electrical & Electronics.....	68
1.1.7.3.1 Electrical Contact Materials.....	68
1.1.7.3.1.1 Contact Materials for Low-Voltage Switchgears.....	69
1.1.7.3.1.2 Contact Materials for High-Voltage Switchgears.....	71
1.1.7.3.2 Electronic Applications.....	71
1.1.7.4 Industrial.....	72
1.1.7.4.1 Tool Steels.....	72
1.1.7.5 Medical.....	73
1.1.7.6 Other Applications.....	73
1.1.7.6.1 Biomaterials.....	73
1.1.7.6.2 Business Machines.....	74
1.1.7.6.3 Oil and Gas.....	74

#### 2. KEY MARKET TRENDS..... 79

2.1 Powder Metallurgy's Green Credentials Expand the Technology's Adoption.....	79
2.2 Economical Process for Developing Metal Additive Manufacturing Process Developed.....	80
2.3 Studies on Flake Powder Metallurgy (FPM), an Emerging Technology, Show Good Prospects.....	81
2.4 Inherent Sustainability Drives the Powder Metallurgy Market.....	83

2.5 Recent Advances in Powder Metallurgy Technology.....	85
Ultra-High-Temperature Sintering.....	85
Soft Magnetic Composites (SMCs).....	85
Automotive Manufacturing Advances.....	86
Metal Additive Manufacturing.....	87
2.6 Direct Current Plasma Sintering Technique: An Innovation in Powder Metallurgy.....	87
2.7 Future of Powder Metallurgy in Auto Industry Secure.....	88
2.8 Powder Metallurgy Set to Gain Traction in Medicine.....	91
2.9 3D Printing to Revolutionize Powder Metallurgy but Challenges Remain.....	92

#### 3. KEY GLOBAL PLAYERS..... 95

American Chemet Corporation (United States).....	95
Royal Metal Powders, Inc. (The United States).....	96
AMETEK, Inc. (United States).....	97
AMETEK Specialty Metal Products (United States).....	98
AMETEK® Specialty Metal Products Eighty Four (US) ..	99
BASF SE (Germany).....	101
Carl Schlenk Ag (Germany).....	102
Carpenter Technology Corp (The United States).....	103
Daido Steel Co Ltd. (Japan).....	104
Fine Sinter Co Ltd (Japan).....	105
Fukuda Metal Foil & Powder Co., Ltd. (Japan).....	106
Gkn Powder Metallurgy (The United States).....	109
Gkn Hoeganaes (United States).....	110
H.C. Starck GmbH (H.C. Starck Tungsten Powders) (Germany).....	113
H.C. Starck Solutions (United States).....	114
Höganäs Ab (Sweden).....	115
Kennametal Inc. (United States).....	116
Kobe Steel, Ltd. (Japan).....	117
Kymera International (United States).....	118
Makin Metal Powders (UK) Ltd. (United Kingdom).....	122
Miba Ag (Austria).....	122
Molyworks Materials Corp (The United States).....	123
Oerlikon Metco Switzerland (Switzerland).....	124
Pometon S.p.A (Italy).....	128
Rio Tinto Metal Powders (Canada).....	131
Sandvik Ab (Sweden).....	133
Sandvik Materials Technology (Sweden).....	134
Showa Denko Materials Co Ltd (Japan).....	137
Sumitomo Electric Industries Ltd (Japan).....	137

#### 4. KEY BUSINESS & PRODUCT TRENDS..... 138

Allegheny Technologies Incorporated   ATI Completes Sale of Sheffield, UK Operation.....	138
Höganäs to close Höganäs Environment Solutions, LLC. to focus on its core business   Höganäs.....	138
Miba: Miba acquires majority interest in battery specialist Voltlabor - Growth to be further accelerated under new name "Miba Battery Systems".....	138
Sandvik to acquire Spain-based Preziss, a solutions provider for aluminum and composite machining — Sandvik Group.....	138
Sandvik to acquire US based custom tooling manufacturer Peterson Tool Company — Sandvik Group.....	138
Höganäs now offers titanium powders for additive manufacturing   Höganäs.....	138
Sandvik introduces 3D-printed cemented carbide — Sandvik Group.....	138
Materials authority Sandvik introduces 3D printed components in cemented carbide — enabled by patented process — Sandvik Additive Manufacturing.....	138
Allegheny Technologies Incorporated   ATI Announces Termination of Joint Venture with Russian-Based VSMPO... University of Waterloo and Rio Tinto look to water atomised powder for low-cost Binder Jetting.....	138
Sandvik co-launches guidelines for testing additively manufactured stainless steels — Sandvik Additive Manufacturing.....	138
Höganäs joins the Additive Manufacturing Green Trade Association as a founding member   Höganäs.....	138

News: POLEMA doubles the output of AM metal powders in 2021 (polema-rus.com) ..... 138

A partnership between Höganäs and Piab is set to make additive manufacturing more sustainable and efficient | Höganäs ..... 138

News: POLEMA supplied products for a thermonuclear reactor in France ..... 138

Announcement of the Contract Conclusion to Transfer Showa Denko Materials' Ceramics Business ..... 138

Showa Denko Materials Develops Its Own MI Platform for Functional Materials to Offer Speedy Materials Recommendations ..... 138

Sandvik increases manufacturing capacity in metal powders for Additive Manufacturing — Sandvik Additive Manufacturing ..... 138

Showa Denko Materials' Anode Materials for Lithium-ion Batteries Adopted for Toyota's New "Aqua" ..... 138

GaN Semiconductors are Enabling New X-band Radars | Sumitomo Electric Industries ..... 138

Höganäs expands production capabilities in Laufenburg | Höganäs ..... 139

Höganäs closes its production in Niagara Falls, USA due to hydrogen gas supply shortage | Höganäs ..... 139

Showa Denko Materials Establishes the "JOINT2" Consortium for ..... 139

Showa Denko Materials to Launch the Mass Production of "MCL-E-795G," ..... 139

H.C. Starck Tungsten patents an innovative reverse osmosis process | H.C. Starck Tungsten Powders ..... 139

First Swedish plant with large-scale water treatment using by-products from the steel industry | Höganäs ..... 139

Höganäs settles supply agreement with US-based KBM Advanced Materials that launches new sales platform for additive manufacturing powder | Höganäs ..... 139

Höganäs' fine powder atomisation building in Johnstown supports the growing demand for high alloy products | Höganäs ..... 139

News: POLEMA increased the production output in the first half of 2021 ..... 139

GKN Additive develops 3D printing process for low alloy dual-phase steels DPLA and FSLA ..... 139

Miba: Miba sputter technology is awarded Supplier Gold certification by Pratt and Whitney ..... 139

News: POLEMA has mastered new powder grades for AM and weld-deposition ..... 139

Rio Tinto develops new water atomised steel powder. 139

Announcement of Transfer of Printed Wiring Board Business. 139

Rio Tinto develops new steel powder for 3-D printing.. 139

Announcement of Acquiring 100% Ownership of Hitachi Chemical Diagnostics System ..... 139

Allegheny Technologies Incorporated | ATI Completes Sale of Flowform Products to Consolidated Boring, Inc. .... 139

Miba: Miba products for medical devices ..... 139

News: POLEMA became the first Russian supplier of powders for 3D printing of ship and aircraft engine parts ..... 139

Experience Refractory Metals Innovations in a Brand-New Virtual Environment (hcastarcksolutions.com) ..... 140

Showa Denko Materials to Boost Its Production Capacity for CMP Slurries, Laminated Materials for Printed Wiring Boards, and Photosensitive Solder Resists in Taiwan.... 140

Höganäs lands major Cleanit® EC test project in China | Höganäs ..... 140

Höganäs and Lincotek sign cooperation agreement | Höganäs ..... 140

Höganäs launches powder mix ..... 140

FORECAST 3D reaches 1 million shipped nasal swab milestone for COVID-19 testing ..... 140

GKN Powder Metallurgy business FORECAST 3D launches face shields, stopgap masks, nasal swabs, and other critical PPE products to battle COVID-19 ..... 140

FORECAST 3D partners with specialty chemicals expert Lubrizol to industrialize 3D applications through thermoplastic powder (gknp.com) ..... 140

GKN Powder Metallurgy Acquires FORECAST 3D, Expands Additive Manufacturing Capabilities to Include Plastics (gknp.com) ..... 140

Sumitomo Electric Acquires Two Companies of European Powdered Metal Components Manufacturer Sinterwerke Group ..... 140

**5. GLOBAL MARKET OVERVIEW..... 141**

5.1 Global Powder Metallurgy Market Overview by Metal Type..... 142

5.1.1 Global Ferrous Metal Powder Metallurgy Market Overview by Metal Sub-Type ..... 144

5.1.2 Global Non-Ferrous Metal Powder Metallurgy Market Overview by Metal Sub-Type ..... 146

5.1.3 Ferrous Metals Powder Metallurgy Metal Type Market Overview by Global Region ..... 148

5.1.3.1 Ferrous Metal Powder Metallurgy Metal Sub-Type Market Overview by Global Region..... 150

5.1.3.1.1 Iron Powder ..... 150

5.1.3.1.2 Steel Powder..... 152

5.1.4 Non-Ferrous Metals Powder Metallurgy Metal Type Market Overview by Global Region..... 154

5.1.4.1 Global Non-Ferrous Metal Powder Metallurgy Market Overview for Metal Sub-Type by Region ... 156

5.1.4.1.1 Aluminum Powder ..... 156

5.1.4.1.2 Cobalt Powder ..... 158

5.1.4.1.3 Copper Powder ..... 160

5.1.4.1.4 Nickel Powder ..... 162

5.1.4.1.5 Titanium Powder ..... 164

5.1.4.1.6 Other Non-Ferrous Powders..... 166

5.2 Global Powder Metallurgy Market Overview by Application..... 168

5.2.1 Powder Metallurgy Application Market Overview by Global Region..... 170

5.2.1.1 Aerospace ..... 170

5.2.1.2 Automotive ..... 172

5.2.1.3 Electrical & Electronics..... 174

5.2.1.4 Industrial Machinery..... 176

5.2.1.5 Medical ..... 178

5.2.1.6 Other Applications ..... 180

**PART B: REGIONAL MARKET PERSPECTIVE ... 182**

**REGIONAL MARKET OVERVIEW..... 183**

**6. NORTH AMERICA ..... 183**

6.1 North American Powder Metallurgy Market Overview by Geographic Region..... 184

6.2 North American Powder Metallurgy Market Overview by Metal Type..... 185

6.2.1 North American Ferrous Metal Powder Metallurgy Market Overview by Metal Sub-Type .. 186

6.2.2 North American Non-Ferrous Metal Powder Metallurgy Market Overview by Metal Sub-Type.. 187

6.3 North American Powder Metallurgy Market Overview by Application..... 188

6.4 Major Market Players ..... 189

Advantage Metal Powders, Inc. (United States) ..... 189

Allegheny Technologies, Inc. (The United States)..... 190

American Chemet Corporation (United States)..... 193

Royal Metal Powders, Inc. (The United States) ..... 194

Ametek, Inc. (United States) ..... 195

AMETEK Specialty Metal Products (United States).... 196

AMETEK® Specialty Metal Products Eighty Four (US) 197

Carpenter Technology Corp (The United States) ..... 199

Gkn Hoeganaes (United States) ..... 200

Gkn Powder Metallurgy (The United States) ..... 203

H.C. Starck Solutions (United States)..... 204

Kennametal Inc. (United States)..... 205

Kymera International (United States)..... 206

Molyworks Materials Corp (The United States)..... 210

Rio Tinto Metal Powders (Canada) ..... 211

6.5 Country-wise Analysis of North American Powder Metallurgy Market..... 213

**6.5.1 The United States..... 213**

6.5.1.1 The United States' Powder Metallurgy Market Overview by Metal Type ..... 214

6.5.1.1.1 The United States' Ferrous Metal Powder Metallurgy Market Overview by Metal Sub-Type .. 215

6.5.1.1.2 The United States' Non-Ferrous Metal Powder Metallurgy Market Overview by Metal Sub-Type ..... 216

6.5.1.2 The United States' Powder Metallurgy Market Overview by Application ..... 217

**6.5.2 Canada..... 218**

6.5.2.1 Canadian Powder Metallurgy Market Overview by Metal Type ..... 219

6.5.2.1.1 Canadian Ferrous Metal Powder Metallurgy Market Overview by Metal Sub-Type ..... 220

6.5.2.1.2 Canadian Non-Ferrous Metal Powder Metallurgy Market Overview by Metal Sub-Type.. 221

6.5.2.2 Canadian Powder Metallurgy Market Overview by Application ..... 222

**6.5.3 Mexico ..... 223**

6.5.3.1 Mexican Powder Metallurgy Market Overview by Metal Type ..... 224

6.5.3.1.1 Mexican Ferrous Metal Powder Metallurgy Market Overview by Metal Sub-Type ..... 225

6.5.3.1.2 Mexican Non-Ferrous Metal Powder Metallurgy Market Overview by Metal Sub-Type.. 226

6.5.3.2 Mexican Powder Metallurgy Market Overview by Application..... 227

**7. EUROPE ..... 228**

7.1 European Powder Metallurgy Market Overview by Geographic Region ..... 229

7.2 European Powder Metallurgy Market Overview by Metal Type..... 230

7.2.1 European Ferrous Metal Powder Metallurgy Market Overview by Metal Sub-Type ..... 231

7.2.2 European Non-Ferrous Metal Powder Metallurgy Market Overview by Metal Sub-Type.. 232

7.3 European Powder Metallurgy Market Overview by Application ..... 233

7.4 Major Market Players ..... 234

Basf Se (Germany) ..... 234

Carl Schlenk Ag (Germany) ..... 235

H.C. Starck Gmbh (H.C. Starck Tungsten Powders) (Germany) ..... 236

Höganäs Ab (Sweden)..... 237

Makin Metal Powders (Uk) Ltd. (United Kingdom) ..... 238

Miba Ag (Austria)..... 238

Oerlikon Metco Switzerland (Switzerland)..... 239

Polema Jsc (Russia)..... 243

Pometon SpA (Italy)..... 244

Sandvik Ab (Sweden) ..... 247

Sandvik Materials Technology (Sweden) ..... 248

7.5 Country-wise Analysis of European Powder Metallurgy Market..... 251

**7.5.1 France ..... 251**

7.5.1.1 French Powder Metallurgy Market Overview by Metal Type ..... 252

7.5.1.1.1 French Ferrous Metal Powder Metallurgy Market Overview by Metal Sub-Type ..... 253

7.5.1.1.2 French Non-Ferrous Metal Powder Metallurgy Market Overview by Metal Sub-Type.. 254

7.5.1.2 French Powder Metallurgy Market Overview by Application..... 255

**7.5.2 Germany ..... 256**

7.5.2.1 German Powder Metallurgy Market Overview by Metal Type..... 257

7.5.2.1.1 German Ferrous Metal Powder Metallurgy Market Overview by Metal Sub-Type ..... 258

7.5.2.1.2 German Non-Ferrous Metal Powder Metallurgy Market Overview by Metal Sub-Type.. 259

7.5.2.2 German Powder Metallurgy Market Overview by Application..... 260

<b>7.5.3 Italy</b> .....	<b>261</b>	<b>8.4 Major Market Players</b> .....	<b>292</b>	<b>9. SOUTH AMERICA</b> .....	<b>326</b>
7.5.3.1 Italian Powder Metallurgy Market Overview by Metal Type .....	262	Advanced Engineering Metals Ltd. (China).....	292	9.1 South American Powder Metallurgy Market Overview by Geographic Region .....	327
7.5.3.1.1 Italian Ferrous Metal Powder Metallurgy Market Overview by Metal Sub-Type .....	263	Advanced Technology & Materials Co Ltd (At&M) (China) ..	293	9.2 South American Powder Metallurgy Market Overview by Metal Type .....	328
7.5.3.1.2 Italian Non-Ferrous Metal Powder Metallurgy Market Overview by Metal Sub-Type ..	264	Daido Steel Co Ltd. (Japan) .....	294	9.2.1 South American Ferrous Metal Powder Metallurgy Market Overview by Metal Sub-Type ..	329
7.5.3.2 Italian Powder Metallurgy Market Overview by Application .....	265	Fine Sinter Co Ltd (Japan).....	295	9.2.2 South American Non-Ferrous Metal Powder Metallurgy Market Overview by Metal Sub-Type ..	330
<b>7.5.4 Russia</b> .....	<b>266</b>	Fukuda Metal Foil & Powder Co., Ltd. (Japan).....	296	9.3 South American Powder Metallurgy Market Overview by Application .....	331
7.5.4.1 Russian Powder Metallurgy Market Overview by Metal Type .....	267	Kobe Steel, Ltd. (Japan).....	299	9.4 Country-wise Analysis of South American Powder Metallurgy Market.....	332
7.5.4.1.1 Russian Ferrous Metal Powder Metallurgy Market Overview by Metal Sub-Type .....	268	Showa Denko Materials Co Ltd (Japan).....	299	<b>9.4.1 Argentina</b> .....	<b>332</b>
7.5.4.1.2 Russian Non-Ferrous Metal Powder Metallurgy Market Overview by Metal Sub-Type ..	269	Sumitomo Electric Industries Ltd (Japan) .....	300	9.4.1.1 Argentine Powder Metallurgy Market Overview by Metal Type .....	333
7.5.4.2 Russian Powder Metallurgy Market Overview by Application .....	270	<b>8.5 Country-wise Analysis of Asia-Pacific Powder Metallurgy Market</b> .....	<b>301</b>	9.4.1.1.1 Argentine Ferrous Metal Powder Metallurgy Market Overview by Metal Sub-Type .....	334
<b>7.5.5 Spain</b> .....	<b>271</b>	<b>8.5.1 China</b> .....	<b>301</b>	9.4.1.1.2 Argentine Non-Ferrous Metal Powder Metallurgy Market Overview by Metal Sub-Type ..	335
7.5.5.1 Spanish Powder Metallurgy Market Overview by Metal Type .....	272	8.5.1.1 Chinese Powder Metallurgy Market Overview by Metal Type .....	302	9.4.1.2 Argentine Powder Metallurgy Market Overview by Application .....	336
7.5.5.1.1 Spanish Ferrous Metal Powder Metallurgy Market Overview by Metal Sub-Type .....	273	8.5.1.1.1 Chinese Ferrous Metal Powder Metallurgy Market Overview by Metal Sub-Type .....	303	<b>9.4.2 Brazil</b> .....	<b>337</b>
7.5.5.1.2 Spanish Non-Ferrous Metal Powder Metallurgy Market Overview by Metal Sub-Type ..	274	8.5.1.1.2 Chinese Non-Ferrous Metal Powder Metallurgy Market Overview by Metal Sub-Type ..	304	9.4.2.1 Brazilian Powder Metallurgy Market Overview by Metal Type .....	338
7.5.5.2 Spanish Powder Metallurgy Market Overview by Application .....	275	8.5.1.2 Chinese Powder Metallurgy Market Overview by Application .....	305	9.4.2.1.1 Brazilian Ferrous Metal Powder Metallurgy Market Overview by Metal Sub-Type .....	339
<b>7.5.6 The United Kingdom</b> .....	<b>276</b>	<b>8.5.2 India</b> .....	<b>306</b>	9.4.2.1.2 Brazilian Non-Ferrous Metal Powder Metallurgy Market Overview by Metal Sub-Type ..	340
7.5.6.1 The United Kingdom Powder Metallurgy Market Overview by Metal Type .....	277	8.5.2.1 Indian Powder Metallurgy Market Overview by Metal Type .....	307	9.4.2.2 Brazilian Powder Metallurgy Market Overview by Application .....	341
7.5.6.1.1 The United Kingdom Ferrous Metal Powder Metallurgy Market Overview by Metal Sub-Type ..	278	8.5.2.1.1 Indian Ferrous Metal Powder Metallurgy Market Overview by Metal Sub-Type .....	308	<b>9.4.3 Rest of South America</b> .....	<b>342</b>
7.5.6.1.2 The United Kingdom Non-Ferrous Metal Powder Metallurgy Market Overview by Metal Sub-Type .....	279	8.5.2.1.2 Indian Non-Ferrous Metal Powder Metallurgy Market Overview by Metal Sub-Type ..	309	9.4.3.1 Rest of South American Powder Metallurgy Market Overview by Metal Type .....	343
7.5.6.2 The United Kingdom Powder Metallurgy Market Overview by Application .....	280	8.5.2.2 Indian Powder Metallurgy Market Overview by Application .....	310	9.4.3.1.1 Rest of South American Ferrous Metal Powder Metallurgy Market Overview by Metal Sub-Type .....	344
<b>7.5.7 Rest of Europe</b> .....	<b>281</b>	<b>8.5.3 Japan</b> .....	<b>311</b>	9.4.3.1.2 Rest of South American Non-Ferrous Metal Powder Metallurgy Market Overview by Metal Sub-Type .....	345
7.5.7.1 Rest of Europe Powder Metallurgy Market Overview by Metal Type .....	282	8.5.3.1 Japanese Powder Metallurgy Market Overview by Metal Type .....	312	9.4.3.2 Rest of South American Powder Metallurgy Market Overview by Application .....	346
7.5.7.1.1 Rest of Europe Ferrous Metal Powder Metallurgy Market Overview by Metal Sub-Type ..	283	8.5.3.1.1 Japanese Ferrous Metal Powder Metallurgy Market Overview by Metal Sub-Type .....	313	<b>10. REST OF WORLD</b> .....	<b>347</b>
7.5.7.1.2 Rest of Europe Non-Ferrous Metal Powder Metallurgy Market Overview by Metal Sub-Type ..	284	8.5.3.1.2 Japanese Non-Ferrous Metal Powder Metallurgy Market Overview by Metal Sub-Type ..	314	10.1 Rest of World Powder Metallurgy Market Overview by Metal Type .....	348
7.5.7.2 Rest of Europe Powder Metallurgy Market Overview by Application .....	285	8.5.3.2 Japanese Powder Metallurgy Market Overview by Application .....	315	10.1.1 Rest of World Ferrous Metal Powder Metallurgy Market Overview by Metal Sub-Type ..	349
<b>8. ASIA-PACIFIC</b> .....	<b>286</b>	<b>8.5.4 South Korea</b> .....	<b>316</b>	10.1.2 Rest of World Non-Ferrous Metal Powder Metallurgy Market Overview by Metal Sub-Type ..	350
8.1 Asia-Pacific Powder Metallurgy Market Overview by Geographic Region .....	287	8.5.4.1 South Korean Powder Metallurgy Market Overview by Metal Type .....	317	10.2 Rest of World Powder Metallurgy Market Overview by Application .....	351
8.2 Asia-Pacific Powder Metallurgy Market Overview by Metal Type .....	288	8.5.4.1.1 South Korean Ferrous Metal Powder Metallurgy Market Overview by Metal Sub-Type ..	318	<b>PART C: GUIDE TO THE INDUSTRY</b> .....	<b>352</b>
8.2.1 Asia-Pacific Ferrous Metal Powder Metallurgy Market Overview by Metal Sub-Type .....	289	8.5.4.1.2 South Korean Non-Ferrous Metal Powder Metallurgy Market Overview by Metal Sub-Type ..	319	1. NORTH AMERICA .....	352
8.2.2 Asia-Pacific Non-Ferrous Metal Powder Metallurgy Market Overview by Metal Sub-Type ..	290	8.5.4.2 South Korean Powder Metallurgy Market Overview by Application .....	320	2. EUROPE.....	357
8.3 Asia-Pacific Powder Metallurgy Market Overview by Application .....	291	<b>8.5.5 Rest of Asia-Pacific</b> .....	<b>321</b>	3. ASIA-PACIFIC.....	361
		8.5.5.1 Rest of Asia-Pacific Powder Metallurgy Market Overview by Metal Type .....	322	4. REST OF WORLD .....	363
		8.5.5.1.1 Rest of Asia-Pacific Ferrous Metal Powder Metallurgy Market Overview by Metal Sub-Type ..	323	<b>PART D: ANNEXURE</b> .....	<b>364</b>
		8.5.5.1.2 Rest of Asia-Pacific Non-Ferrous Metal Powder Metallurgy Market Overview by Metal Sub-Type .....	324	1. RESEARCH METHODOLOGY .....	364
		8.5.5.2 Rest of Asia-Pacific Powder Metallurgy Market Overview by Application .....	325	2. FEEDBACK .....	366

## About Industry Experts

Industry Experts' market research, backed by years of experience and an analytical team dedicated to providing the most optimal business solutions, has been specifically designed to provide a variety of benefits, both current and future. Our leading-edge publications make the life easy for corporate strategists, investors, analysts and researchers, startups, consultants, financial and banking executives, academicians and many more. The company also provides customized research reports to cater the needs of the industry.

Business intelligence provides the critical link between comprehending prevailing market conditions and devising strategies to maximize parameters, such as revenues, profits and return on investment in order to gain market share. The significance of market research can be largely understood through the range of factors that impact businesses. These can comprise market size (current and projected), geographic market reach and demand and supply scenario, to name a few. Our ongoing quest to collect up to date and accurate information by conducting online surveys, personal interviews, taking the opinions of senior level executives will enable us to serve our clients better in every possible aspect.

[More about Industry Experts](#)



### Industry Experts, Inc.

451 W Bonita Ave, Suite #10  
San Dimas, CA 91710  
Greater Los Angeles, United States  
Phone: +1-320-iXPERTS (497-3787)  
Email: [info@industry-experts.com](mailto:info@industry-experts.com)

### India Office

1-7-19/C, Street No. 8, Habsiguda  
Hyderabad – 500007  
India  
Phone: +91-40-2715-7746  
Website: <https://industry-experts.com>