

## **Powder Metallurgy - A Global Market Overview**

Market Report | 2022-09-08 | 365 pages | Industry Experts

### **AVAILABLE LICENSES:**

- Single user licence (PDF) \$4860.00
- Enterprise Electronic (PDF) \$7560.00

### **Report description:**

#### 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:

**Scotts International. EU Vat number: PL 6772247784**

tel. 0048 603 394 346 e-mail: [support@scotts-international.com](mailto:support@scotts-international.com)

[www.scotts-international.com](http://www.scotts-international.com)

- Ferrous
  - o Iron Powder
  - o Steel Powder
- Non-Ferrous
  - o Aluminum
  - o Cobalt
  - o Copper
  - o Nickel
  - o Titanium
  - o 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

## **Table of Contents:**

### TABLE OF CONTENTS

#### PART A: GLOBAL MARKET PERSPECTIVE

##### 1. INTRODUCTION

###### 1.1 Product Outline

###### 1.1.1 An Introduction to Powder Metallurgy

###### 1.1.1.1 A Brief History of Powder Metallurgy

###### 1.1.1.2 Benefits of Powder Metallurgy

###### 1.1.1.3 Limitations of Powder Metallurgy

###### 1.1.1.3.1 Technical Limitations

###### 1.1.1.3.1.1 Powder Making and Handling

###### 1.1.1.3.1.2 Compaction

###### 1.1.1.3.1.3 Sintering

###### 1.1.1.3.2 Economical Limitations

###### 1.1.1.3.2.1 Size Limitations

**Scotts International. EU Vat number: PL 6772247784**

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com

- 1.1.1.3.2.2 Mechanical Properties
- 1.1.1.3.2.3 Volume Production
- 1.1.2 Powder Metallurgy Production Techniques
  - 1.1.2.1 Mechanical Processes
    - 1.1.2.1.1 Grinding
    - 1.1.2.1.2 Milling
    - 1.1.2.1.3 Mechanical Alloying
  - 1.1.2.2 Physical-Mechanical Processes
    - 1.1.2.2.1 Water Atomization
    - 1.1.2.2.2 Gas Atomization
    - 1.1.2.2.3 Centrifugal Atomization
    - 1.1.2.2.4 Vacuum Atomization
    - 1.1.2.2.5 Ultrasonic Atomization
  - 1.1.2.3 Chemical Processes
    - 1.1.2.3.1 Reduction of Metal Compounds
      - 1.1.2.3.1.1 Reduction of Iron Oxides
      - 1.1.2.3.1.2 Reduction of Non-Ferrous Metal Oxides
    - 1.1.2.3.2 Making Powders from the Vapor Phase
  - 1.1.2.4 Electrochemical Processes
    - 1.1.2.4.1 Preparation of Powders from Water Solution
      - 1.1.2.4.1.1 Copper Powder
    - 1.1.2.4.2 Melt Electrolysis
      - 1.1.2.4.2.1 Tantalum Powder
      - 1.1.2.4.2.2 Beryllium Powder
- 1.1.3 Shaping and Compaction of Powder Materials
  - 1.1.3.1 Basics of Pressing Processes
    - 1.1.3.1.1 Effects of Compacting Pressure on Powder Materials
    - 1.1.3.1.2 Activation Effect of Pressing
  - 1.1.3.2 Pressure Forming
    - 1.1.3.2.1 Die Pressing
    - 1.1.3.2.2 Extrusion
    - 1.1.3.2.3 Isostatic Pressing
      - 1.1.3.2.3.1 Cold Isostatic Pressing (CIP)
      - 1.1.3.2.3.2 Hot Isostatic Pressing (HIP)
    - 1.1.3.2.4 Powder Forging
    - 1.1.3.2.5 Explosive Compaction
    - 1.1.3.2.6 Metal Injection Molding (MIM)
    - 1.1.3.2.7 Additive Manufacturing
- 1.1.4 Sintering
  - 1.1.4.1 Sintering Mechanisms
    - 1.1.4.1.1 Solid-State Sintering
    - 1.1.4.1.2 Liquid Phase Sintering
  - 1.1.4.2 Sintering and its Chemical Aspects
  - 1.1.4.3 Sintering Furnaces
  - 1.1.4.4 Sintering Atmospheres
- 1.1.5 Secondary and Finishing Operations
  - 1.1.5.1 Deburring and Cleaning

**Scotts International. EU Vat number: PL 6772247784**

tel. 0048 603 394 346 e-mail: [support@scotts-international.com](mailto:support@scotts-international.com)

[www.scotts-international.com](http://www.scotts-international.com)

- 1.1.5.2 Repressing, Sizing and Coining
- 1.1.5.3 Local Surface Densification Methods
- 1.1.5.4 Machining
  - 1.1.5.4.1 Joining
  - 1.1.5.4.2 Welding
  - 1.1.5.4.3 Brazing
  - 1.1.5.4.4 Diffusion Bonding
  - 1.1.5.4.5 Shrink Fit/Press Fit
  - 1.1.5.4.6 Adhesive Bonding
- 1.1.5.5 Surface Treatments
  - 1.1.5.5.1 Steam Treatment
  - 1.1.5.5.2 Plating
  - 1.1.5.5.3 Coating
  - 1.1.5.5.4 Infiltration and Impregnation
- 1.1.5.6 Heat and Thermochemical Treatments
  - 1.1.5.6.1 Sinter Hardening
  - 1.1.5.6.2 Induction Hardening
  - 1.1.5.6.3 Carburizing
  - 1.1.5.6.4 Nitriding
- 1.1.6 Powder Metallurgy Products
  - 1.1.6.1 Ferrous or Iron Based Powder Metallurgy (P/M) Products
    - 1.1.6.1.1 Low or Medium Strength Iron-Based P/M Products
    - 1.1.6.1.2 P/M Products Based on High Strength Iron
    - 1.1.6.1.3 Stainless Steel P/M Products
    - 1.1.6.1.4 Sintered High-Speed Steels
  - 1.1.6.2 Non-Ferrous Metal Powder Metallurgy (P/M) Products
    - 1.1.6.2.1 Aluminum
    - 1.1.6.2.2 Cobalt
    - 1.1.6.2.3 Copper
    - 1.1.6.2.4 Nickel
    - 1.1.6.2.5 Titanium
    - 1.1.6.2.6 Other Non-Ferrous Metals
      - 1.1.6.2.6.1 Chromium
      - 1.1.6.2.6.2 Tungsten and Molybdenum
      - 1.1.6.2.6.3 Tantalum and Niobium
- 1.1.7 Applications of Powder Metallurgy
  - 1.1.7.1 Aerospace
  - 1.1.7.2 Automotive
    - 1.1.7.2.1 Powder Metallurgy Materials Used in the Automotive Industry
      - 1.1.7.2.1.1 Iron and Steel
      - 1.1.7.2.1.2 Aluminum, Titanium and Other P/M Materials
    - 1.1.7.2.2 Novel P/M Products for Auto Applications
  - 1.1.7.3 Electrical & Electronics
    - 1.1.7.3.1 Electrical Contact Materials
      - 1.1.7.3.1.1 Contact Materials for Low-Voltage Switchgears
      - 1.1.7.3.1.2 Contact Materials for High-Voltage Switchgears
    - 1.1.7.3.2 Electronic Applications

**Scotts International. EU Vat number: PL 6772247784**

tel. 0048 603 394 346 e-mail: [support@scotts-international.com](mailto:support@scotts-international.com)

[www.scotts-international.com](http://www.scotts-international.com)

- 1.1.7.4 Industrial
  - 1.1.7.4.1 Tool Steels
- 1.1.7.5 Medical
- 1.1.7.6 Other Applications
  - 1.1.7.6.1 Biomaterials
  - 1.1.7.6.2 Business Machines
  - 1.1.7.6.3 Oil and Gas

## 2. KEY MARKET TRENDS

- 2.1 Powder Metallurgy's Green Credentials Expand the Technology's Adoption
- 2.2 Economical Process for Developing Metal Additive Manufacturing Process Developed
- 2.3 Studies on Flake Powder Metallurgy (FPM), an Emerging Technology, Show Good Prospects
- 2.4 Inherent Sustainability Drives the Powder Metallurgy Market
- 2.5 Recent Advances in Powder Metallurgy Technology
  - Ultra-High-Temperature Sintering
  - Soft Magnetic Composites (SMCs)
  - Automotive Manufacturing Advances
  - Metal Additive Manufacturing
- 2.6 Direct Current Plasma Sintering Technique: An Innovation in Powder Metallurgy
- 2.7 Future of Powder Metallurgy in Auto Industry Secure
- 2.8 Powder Metallurgy Set to Gain Traction in Medicine
- 2.9 3D Printing to Revolutionize Powder Metallurgy but Challenges Remain

## 3. KEY GLOBAL PLAYERS

- American Chemet Corporation (United States)
  - Royal Metal Powders, Inc. (United States)
- AMETEK, Inc. (United States)
  - AMETEK Specialty Metal Products (United States)
  - AMETEK Specialty Metal Products Eighty Four (United States)
- BASF SE (Germany)
  - Carl Schlenk AG (Germany)
- Carpenter Technology Corp (United States)
- Daido Steel Co Ltd. (Japan)
- Fine Sinter Co Ltd (Japan)
- Fukuda Metal Foil & Powder Co., Ltd. (Japan)
- GKN Powder Metallurgy (United States)
- GKN Hoeganaes (United States)
- H.C. Starck GmbH (H.C. Starck Tungsten Powders) (Germany)
  - H.C. Starck Solutions (United States)
- Hoganas AB (Sweden)
- Kennametal Inc. (United States)
- Kobe Steel, Ltd. (Japan)
- Kymera International (United States)
- Makin Metal Powders (UK) Ltd. (United Kingdom)
- Miba AG (Austria)
- Molyworks Materials Corp (United States)
- Oerlikon Metco Switzerland (Switzerland)

**Scotts International. EU Vat number: PL 6772247784**

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com

Pometon S.p.A (Italy)  
Rio Tinto Metal Powders (Canada)  
Sandvik AB (Sweden)  
Sandvik Materials Technology (Sweden)  
Showa Denko Materials Co Ltd (Japan)  
Sumitomo Electric Industries Ltd (Japan)

#### 4. KEY BUSINESS & PRODUCT TRENDS

Allegheny Technologies Incorporated | ATI Completes Sale of Sheffield, UK Operation  
Hoganas to close Hoganas Environment Solutions, LLC. to focus on its core business | Hoganas  
Miba: Miba acquires majority interest in battery specialist Voltlabor - Growth to be further accelerated under new name "Miba Battery Systems"  
Sandvik to acquire Spain-based Preziss, a solutions provider for aluminum and composite machining - Sandvik Group  
Sandvik to acquire US based custom tooling manufacturer Peterson Tool Company - Sandvik Group  
Hoganas now offers titanium powders for additive manufacturing | Hoganas  
Sandvik introduces 3D-printed cemented carbide - Sandvik Group  
Materials authority Sandvik introduces 3D printed components in cemented carbide - enabled by patented process - Sandvik Additive Manufacturing  
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  
Sandvik co-launches guidelines for testing additively manufactured stainless steels - Sandvik Additive Manufacturing  
Hoganas joins the Additive Manufacturing Green Trade Association as a founding member | Hoganas  
News: POLEMA doubles the output of AM metal powders in 2021 (polema-rus.com)  
A partnership between Hoganas and Piab is set to make additive manufacturing more sustainable and efficient | Hoganas  
News: POLEMA supplied products for a thermonuclear reactor in France  
Announcement of the Contract Conclusion to Transfer Showa Denko Materials' Ceramics Business  
Showa Denko Materials Develops Its Own MI Platform for Functional Materials to Offer Speedy Materials Recommendations  
Sandvik increases manufacturing capacity in metal powders for Additive Manufacturing - Sandvik Additive Manufacturing  
Showa Denko Materials' Anode Materials for Lithium-ion Batteries Adopted for Toyota's New "Aqua"  
GaN Semiconductors are Enabling New X-band Radars | Sumitomo Electric Industries  
Hoganas expands production capabilities in Laufenburg | Hoganas  
Hoganas closes its production in Niagara Falls, USA due to hydrogen gas supply shortage | Hoganas  
Showa Denko Materials Establishes the "JOINT2" Consortium for  
Showa Denko Materials to Launch the Mass Production of "MCL-E-795G,"  
H.C. Starck Tungsten patents an innovative reverse osmosis process | H.C. Starck Tungsten Powders  
First Swedish plant with large-scale water treatment using by-products from the steel industry | Hoganas  
Hoganas settles supply agreement with US-based KBM Advanced Materials that launches new sales platform for additive manufacturing powder | Hoganas  
Hoganas' fine powder atomisation building in Johnstown supports the growing demand for high alloy products | Hoganas  
News: POLEMA increased the production output in the first half of 2021  
GKN Additive develops 3D printing process for low alloy dual-phase steels DPLA and FSLA  
Miba: Miba sputter technology is awarded Supplier Gold certification by Pratt and Whitney  
News: POLEMA has mastered new powder grades for AM and weld-deposition  
Rio Tinto develops new water atomised steel powder  
Announcement of Transfer of Printed Wiring Board Business  
Rio Tinto develops new steel powder for 3-D printing  
Announcement of Acquiring 100% Ownership of Hitachi Chemical Diagnostics System

**Scotts International. EU Vat number: PL 6772247784**

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com

Allegheny Technologies Incorporated | ATI Completes Sale of Flowform Products to Consolidated Boring, Inc.  
Miba: Miba products for medical devices  
News: POLEMA became the first Russian supplier of powders for 3D printing of ship and aircraft engine parts  
Experience Refractory Metals Innovations in a Brand-New Virtual Environment (hcstarcksolutions.com)  
Showa Denko Materials to Boost Its Production Capacity for CMP Slurries, Laminate Materials for Printed Wiring Boards, and Photosensitive Solder Resists in Taiwan  
Hoganas lands major Cleanit EC test project in China | Hoganas  
Hoganas and Lincotek sign cooperation agreement | Hoganas  
Hoganas launches powder mix  
FORECAST 3D reaches 1 million shipped nasal swab milestone for COVID-19 testing  
GKN Powder Metallurgy business FORECAST 3D launches face shields, stopgap masks, nasal swabs, and other critical PPE products to battle COVID-19  
FORECAST 3D partners with specialty chemicals expert Lubrizol to industrialize 3D applications through thermoplastic powder (gknpm.com)  
GKN Powder Metallurgy Acquires FORECAST 3D, Expands Additive Manufacturing Capabilities to Include Plastics (gknpm.com)  
Sumitomo Electric Acquires Two Companies of European Powdered Metal Components Manufacturer Sinterwerke Group

## 5. GLOBAL MARKET OVERVIEW

### 5.1 Global Powder Metallurgy Market Overview by Metal Type

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

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

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

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

##### 5.1.3.1.1 Iron Powder

##### 5.1.3.1.2 Steel Powder

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

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

##### 5.1.4.1.1 Aluminum Powder

##### 5.1.4.1.2 Cobalt Powder

##### 5.1.4.1.3 Copper Powder

##### 5.1.4.1.4 Nickel Powder

##### 5.1.4.1.5 Titanium Powder

##### 5.1.4.1.6 Other Non-Ferrous Powders

### 5.2 Global Powder Metallurgy Market Overview by Application

#### 5.2.1 Powder Metallurgy Application Market Overview by Global Region

##### 5.2.1.1 Aerospace

##### 5.2.1.2 Automotive

##### 5.2.1.3 Electrical & Electronics

##### 5.2.1.4 Industrial Machinery

##### 5.2.1.5 Medical

##### 5.2.1.6 Other Applications

**Scotts International. EU Vat number: PL 6772247784**

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com

**Powder Metallurgy - A Global Market Overview**

Market Report | 2022-09-08 | 365 pages | Industry Experts

To place an Order with Scotts International:

- Print this form
- Complete the relevant blank fields and sign
- Send as a scanned email to support@scott's-international.com

**ORDER FORM:**

Select license	License	Price
	Single user licence (PDF)	\$4860.00
	Enterprise Electronic (PDF)	\$7560.00
		VAT
		Total

\*Please circle the relevant license option. For any questions please contact support@scott's-international.com or 0048 603 394 346.

\*\* VAT will be added at 23% for Polish based companies, individuals and EU based companies who are unable to provide a valid EU Vat Numbers.

Email*	<input type="text"/>	Phone*	<input type="text"/>
First Name*	<input type="text"/>	Last Name*	<input type="text"/>
Job title*	<input type="text"/>		
Company Name*	<input type="text"/>	EU Vat / Tax ID / NIP number*	<input type="text"/>
Address*	<input type="text"/>	City*	<input type="text"/>
Zip Code*	<input type="text"/>	Country*	<input type="text"/>
		Date	<input type="text" value="2026-03-05"/>
		Signature	<input type="text"/>

**Scotts International. EU Vat number: PL 6772247784**

tel. 0048 603 394 346 e-mail: support@scott's-international.com

www.scott's-international.com