

Powder Metallurgy Market Report by Type (Ferrous, Non-Ferrous), Material (Titanium, Steel, Nickel, Aluminum, and Others), Manufacturing Process (Additive Manufacturing, Powder Bed, Blown Powder, Metal Injection Molding, Powder Metal Hot Isostatic Pressing, and Others), Application (Automotive, Aerospace, Electrical and Electronics, Oil and Gas, and Others), and Region 2024-2032

<https://marketpublishers.com/r/P4C808033039EN.html>

Date: July 2024

Pages: 147

Price: US\$ 3,899.00 (Single User License)

ID: P4C808033039EN

Abstracts

The global powder metallurgy market size reached US\$ 3.1 Billion in 2023. Looking forward, IMARC Group expects the market to reach US\$ 6.6 Billion by 2032, exhibiting a growth rate (CAGR) of 8.6% during 2024-2032. The expanding automotive industry, increasing product usage in manufacturing inert machine parts, and rising penetration of low-cost products represent some of the key factors driving the market growth.

Powder Metallurgy Market Analysis:

Major Market Drivers: The growing automotive industry, surging demand for cost-effective, efficient, and lightweight materials, rising number of infrastructure projects, etc., are propelling the market growth. Moreover, the increasing usage of powder metallurgy in various electronic devices is escalating the powder metallurgy market demand.

Key Market Trends: Ongoing advancements in material science, growing adoption of additive manufacturing, and increasing preferences towards green manufacturing are some of the factors expected to stimulate the market growth. Moreover, with the rising demand for miniaturized devices, powder metallurgy is advancing to meet these requirements. Techniques like metal injection molding (MIM) and micro powder injection

molding (PIM) enable the production of small, complex parts with tight tolerances and excellent surface finishes, thereby stimulating the industry's growth. Competitive Landscape: Some of the leading powder metallurgy market companies are BASF SE, Carpenter Corporation, Catalus Corporation, Comtec Mfg.Inc., Fine Sinter Co. Ltd., Horizon Technology Inc., Melrose Industries PLC, Perry Tool & Research Inc., Phoenix Sintered Metals LLC, Precision Sintered Parts LLC, Sandvik AB, and Sumitomo Electric Industries Ltd., among many others.

Geographical Trends: According to the report, Asia Pacific accounted for the largest market share. Some of the factors driving the regional powder metallurgy market included the growing demand for enhanced infrastructures, rising adoption of additive manufacturing in the automotive sector, increasing need for lightweight components with improved performance, etc.

Challenges and Opportunities: High initial investment costs, time-consuming manufacturing process, environmental regulations, and quality control are some of the factors hampering the market growth. However, the rise of additive manufacturing (AM) technologies presents significant powder metallurgy market recent opportunities. AM techniques like selective laser melting (SLM) and metal binder jetting allow for the production of complex, customized parts with minimal material waste, thereby propelling the market growth.

Powder Metallurgy Market Trends:

Rising Demand from the Automotive Industry

With increasing pressure to improve fuel efficiency and reduce emissions, automotive manufacturers are turning to lightweight materials. Powder metallurgy offers lightweight components with high strength and precision, contributing to overall vehicle weight reduction. For instance, according to the U.S. Department of Energy, by 2030, one-fourth of the U.S. vehicular fleet could save over 5 billion gallons of fuel yearly due to advanced materials that enable lightweight components and high-efficiency engines. Powder metallurgy is widely used in the production of gears for engines and transmissions. PM gears offer high strength, wear resistance, and dimensional accuracy, making them suitable for demanding applications. For instance, Amsted Automotive presented cutting-edge innovations that are essential for the development of powertrains in May 2024, at the CTI Symposium. The company's exhibit highlighted the strengths of Means Industries, Burgess-Norton, and Transform Automotive, its three main business divisions. Throughout the event, Burgess-Norton showcased its acclaimed powder metal technology in a number of applications, such as gears, pocket and notch plates, sprockets, cam plates, and more. Powder metallurgy offers cost-effective solutions for automotive parts production. PM processes, including metal

injection molding (MIM) and powder bed fusion (PBF) in 3D printing, have significantly lower material waste compared to traditional manufacturing methods. This is because PM processes typically start with fine metal powders, which are precisely shaped into the final part. This minimizes material waste and reduces the overall cost of production. In November 2023, researchers at IIT-Mandi discovered that the extrusion-based metal additive manufacturing process is the most superior and cost-effective way when compared to other approaches to metal 3D printing. Metal additive manufacturing (metal AM) uses thin metal powders to create strong, complicated components using computer-aided design (CAD) software or 3D scanning. These factors are further bolstering the powder metallurgy market revenue.

Growing Adoption of Additive Manufacturing

Additive manufacturing (AM), particularly in the form of 3D printing, is a significant driver of growth in the powder metallurgy (PM) market. 3D printing allows for the creation of complex geometries that are difficult or impossible to achieve with traditional manufacturing methods. This is particularly advantageous for powder metallurgy, as it enables the production of intricate shapes and internal structures without the need for specialized tooling or assembly. As a result, manufacturers can create highly optimized components with improved performance and functionality. For instance, in February 2024, Volkmann launched the PowTRex basic metal powder reprocessing system, that allows additive manufacturers to recover powder for reuse. It aims to support powder-based metal 3D printer users. Moreover, additive manufacturing allows for the creation of intricate lattice structures within metal parts, providing high strength-to-weight ratios and customized mechanical properties. Powder metallurgy supplies the metal powders used to create these lattice structures, offering opportunities for lightweighting and design optimization. For instance, in February 2024, researchers from RMIT University in Australia created a novel type of metamaterial made additively from Ti-6Al-4V titanium. The unusual lattice structures, with very high strength-to-weight ratios, have the potential to benefit a wide range of applications, including medical implants and aircraft or rocket parts. The researchers designed a hollow tubular lattice structure with a thin band running inside it manufactured using Laser Beam Powder Bed Fusion. These factors are positively influencing the powder metallurgy market forecast.

Increasing Utilization in the Aerospace Sector

The escalating demand in the aerospace industry is one of the prominent factors adding to the market growth. Aerospace manufacturers are constantly seeking ways to reduce aircraft weight to improve fuel efficiency and reduce operating costs. Powder metallurgy

offers lightweight components with high strength-to-weight ratios, making it ideal for aerospace applications. PM components contribute to the overall weight reduction of aircraft, leading to fuel savings and lower emissions. For instance, in November 2023, ArcelorMittal SA, one of the world's major steel firms, announced the development of an industrial-scale atomizer in Aviles, Spain, to create steel powders for a variety of additive manufacturing technologies, including aerospace, defense, automotive, medical, and energy. Moreover, they formed a new company, ArcelorMittal Powders, to commercialize its metal powders, with a focus on Laser Beam Powder Bed Fusion (PBF-LB), Binder Jetting (BJT), and Directed Energy Deposition (DED) AM technologies. In addition, powder metallurgy allows for the development and production of advanced materials and alloys tailored for aerospace applications. These materials can withstand high temperatures, extreme pressures, and harsh environments encountered in aerospace operations. PM techniques enable the incorporation of elements like titanium, nickel, and aluminum into alloys, creating materials with exceptional properties required for aerospace components. For instance, according to the article published by the National Library of Medicine in 2023, powder metallurgy is a versatile and commonly utilized method of creating composite materials. Cu-TiO₂ composites gained significance in recent years due to its prospective uses in a variety of areas, including aerospace, electrical, and biomedicine. The key benefits of employing this process to prepare Cu-TiO₂ (titanium dioxide) composites include the ability to control the composite's microstructure, low cost, and high efficiency. In the aircraft industry, composite materials can be utilized to make components like turbine blades, which require high strength and wear resistance. These factors are further contributing to the powder metallurgy market share.

Powder Metallurgy Industry Segmentation:

IMARC Group provides an analysis of the key trends in each segment of the global powder metallurgy market report, along with forecasts at the global, regional and country levels for 2024-2032. Our report has categorized the market based on type, material, manufacturing process, and application.

Breakup by Type:

Ferrous

Non-Ferrous

Ferrous dominates the market

The report has provided a detailed breakup and analysis of the powder metallurgy

market based on the type. This includes ferrous and non-ferrous. According to the powder metallurgy report, ferrous represented the largest segment.

As industries like automotive, aerospace, and electronics continue to demand lightweight yet strong components, powder metallurgy offers an attractive solution. Ferrous materials, such as iron and steel powders, allow for the production of parts with high strength-to-weight ratios, making them ideal for applications where weight reduction is crucial. Moreover, innovations in powder production techniques, such as water atomization, gas atomization, and mechanical alloying, have improved the quality, purity, and consistency of ferrous powders. These advancements enable manufacturers to produce powders with tailored properties suitable for specific applications, driving the adoption of ferrous materials in powder metallurgy. For instance, in November 2023, ArcelorMittal SA, one of the world's major steel firms, announced to develop an industrial-scale atomizer in Aviles, Spain, to create steel powders for a variety of additive manufacturing technologies, including aerospace, defense, automotive, medical, and energy.

Breakup by Material:

- Titanium
- Steel
- Nickel
- Aluminum
- Others

Steel hold the largest share in the market

A detailed breakup and analysis of the powder metallurgy market based on the material has also been provided in the report. This includes titanium, steel, nickel, aluminum, and others. According to the report, steel accounted for the largest market share.

According to the powder metallurgy market outlook, steel is one of the most widely used materials in powder metallurgy due to its versatility, strength, and cost-effectiveness. Steel powder is the primary raw material in PM for producing steel parts. It's typically produced through processes such as water atomization, gas atomization, or electrolytic deposition. These methods allow for the production of steel powders with controlled particle size, shape, and composition. Moreover, various alloying elements can be added to steel powders to enhance specific properties of the final components. Common alloying elements include nickel, molybdenum, chromium, and copper.

Alloying helps improve properties such as strength, hardness, wear resistance, and corrosion resistance, making steel suitable for diverse applications. For instance, in May 2024, Swiss Steel Group, headquartered in Lucerne, Switzerland, launched a line of gas-atomized metal powders designed for the additive manufacturing sector. The company offers low- and medium-alloy steels under its Bainidur additive manufacturing line.

Breakup by Manufacturing Process:

Additive Manufacturing

Powder Bed

Blown Powder

Metal Injection Molding

Powder Metal Hot Isostatic Pressing

Others

Powder metal hot isostatic pressing accounts for the majority of the market share

A detailed breakup and analysis of the powder metallurgy market based on the manufacturing process has also been provided in the report. This includes additive manufacturing, powder bed, blown powder, metal injection molding, powder metal hot isostatic pressing, and others. According to the report, powder metal hot isostatic pressing accounted for the largest market share.

As per the powder metallurgy market outlook, Hot Isostatic Pressing (HIP) in powder metallurgy involves subjecting a material to both high temperature and high pressure simultaneously in order to consolidate and densify it. Various industries such as aerospace, automotive, oil & gas, and medical devices require components with high strength, precision, and reliability. PM HIP offers a way to produce such components with superior mechanical properties, including high density, excellent microstructure, and enhanced fatigue resistance. In September 2023, the Wallwork Group installed a Quintus Technologies Hot Isostatic Press (HIP) at its new HIP Centre in Bury, England. The press is equipped with Quintus' patented uniform rapid cooling (URC) technology, which, according to Quintus, allows for optimal temperature management and higher productivity while delivering the high material uniformity needed for parts intended for mission-critical applications.

Breakup by Application:

Automotive
Aerospace
Electrical and Electronics
Oil and Gas
Others

Automotive holds the largest share in the market

A detailed breakup and analysis of the powder metallurgy market based on the application has also been provided in the report. This includes automotive, aerospace, electrical and electronics, oil and gas, and others. According to the report, automotive accounted for the largest market share.

Powder metallurgy is extensively used in the production of various engine components in the automotive industry due to its ability to create complex shapes and maintain tight tolerances. Parts such as connecting rods, crankshafts, camshaft sprockets, oil pump gears, and pulleys are commonly manufactured using PM. These components require high strength, wear resistance, and dimensional accuracy, which can be achieved through PM. Moreover, powder metallurgy is utilized for manufacturing components in automatic and manual transmissions. Gears, synchronizer hubs, shift forks, and planetary carriers are examples of transmission components produced using PM. This offers advantages such as reduced weight, improved efficiency, and cost-effectiveness compared to traditional manufacturing methods. For instance, in February 2024, GKN Powder Metallurgy, a global pioneer in powder metallurgy and creative, sustainable solutions for a wide range of automotive and industrial applications, received the EcoVadis Platinum Rating for exceptional environmental performance.

Breakup by Region:

North America
United States
Canada
Asia-Pacific
China
Japan
India
South Korea
Australia
Indonesia

Others
Europe
Germany
France
United Kingdom
Italy
Spain
Russia
Others
Latin America
Brazil
Mexico
Others
Middle East and Africa

Asia-Pacific exhibits a clear dominance in the market

The report has also provided a comprehensive analysis of all the major regional markets, which include North America (the United States and Canada); Asia Pacific (China, Japan, India, South Korea, Australia, Indonesia, and others); Europe (Germany, France, the United Kingdom, Italy, Spain, Russia, and others); Latin America (Brazil, Mexico, and others); and the Middle East and Africa. According to the report, Asia Pacific was the largest market for powder metallurgy.

The automotive sector in Asia Pacific is one of the largest consumers of PM parts. With increasing vehicle production and demand for lightweight, high-performance components, powder metallurgy is extensively used for producing engine parts, chassis, and brake system parts. The rapid growth of the automotive industry in countries like China, India, Japan, and South Korea is a major driver for the powder metallurgy market in the region. Moreover, the ongoing industrialization and urbanization in Asia Pacific countries are driving the demand for PM components in various industries such as aerospace, consumer goods, industrial machinery, electronics, etc. PM parts find applications in a wide range of sectors, including power tools, household appliances, medical devices, and construction equipment, contributing to market growth. For instance, in February 2024, SAP Parts, Maharashtra, installed a new metal powder press at its sintering plant to boost powder metallurgy production.

Competitive Landscape:

The report has also provided a comprehensive analysis of the competitive landscape in

the global powder metallurgy market. Competitive analysis such as market structure, market share by key players, player positioning, top winning strategies, competitive dashboard, and company evaluation quadrant has been covered in the report. Also, detailed profiles of all major companies have been provided. Some of the companies covered include:

BASF SE
Carpenter Corporation
Catalus Corporation
Comtec Mfg.Inc.
Fine Sinter Co. Ltd.
Horizon Technology Inc.
Melrose Industries PLC
Perry Tool & Research Inc.
Phoenix Sintered Metals LLC
Precision Sintered Parts LLC
Sandvik AB
Sumitomo Electric Industries Ltd.

(Please note that this is only a partial list of the key players, and the complete list is provided in the report.)

Powder Metallurgy Market Recent Developments:

May 2024: Uzbekistan's President Shavkat Mirziyoyev announced its plans to construct rare earth projects totaling US\$ 500 Million. During a conference, the President suggested that the manufacturing of items in the country's new Powder Metallurgy industry might generate US\$ 300 Million per year.

May 2024: Swiss Steel Group, headquartered in Lucerne, Switzerland, launched a line of gas-atomized metal powders designed for the additive manufacturing sector.

April 2024: Linde Advanced Material Technologies Inc. partnered with the National Aeronautics and Space Administration (NASA) to sell GRX-810 alloy metal powder.

February 2024: SAP Parts, Maharashtra, installed a new metal powder press at its sintering plant to boost powder metallurgy production.

Key Questions Answered in This Report

1. What was the size of the global powder metallurgy market in 2023?
2. What is the expected growth rate of the global powder metallurgy market during 2024-2032?

3. What are the key factors driving the global powder metallurgy market?
4. What has been the impact of COVID-19 on the global powder metallurgy market?
5. What is the breakup of the global powder metallurgy market based on the type?
6. What is the breakup of the global powder metallurgy market based on the material?
7. What is the breakup of the global powder metallurgy market based on the manufacturing process?
8. What is the breakup of the global powder metallurgy market based on the application?
9. What are the key regions in the global powder metallurgy market?
10. Who are the key players/companies in the global powder metallurgy market?

Contents

1 PREFACE

2 SCOPE AND METHODOLOGY

- 2.1 Objectives of the Study
- 2.2 Stakeholders
- 2.3 Data Sources
 - 2.3.1 Primary Sources
 - 2.3.2 Secondary Sources
- 2.4 Market Estimation
 - 2.4.1 Bottom-Up Approach
 - 2.4.2 Top-Down Approach
- 2.5 Forecasting Methodology

3 EXECUTIVE SUMMARY

4 INTRODUCTION

- 4.1 Overview
- 4.2 Key Industry Trends

5 GLOBAL POWDER METALLURGY MARKET

- 5.1 Market Overview
- 5.2 Market Performance
- 5.3 Impact of COVID-19
- 5.4 Market Forecast

6 MARKET BREAKUP BY TYPE

- 6.1 Ferrous
 - 6.1.1 Market Trends
 - 6.1.2 Market Forecast
- 6.2 Non-Ferrous
 - 6.2.1 Market Trends
 - 6.2.2 Market Forecast

7 MARKET BREAKUP BY MATERIAL

7.1 Titanium

7.1.1 Market Trends

7.1.2 Market Forecast

7.2 Steel

7.2.1 Market Trends

7.2.2 Market Forecast

7.3 Nickel

7.3.1 Market Trends

7.3.2 Market Forecast

7.4 Aluminum

7.4.1 Market Trends

7.4.2 Market Forecast

7.5 Others

7.5.1 Market Trends

7.5.2 Market Forecast

8 MARKET BREAKUP BY MANUFACTURING PROCESS

8.1 Additive Manufacturing

8.1.1 Market Trends

8.1.2 Market Forecast

8.2 Powder Bed

8.2.1 Market Trends

8.2.2 Market Forecast

8.3 Blown Powder

8.3.1 Market Trends

8.3.2 Market Forecast

8.4 Metal Injection Molding

8.4.1 Market Trends

8.4.2 Market Forecast

8.5 Powder Metal Hot Isostatic Pressing

8.5.1 Market Trends

8.5.2 Market Forecast

8.6 Others

8.6.1 Market Trends

8.6.2 Market Forecast

9 MARKET BREAKUP BY APPLICATION

9.1 Automotive

9.1.1 Market Trends

9.1.2 Market Forecast

9.2 Aerospace

9.2.1 Market Trends

9.2.2 Market Forecast

9.3 Electrical and Electronics

9.3.1 Market Trends

9.3.2 Market Forecast

9.4 Oil and Gas

9.4.1 Market Trends

9.4.2 Market Forecast

9.5 Others

9.5.1 Market Trends

9.5.2 Market Forecast

10 MARKET BREAKUP BY REGION

10.1 North America

10.1.1 United States

10.1.1.1 Market Trends

10.1.1.2 Market Forecast

10.1.2 Canada

10.1.2.1 Market Trends

10.1.2.2 Market Forecast

10.2 Asia-Pacific

10.2.1 China

10.2.1.1 Market Trends

10.2.1.2 Market Forecast

10.2.2 Japan

10.2.2.1 Market Trends

10.2.2.2 Market Forecast

10.2.3 India

10.2.3.1 Market Trends

10.2.3.2 Market Forecast

10.2.4 South Korea

10.2.4.1 Market Trends

- 10.2.4.2 Market Forecast
- 10.2.5 Australia
 - 10.2.5.1 Market Trends
 - 10.2.5.2 Market Forecast
- 10.2.6 Indonesia
 - 10.2.6.1 Market Trends
 - 10.2.6.2 Market Forecast
- 10.2.7 Others
 - 10.2.7.1 Market Trends
 - 10.2.7.2 Market Forecast
- 10.3 Europe
 - 10.3.1 Germany
 - 10.3.1.1 Market Trends
 - 10.3.1.2 Market Forecast
 - 10.3.2 France
 - 10.3.2.1 Market Trends
 - 10.3.2.2 Market Forecast
 - 10.3.3 United Kingdom
 - 10.3.3.1 Market Trends
 - 10.3.3.2 Market Forecast
 - 10.3.4 Italy
 - 10.3.4.1 Market Trends
 - 10.3.4.2 Market Forecast
 - 10.3.5 Spain
 - 10.3.5.1 Market Trends
 - 10.3.5.2 Market Forecast
 - 10.3.6 Russia
 - 10.3.6.1 Market Trends
 - 10.3.6.2 Market Forecast
 - 10.3.7 Others
 - 10.3.7.1 Market Trends
 - 10.3.7.2 Market Forecast
- 10.4 Latin America
 - 10.4.1 Brazil
 - 10.4.1.1 Market Trends
 - 10.4.1.2 Market Forecast
 - 10.4.2 Mexico
 - 10.4.2.1 Market Trends
 - 10.4.2.2 Market Forecast

10.4.3 Others

10.4.3.1 Market Trends

10.4.3.2 Market Forecast

10.5 Middle East and Africa

10.5.1 Market Trends

10.5.2 Market Breakup by Country

10.5.3 Market Forecast

11 SWOT ANALYSIS

11.1 Overview

11.2 Strengths

11.3 Weaknesses

11.4 Opportunities

11.5 Threats

12 VALUE CHAIN ANALYSIS

13 PORTERS FIVE FORCES ANALYSIS

13.1 Overview

13.2 Bargaining Power of Buyers

13.3 Bargaining Power of Suppliers

13.4 Degree of Competition

13.5 Threat of New Entrants

13.6 Threat of Substitutes

14 PRICE ANALYSIS

15 COMPETITIVE LANDSCAPE

15.1 Market Structure

15.2 Key Players

15.3 Profiles of Key Players

15.3.1 BASF SE

15.3.1.1 Company Overview

15.3.1.2 Product Portfolio

15.3.1.3 Financials

15.3.1.4 SWOT Analysis

- 15.3.2 Carpenter Corporation
 - 15.3.2.1 Company Overview
 - 15.3.2.2 Product Portfolio
 - 15.3.2.3 Financials
 - 15.3.2.4 SWOT Analysis
- 15.3.3 Catalus Corporation
 - 15.3.3.1 Company Overview
 - 15.3.3.2 Product Portfolio
- 15.3.4 Comtec Mfg.Inc.
 - 15.3.4.1 Company Overview
 - 15.3.4.2 Product Portfolio
- 15.3.5 Fine Sinter Co. Ltd.
 - 15.3.5.1 Company Overview
 - 15.3.5.2 Product Portfolio
 - 15.3.5.3 Financials
- 15.3.6 Horizon Technology Inc.
 - 15.3.6.1 Company Overview
 - 15.3.6.2 Product Portfolio
- 15.3.7 Melrose Industries PLC
 - 15.3.7.1 Company Overview
 - 15.3.7.2 Product Portfolio
 - 15.3.7.3 Financials
- 15.3.8 Perry Tool & Research Inc.
 - 15.3.8.1 Company Overview
 - 15.3.8.2 Product Portfolio
- 15.3.9 Phoenix Sintered Metals LLC
 - 15.3.9.1 Company Overview
 - 15.3.9.2 Product Portfolio
- 15.3.10 Precision Sintered Parts LLC
 - 15.3.10.1 Company Overview
 - 15.3.10.2 Product Portfolio
- 15.3.11 Sandvik AB
 - 15.3.11.1 Company Overview
 - 15.3.11.2 Product Portfolio
 - 15.3.11.3 Financials
 - 15.3.11.4 SWOT Analysis
- 15.3.12 Sumitomo Electric Industries Ltd.
 - 15.3.12.1 Company Overview
 - 15.3.12.2 Product Portfolio

15.3.12.3 Financials

15.3.12.4 SWOT Analysis

I would like to order

Product name: Powder Metallurgy Market Report by Type (Ferrous, Non-Ferrous), Material (Titanium, Steel, Nickel, Aluminum, and Others), Manufacturing Process (Additive Manufacturing, Powder Bed, Blown Powder, Metal Injection Molding, Powder Metal Hot Isostatic Pressing, and Others), Application (Automotive, Aerospace, Electrical and Electronics, Oil and Gas, and Others), and Region 2024-2032

Product link: <https://marketpublishers.com/r/P4C808033039EN.html>

Price: US\$ 3,899.00 (Single User License / Electronic Delivery)

If you want to order Corporate License or Hard Copy, please, contact our Customer Service:

info@marketpublishers.com

Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page <https://marketpublishers.com/r/P4C808033039EN.html>

To pay by Wire Transfer, please, fill in your contact details in the form below:

First name:
Last name:
Email:
Company:
Address:
City:
Zip code:
Country:
Tel:
Fax:
Your message:

****All fields are required**

Customer signature _____

Please, note that by ordering from marketpublishers.com you are agreeing to our Terms & Conditions at <https://marketpublishers.com/docs/terms.html>

To place an order via fax simply print this form, fill in the information below
and fax the completed form to +44 20 7900 3970