Global Thermal Spray Materials for Semiconductor Market 2026 by Manufacturers, Regions, Type and Application, Forecast to 2032

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Abstracts

According to our (Global Info Research) latest study, the global Thermal Spray Materials for Semiconductor market size was valued at US$ 50.42 million in 2025 and is forecast to a readjusted size of US$ 82.50 million by 2032 with a CAGR of 7.7% during review period.

In this report, Thermal Spray Materials for Semiconductor refers to high-purity ceramic coating powders used to form plasma-resistant / halogen-corrosion-resistant protective layers on semiconductor manufacturing equipment parts (i.e., the powder material itself, not the coating service). The analytical focus is on powder purity and powder engineering—trace-metal control, particle-size distribution, granulation/sphericity, and phase chemistry—because these factors directly affect coating density/porosity, erosion behavior, and ultimately particle/metal contamination risk in plasma environments; industry powder datasheets explicitly link semiconductor chamber applications to high purity, low particulate generation, and APS deposition.

The mainstream product families include Y?O? (yttria) spray powders; yttrium fluoride / yttrium oxyfluoride systems (YF?, YOF and related compositions); phase-engineered Y–Al–O systems where phases are controlled among YAG/YAP/YAM; and selected Al?O? powders (often used as a baseline or for less aggressive zones, and sometimes as engineered blends in practice). Representative suppliers publicly list these chemistries as thermal-spray powders and emphasize spray-grade powder forms such as granulated / spherical powders; for example, Shin-Etsu Rare Earth lists Y?O?, YF?, YOF, YAG, Al?O? thermal-spray powders, while Mitsui Kinzoku’s Rare Material Division (formerly Nippon Yttrium) describes spherical granulated powders suitable for thermal spraying (e.g., 30–60 ?m). MiCo also states it produces granulated coating

powders using granulation technology.

Demand is concentrated in plasma-facing parts for etch and deposition equipment—chamber liners/walls, shields, focus rings, showerheads, and related internals—where coatings are adopted to extend part life and suppress particle generation, stabilizing uptime and yield. From a process standpoint, Atmospheric Plasma Spraying (APS) is widely referenced for applying yttria coatings used on semiconductor chamber walls/tooling, with requirements centered on high purity, high density, and minimal particulates. Meanwhile, public literature directly compares Al?O? / Y?O? / YF? / YOF under fluorocarbon plasma and evaluates YOF's potential for chamber inner-wall protection, aligning with the industry push toward yttrium-based fluoride/oxyfluoride chemistries in harsher fluorine regimes.

The value chain can be summarized as rare-earth refining (yttrium) and alumina raw materials > high-purity oxide/fluoride/oxyfluoride synthesis > spray-powder conditioning (granulation/sphericity control, classification, QC) > coating service / coated-part manufacturing > equipment OEMs and semiconductor fabs. Suppliers explicitly highlight capabilities such as high purification, composition/particle-size control, and granulation that are critical for semiconductor contamination control. Market development is driven by (i) more aggressive plasma chemistries (fluorine/chlorine exposure) and higher process intensity that accelerate erosion/corrosion, and (ii) tighter particle/metal contamination budgets that raise the value of high-purity, low-defect coatings; chamber-parts providers also emphasize fab priorities such as reducing downtime and extending part life. Key trends include: chemistry migration from "yttria-only" toward YOF/YF? and engineered Y–Al–O phases for fluorine-rich plasmas; powder upgrading (spherical/granulated morphology, tighter PSD, higher purity) to improve deposition consistency; and coating densification targets to reduce porosity-driven erosion and particle shedding.

This report is a detailed and comprehensive analysis for global Thermal Spray Materials for Semiconductor market. Both quantitative and qualitative analyses are presented by manufacturers, by region & country, by Material Type and by Application. As the market is constantly changing, this report explores the competition, supply and demand trends, as well as key factors that contribute to its changing demands across many markets. Company profiles and product examples of selected competitors, along with market share estimates of some of the selected leaders for the year 2025, are provided.

Key Features:

Global Thermal Spray Materials for Semiconductor market size and forecasts, in consumption value ($ Million), sales quantity (Kg), and average selling prices (US$/Kg), 2021-2032

Global Thermal Spray Materials for Semiconductor market size and forecasts by region and country, in consumption value ($ Million), sales quantity (Kg), and average selling prices (US$/Kg), 2021-2032

Global Thermal Spray Materials for Semiconductor market size and forecasts, by Material Type and by Application, in consumption value ($ Million), sales quantity (Kg), and average selling prices (US$/Kg), 2021-2032

Global Thermal Spray Materials for Semiconductor market shares of main players, shipments in revenue ($ Million), sales quantity (Kg), and ASP (US$/Kg), 2021-2026

The Primary Objectives in This Report Are:

To determine the size of the total market opportunity of global and key countries
To assess the growth potential for Thermal Spray Materials for Semiconductor
To forecast future growth in each product and end-use market
To assess competitive factors affecting the marketplace

This report profiles key players in the global Thermal Spray Materials for Semiconductor market based on the following parameters - company overview, sales quantity, revenue, price, gross margin, product portfolio, geographical presence, and key developments. Key companies covered as a part of this study include Shin-Etsu Rare Earth, Fujimi incorporated, Nippon Yttrium Company (NYC), MiCo, Entegris, SEWON HARDFACING, Saint-Gobain, Harbin Peize Materials Technology Co,Ltd, etc.

This report also provides key insights about market drivers, restraints, opportunities, new product launches or approvals.

Market Segmentation

Thermal Spray Materials for Semiconductor market is split by Material Type and by Application. For the period 2021-2032, the growth among segments provides accurate calculations and forecasts for consumption value by Material Type, and by Application in terms of volume and value. This analysis can help you expand your business by targeting qualified niche markets.

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Market segment by Material Type

- Yttrium Oxide (Y_2O_3) Coating Power
- Yttrium Fluoride (YF_3) Coating Power
- Yttrium oxyfluoride (YOF) Coating Power
- Yttrium Aluminum Garnet (YAG) Coating Power
- YAP and YAM Coating Power
- Al_2O_3 Coating Power
- Others

Market segment by Equipment Type

- Etching Tools
- Thin Film Equipment
- Diffusion Equipment
- Others

Market segment by Process Node

- High End/Advanced 110nm

Market segment by Application

- APS (Atmosphere Plasma Spray)
- SPS (Suspension Plasma Spray)

PVD and AD Coating

Major players covered

Shin-Etsu Rare Earth

Fujimi incorporated

Nippon Yttrium Company (NYC)

MiCo

Entegris

SEWON HARDFACING

Saint-Gobain

Harbin Peize Materials Technology Co,Ltd

Market segment by region, regional analysis covers
North America (United States, Canada, and Mexico)
Europe (Germany, France, United Kingdom, Russia, Italy, and Rest of Europe)
Asia-Pacific (China, Japan, Korea, India, Southeast Asia, and Australia)
South America (Brazil, Argentina, Colombia, and Rest of South America)
Middle East & Africa (Saudi Arabia, UAE, Egypt, South Africa, and Rest of Middle East & Africa)

The content of the study subjects, includes a total of 15 chapters:

Chapter 1, to describe Thermal Spray Materials for Semiconductor product scope, market overview, market estimation caveats and base year.

Chapter 2, to profile the top manufacturers of Thermal Spray Materials for Semiconductor, with price, sales quantity, revenue, and global market share of Thermal Spray Materials for Semiconductor from 2021 to 2026.

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Chapter 3, the Thermal Spray Materials for Semiconductor competitive situation, sales quantity, revenue, and global market share of top manufacturers are analyzed emphatically by landscape contrast.

Chapter 4, the Thermal Spray Materials for Semiconductor breakdown data are shown at the regional level, to show the sales quantity, consumption value, and growth by regions, from 2021 to 2032.

Chapter 5 and 6, to segment the sales by Material Type and by Application, with sales market share and growth rate by Material Type, by Application, from 2021 to 2032.

Chapter 7, 8, 9, 10 and 11, to break the sales data at the country level, with sales quantity, consumption value, and market share for key countries in the world, from 2021 to 2026.and Thermal Spray Materials for Semiconductor market forecast, by regions, by Material Type, and by Application, with sales and revenue, from 2027 to 2032.

Chapter 12, market dynamics, drivers, restraints, trends, and Porters Five Forces analysis.

Chapter 13, the key raw materials and key suppliers, and industry chain of Thermal Spray Materials for Semiconductor.

Chapter 14 and 15, to describe Thermal Spray Materials for Semiconductor sales channel, distributors, customers, research findings and conclusion.

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