

Global Thermal Spray Coatings Market 2023

<https://marketpublishers.com/r/G79349F2984EEN.html>

Date: November 2023

Pages: 88

Price: US\$ 2,850.00 (Single User License)

ID: G79349F2984EEN

Abstracts

Description

Thermal spraying is an industrial process where feedstock materials are heated to a semi-molten or molten state and propelled at high velocity onto a prepared substrate surface. This causes the sprayed particles to flatten, forming evenly distributed thin coatings as they solidify rapidly upon impact.

Thermal spray coatings impart functional properties enhancing substrates' durability across diverse manufacturing sectors. Formulations exhibit corrosion and wear protection, temperature resistant insulation barriers, or restoration of original material specifications. Applications include protection of engine parts, aerospace components, industrial processing equipment and electronic hardware vulnerable to environmental degradation.

Recent projections anticipate the global thermal spray coatings market achieving an incremental value of approximately \$3.1 billion through 2029. This represents a compound annual growth rate of nearly 4.6% over the forecast period, signifying meaningful opportunities for industry stakeholders.

Demand expansion relates directly to thermal spray incorporation among strategic end-use verticals vital to economic activity worldwide. The automotive manufacturing industry extensively relies on these protective films to extend service lifetimes of engine components operating under extreme conditions.

Aerospace similarly hinges on thermal spray assurances of avionic, turbine and airframe structural integrity essential for safety-critical performance. Gas turbines powering locomotion, marine vessels and rotating equipment equally gain from reinforced thermal management and corrosion resistance characteristics imparted.

Market Segmentation

This comprehensive industry report provides market estimates and forecasts, accompanied by a detailed examination of the process, material, end user, and region aspects. It delivers a quantitative analysis of the market, empowering stakeholders to leverage existing market opportunities. Furthermore, the report identifies key segments for potential opportunities and strategies, drawing insights from market trends and the approaches of leading competitors.

- Process: combustion flame, electric energy
- Material: abrasives, carbides, ceramics, intermetallics, metals, polymers, others
- End user: aerospace, automotive, electrical and electronics, energy and power, industrial gas turbines, medical, oil and gas, printing and paper, steel making, others
- Region: Asia-Pacific, Europe, North America, Middle East and Africa (MEA), South America

The thermal spray coatings market can be analyzed based on process type, with combustion flame representing the dominant segment in 2022. Accounting for approximately two-thirds of total industry revenues, flame-based technologies remain the workhorse processes due to cost efficiencies required across various production scale operations worldwide.

Flame spraying entails mixing fuel and oxidizer gases to generate a combustion flame that melts the feedstock materials, suitable for less demanding applications requiring sturdy though less refined coatings. Variations employ detonation methods or high-velocity oxy-fuel (HVOF) combinations.

HVOF techniques are gaining rapid traction as coating specifications intensify. HVOF leverages compressed oxygen and fuel gases imparting exceptionally dense coatings exhibiting lower porosity, higher bond strength and corrosion resistance than conventional flame techniques. Such attributes satisfy stringent quality needs of aerospace applications for jet engines and airframes.

Adoption is similarly growing in automotive, power generation and general industrial machinery manufacturing reliant on prolonged component lifespan under arduous

conditions. HVOF applicability extends to situations requiring wear-resistant coatings or restoration of critically degraded metal surfaces back to specifications for reuse.

Regional analysis of the thermal spray coatings industry highlights Asia Pacific as a dominant market force, led prominently by Chinese manufacturing ascendancy. China shoulders much of the region's projected leadership through the forecast horizon owing to substantial thermal spray consumption across numerous end-use spheres.

Rising automotive, oil/gas and medical sector presence in the massive Chinese economy propels material requirements. Automakers scale electric vehicle and combustion engine parts fabrication demanding protective thermal barrier applications. Simultaneously, expanding domestic energy infrastructure and aging populations necessitate advanced metallic coatings to reinforce asset integrity.

Elsewhere, the Asia Pacific aerospace segment embraces innovations to gain competitiveness in global markets. Thermal spray permeates developing industries manufacturing spacecraft, rockets and military hardware tolerant of extreme operating conditions. Opportunities emerge restoring service-expired components to OEM specifications for reuse through stringent HVOF reclamation coatings.

Supportive policy environments encourage sustainability initiatives reducing environmental footprints. Thermal technologies provide eco-friendly solutions refurbishing metal substrates rather than disposal. Regional governments incentivize advanced material solution R&D centered around energy conservation and urbanization challenges confronting developing megacities.

Major Companies and Competitive Landscape

The report also provides a detailed analysis of several leading thermal spray coatings market vendors that include APS Materials, Inc., ASB Industries, Inc., Bodycote plc, F.W. Gartner Thermal Spraying, Ltd. (Curtiss-Wright Corporation), Fisher-Barton Group, Inc. (Thermal Spray Technologies, Inc.), Flame Spray Coating Company, H.C. Starck GmbH, Lincotek Group S.p.A., OC Oerlikon Corporation AG, Praxair Surface Technologies, Inc. (Linde plc), Thermion Inc., Tocalo Co. Ltd., among others. In this report, key players and their strategies are thoroughly analyzed to understand the competitive outlook of the market.

Scope of the Report

To analyze and forecast the market size of the global thermal spray coatings market.

To classify and forecast the global thermal spray coatings market based on process, material, end user, region.

To identify drivers and challenges for the global thermal spray coatings market.

To examine competitive developments such as mergers & acquisitions, agreements, collaborations and partnerships, etc., in the global thermal spray coatings market.

To identify and analyze the profile of leading players operating in the global thermal spray coatings market.

Why Choose This Report

Gain a reliable outlook of the global thermal spray coatings market forecasts from 2023 to 2029 across scenarios.

Identify growth segments for investment.

Stay ahead of competitors through company profiles and market data.

The market estimate for ease of analysis across scenarios in Excel format.

Strategy consulting and research support for three months.

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