

Nanomaterials - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2025 - 2030)

Market Report | 2025-09-01 | 120 pages | Mordor Intelligence

AVAILABLE LICENSES:

- Single User License \$4750.00
- Team License (1-7 Users) \$5250.00
- Site License \$6500.00
- Corporate License \$8750.00

Report description:

Nanomaterials Market Analysis

The Nanomaterials Market size is estimated at USD 47.63 billion in 2025, and is expected to reach USD 117.83 billion by 2030, at a CAGR of 19.86% during the forecast period (2025-2030). The sharp upswing mirrors a surge of commercial adoption across semiconductor polishing, mRNA-based therapeutics, flexible displays, and high-efficiency water treatment. Continuous node migration below 3 nm, record vaccine research and development budgets, and desalination build-outs in water-stressed regions are giving the nanomaterials market fresh momentum. Production scale-ups in carbon nanotubes and graphene derivatives are intensifying cost-down learning curves, while public-sector nanotechnology programs underpin a steady pipeline of platform innovations. Even so, the market must absorb volatility in precious-metal feedstocks and contain the high capital charges of atomic-layer-deposition lines that smaller entrants need to compete.

Global Nanomaterials Market Trends and Insights

Semiconductor-grade Nano-slurries Fuelled by New Asian Fabs

The rise of semiconductor fabrication facilities in Asia is driving unprecedented demand for high-purity nano-slurries essential for chemical-mechanical planarization (CMP) processes. These materials enable ultra-precise polishing for advanced node semiconductor manufacturing at 3nm and below. A single leading-edge fab can consume over 300 tons of nano-slurries annually, with demand increasing as chip architectures grow more complex. Additionally, TSMC's USD 40 billion Arizona fab complex is

Scotts International. EU Vat number: PL 6772247784

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

www.scott-international.com

creating new demand centers beyond Asia.

Lipid Nanoparticles Demand from mRNA Capacity Build-outs

Fueled by the surge in mRNA vaccine and therapeutic applications, the lipid nanoparticle (LNP) manufacturing market is witnessing explosive growth. While North America holds the lead in the LNP market, European production capacity is seeing significant investments, steadily closing the gap. Beyond their traditional use in vaccines, LNPs are now making inroads into gene therapies and cancer treatments. Recent innovations are harnessing AI to fine-tune LNP formulations, aiming to boost efficacy and minimize side effects.

Higher Costs of Technology

Batch yields for carbon nanotubes and semiconductor-grade metal oxides remain sensitive to reactor uptime and energy intensity. Even at multi-kilaton annual capacity, unit production costs are five to ten times higher than conventional bulk fillers, constraining uptake in price-elastic applications such as commodity plastics.

Other drivers and restraints analyzed in the detailed report include:

Gold and Silver Nano-inks in Flexible OLED Lines / Increasing Usage of Nanomaterials in Water Treatment / Raw Material Price Fluctuation /

For complete list of drivers and restraints, kindly check the Table Of Contents.

Segment Analysis

Nanoparticles held 69% of nanomaterials market share in 2024, reflecting their well-established role in catalysts, antimicrobial coatings, and conductive pastes. The segment benefits from mature spray-dry and flame-pyrolysis routes that cut cost per kilogram in half over the past decade. Meanwhile, the nanotubes sub-segment is advancing at a 21.15% CAGR as output shifts from gram-scale CVD to continuous floating-catalyst reactors.

Wider nanotube deployment is supported by patent clusters covering twisted CNT yarns that triple tensile strength and Fe-doped structures that lift hydrogen-storage capacity beyond 7 wt%. Nanoclays and nanowires record mid-teen growth, with demand tied to flame-retardant polymer blends and high-frequency RF devices, respectively.

Non-polymer organic grades, largely carbon black and graphitic forms, posted 55% revenue share in 2024 by supplying tire compounds, EMI-shielding housings, and conductive masterbatches. Nano-porous carbon blacks now deliver surface areas above 1,500 m² g⁻¹, expanding adsorption applications in energy storage.

Polymeric nanomaterials, however, track the fastest 19.99% CAGR. Advances in spray-freeze-drying techniques yield lipid-polymer hybrids that self-assemble into biodegradable carriers, giving drug-delivery researchers tunable release kinetics and low immunogenicity. In coatings, nano-siloxane grafting imparts self-healing performance that restores gloss after abrasion within minutes at room temperature.

The Nanomaterials Market Report Segments the Industry by Product Type (Nanoparticles, Nanofibers, Nanotubes, and More), Structure Type (Non-Polymer Organic Nanomaterials and Polymeric Nanomaterials), Material Category (Carbon-Based, Metal-Based, and More), End-User Industry (Construction, Electronics, Energy, and More), and Geography (Asia-Pacific, North America, Europe, South America, and Middle East and Africa).

Scotts International. EU Vat number: PL 6772247784

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

www.scotts-international.com

Geography Analysis

North America held 38.5% nanomaterials market share in 2024, anchored by federal research and development outlays exceeding USD 38 billion and a record USD 2.2 billion request for 2025. The region's semiconductor resurgence and leadership in mRNA therapeutics create a premium customer base willing to pay for ultra-high-purity grades.

Asia Pacific is expanding at a 22.26% CAGR, a pace that could lift its revenue past North America before 2030. China's 14th Five-Year Plan lists nanotechnology as a core pillar, driving double-digit annual increases in public funding and accelerating first-time fab builds below 2 nm. South Korea and Japan sustain their leadership in OLED and battery supply chains, while India channels nanomaterials into low-cost water purification projects that serve rural populations.

Europe maintains a distinct profile built on sustainability and regulatory rigor. Horizon Europe grants target safer-by-design nanomaterials, prompting exporters to certify life-cycle impacts early in development. The Middle East scales desalination capacity incorporating nano-porous membranes, with Saudi-Arabia seeking a 94% greenhouse-gas cut relative to thermal methods. Brazil spearheads South American adoption through crop-specific nano-fertilisers that raise nutrient-use efficiency, supported by its standing as the second-largest biotech-crop producer worldwide.

List of Companies Covered in this Report:

ACS Material / American Elements / Arkema / Ascensus / BASF SE / Cabot Corporation / Chasm Advanced Materials, Inc. / Evonik Industries AG / Jiangsu Cnano Technology Co., Ltd / LG Chem / Merck KGaA / Nano-C / Nanocyl SA / NAWAH / OCSiAl / QuantumSphere, Inc. / Raymor Industries Inc. / Resonac Holdings Corporation / Solesence / US Research Nanomaterials, Inc. / Zyvex Technologies /

Additional Benefits:

The market estimate (ME) sheet in Excel format /
3 months of analyst support /

Table of Contents:

- 1 Introduction
 - 1.1 Study Assumptions and Market Definition
 - 1.2 Scope of the Study
- 2 Research Methodology
- 3 Executive Summary
- 4 Market Landscape
 - 4.1 Market Overview
 - 4.2 Market Drivers
 - 4.2.1 Semiconductor-grade Nano-slurries Fuelled by New Asian Fabs
 - 4.2.2 Lipid Nanoparticles Demand from North-America and Europe mRNA Vaccine Capacity
 - 4.2.3 Gold and Silver Nano-inks in Flexible OLED Lines
 - 4.2.4 Increasing Usage of Nanomaterials in Water Treatment Applications
 - 4.2.5 GCC Desalination Build-out Driving Nano-porous Membranes

Scotts International. EU Vat number: PL 6772247784

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

www.scotts-international.com

- 4.3 Market Restraints
 - 4.3.1 Higher Costs of Technology
 - 4.3.2 Raw Material Price Fluctuation
 - 4.3.3 High-Capex Atomic-Layer-Deposition Reactors Limiting SME Scale-up
- 4.4 Value Chain Analysis
- 4.5 Porter's Five Forces
 - 4.5.1 Bargaining Power of Suppliers
 - 4.5.2 Bargaining Power of Buyers
 - 4.5.3 Threat of New Entrants
 - 4.5.4 Threat of Substitutes
 - 4.5.5 Competitive Rivalry

5 Market Size and Growth Forecasts (Value)

- 5.1 By Product Type
 - 5.1.1 Nanoparticles
 - 5.1.1.1 Nanometals
 - 5.1.1.1.1 Gold
 - 5.1.1.1.2 Silver
 - 5.1.1.1.3 Platinum
 - 5.1.1.1.4 Titanium
 - 5.1.1.1.5 Aluminium
 - 5.1.1.2 Non-metal Oxides
 - 5.1.1.2.1 Alumina
 - 5.1.1.2.2 Iron Oxide
 - 5.1.1.2.3 Titanium Oxide
 - 5.1.1.2.4 Silica
 - 5.1.1.2.5 Zinc Oxide
 - 5.1.1.3 Complex Oxides
 - 5.1.1.3.1 Calcium Phosphate
 - 5.1.1.3.2 Rare-earth Metal Oxides
 - 5.1.1.3.3 Lithium Titanate
 - 5.1.1.3.4 Silica Hydride
 - 5.1.2 Nanofibers
 - 5.1.3 Nanotubes
 - 5.1.4 Nanoclays
 - 5.1.5 Nanowires
- 5.2 By Structure Type
 - 5.2.1 Non-polymer Organic Nanomaterials
 - 5.2.1.1 Carbon Black
 - 5.2.1.2 Carbon Nanotubes
 - 5.2.1.3 Aptamers
 - 5.2.1.4 Small-Molecule OLED
 - 5.2.1.5 Activated Carbon
 - 5.2.1.6 Carbon Nanotubes Composites
 - 5.2.2 Polymeric Nanomaterials
 - 5.2.2.1 Coatings and Adhesives
 - 5.2.2.2 Transfection Reagents

Scotts International. EU Vat number: PL 6772247784

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

www.scotts-international.com

- 5.2.2.3 Diagnostic Reagents
- 5.2.2.4 Drug-Delivery Vehicles
- 5.2.2.5 Fabric Treatments
- 5.2.2.6 Optical Coatings
- 5.2.2.7 Nano-porous Filtration Membranes
- 5.2.2.8 Dielectric Films
- 5.2.2.9 OLED Films
- 5.3 By Material Category
 - 5.3.1 Carbon-based
 - 5.3.2 Metal-based
 - 5.3.3 Metal-oxide and Ceramic-based
 - 5.3.4 Polymeric and Lipid-based
- 5.4 End-user Industry
 - 5.4.1 Construction
 - 5.4.2 Electronics
 - 5.4.3 Energy
 - 5.4.4 Healthcare
 - 5.4.5 Personal Care
 - 5.4.6 Rubber
 - 5.4.7 Other End-user Industries
- 5.5 Geography
 - 5.5.1 Asia-Pacific
 - 5.5.1.1 China
 - 5.5.1.2 India
 - 5.5.1.3 Japan
 - 5.5.1.4 South Korea
 - 5.5.1.5 ASEAN
 - 5.5.1.6 Rest of Asia-Pacific
 - 5.5.2 North America
 - 5.5.2.1 United States
 - 5.5.2.2 Canada
 - 5.5.2.3 Mexico
 - 5.5.3 Europe
 - 5.5.3.1 Germany
 - 5.5.3.2 United Kingdom
 - 5.5.3.3 Italy
 - 5.5.3.4 France
 - 5.5.3.5 Rest of Europe
 - 5.5.4 South America
 - 5.5.4.1 Brazil
 - 5.5.4.2 Argentina
 - 5.5.4.3 Rest of South America
 - 5.5.5 Middle East and Africa
 - 5.5.5.1 Saudi Arabia
 - 5.5.5.2 South Africa
 - 5.5.5.3 Rest of Middle East and Africa

Scotts International. EU Vat number: PL 6772247784

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

www.scotts-international.com

6 Competitive Landscape

6.1 Market Concentration

6.2 Strategic Moves

6.3 Market Share Analysis

6.4 Company Profiles (includes Global level Overview, Market level overview, Core Segments, Financials, Strategic Information, Market Rank/Share, Products and Services, Recent Developments)

6.4.1 ACS Material

6.4.2 American Elements

6.4.3 Arkema

6.4.4 Ascensus

6.4.5 BASF SE

6.4.6 Cabot Corporation

6.4.7 Chasm Advanced Materials, Inc.

6.4.8 Evonik Industries AG

6.4.9 Jiangsu Cnano Technology Co., Ltd

6.4.10 LG Chem

6.4.11 Merck KGaA

6.4.12 Nano-C

6.4.13 Nanocyl SA

6.4.14 NAWAH

6.4.15 OCSiAl

6.4.16 QuantumSphere, Inc.

6.4.17 Raymor Industries Inc.

6.4.18 Resonac Holdings Corporation

6.4.19 Solesence

6.4.20 US Research Nanomaterials, Inc.

6.4.21 Zyvex Technologies

7 Market Opportunities and Future Outlook

7.1 White-space and Unmet-need Assessment

Scotts International. EU Vat number: PL 6772247784

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

www.scotts-international.com

Nanomaterials - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2025 - 2030)

Market Report | 2025-09-01 | 120 pages | Mordor Intelligence

To place an Order with Scotts International:

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

ORDER FORM:

Select license	License	Price
	Single User License	\$4750.00
	Team License (1-7 Users)	\$5250.00
	Site License	\$6500.00
	Corporate License	\$8750.00
		VAT
		Total

*Please circle the relevant license option. For any questions please contact support@scotts-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="2026-03-01"/>
		Signature	

Scotts International. EU Vat number: PL 6772247784

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

www.scotts-international.com

