

IR-Absorbing Nanocoating Market Opportunity, Growth Drivers, Industry Trend Analysis, and Forecast 2025 - 2034

Market Report | 2025-07-28 | 192 pages | Global Market Insights

AVAILABLE LICENSES:

- Single User \$4850.00
- Multi User \$6050.00
- Enterprise User \$8350.00

Report description:

The Global IR-Absorbing Nanocoating Market was valued at USD 472.3 million in 2024 and is estimated to grow at a CAGR of 8.4% to reach USD 1 billion by 2034. The rise in demand for advanced infrared-absorbing coatings is closely tied to developments in material science, especially innovations that enable real-time tunability of coatings in response to IR radiation. This adaptability is paving the way for next-generation applications across high-performance surfaces. There's growing traction from both government bodies and private sector stakeholders who are funneling investments into sustainable and PFAS-free nanocoating solutions, driven by increasing chemical safety regulations in regions like the European Union and under U.S. Environmental Protection Agency guidance.

These initiatives are accelerating green chemistry breakthroughs in IR-absorbing coatings, enhancing their commercial viability. The rapid pace of research and robust financial support is bringing more prototypes into real-world deployment across critical sectors. Additionally, carbon nanotube-based coatings have maintained their dominance due to their unmatched infrared absorptance and mechanical integrity, with their ability to adhere to curved and composite materials making them ideal for various high-demand use cases.

In terms of applications, the defense and military segment generated USD 168.2 million in 2024. and is forecasted to grow at a CAGR of 7.6% between 2025 and 2034. The rising focus on stealth technologies and thermal concealment systems is a major growth contributor. These coatings are being integrated into systems designed to mask infrared signatures and to shield advanced sensors across a wide range of military-grade platforms. The expected increase in the adoption for future-ready systems ensures this segment will retain its strategic importance over the coming decade.

The carbon nanotube-based coatings segment generated USD 166.8 million in 2024 and is projected to grow at a CAGR of 9.3% during 2025-2034. Their exceptional performance in terms of IR absorbance, structural strength, and resistance to extreme heat solidifies their place in advanced applications. They continue to play a key role in areas requiring stealth capabilities and performance on curved or irregular surfaces. Their scalability and ease of application on composite materials position them as a go-to option across defense and industrial energy domains.

North America IR-Absorbing Nanocoating Market held a 37% share in 2024. This dominance is attributed to early-stage adoption of

Scotts International. EU Vat number: PL 6772247784

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

www.scotts-international.com

nanomaterial technologies and substantial procurement by public-sector entities. The region benefits from a well-established innovation ecosystem that integrates research institutions, commercial developers, and defense agencies. Intellectual property protection frameworks and a mature supply chain allow North America to lead in the rapid deployment of next-generation nanocoating products. The continued commitment to energy-efficient materials and national security advancements ensures that demand will remain strong in both public and private sectors. The U.S. remains at the forefront, leveraging both funding and infrastructure to propel forward-looking innovations in this space.

Major companies contributing to the growth of the Global IR-Absorbing Nanocoating Market include Surmet Corporation, Advenira Enterprises Inc., TripleO Coatings, NEI Corporation, and Nanotech Coatings Inc. These firms are focused on accelerating product innovation and commercial scale-up of advanced coatings. Key players in the IR-absorbing nanocoating market are implementing a combination of innovation-focused strategies, sustainability initiatives, and targeted collaborations to enhance their position. Many companies are developing PFAS-free and eco-friendly formulations to align with regulatory trends and gain a competitive edge. Strategic partnerships with defense contractors and automotive OEMs enable firms to integrate coatings into complex, high-value platforms. Organizations are also expanding their IP portfolios to protect novel IR-responsive technologies and boost licensing opportunities. A strong focus on R&D is helping to develop coatings with dynamic adjustability, higher durability, and improved thermal performance.

□

□

<h2>Comprehensive Market Analysis and Forecast</h2>

- Industry trends, key growth drivers, challenges, future opportunities, and regulatory landscape
- Competitive landscape with Porter's Five Forces and PESTEL analysis
- Market size, segmentation, and regional forecasts
- In-depth company profiles, business strategies, financial insights, and SWOT analysis

Table of Contents:

Report Content

Chapter 1 Methodology

- 1.1 Market scope and definition
- 1.2 Research design
 - 1.2.1 Research approach
 - 1.2.2 Data collection methods
- 1.3 Data mining sources
 - 1.3.1 Global
 - 1.3.2 Regional/Country
- 1.4 Base estimates and calculations
 - 1.4.1 Base year calculation
 - 1.4.2 Key trends for market estimation
- 1.5 Primary research and validation
 - 1.5.1 Primary sources
- 1.6 Forecast model
- 1.7 Research assumptions and limitations

Chapter 2 Executive Summary

- 2.1 Industry 360 synopsis
- 2.2 Key market trends
 - 2.2.1 Regional
 - 2.2.2 Technology

Scotts International. EU Vat number: PL 6772247784

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

www.scotts-international.com

- 2.2.3 Application
- 2.2.4 End use
- 2.3 TAM Analysis, 2025-2034
- 2.4 CXO perspectives: Strategic imperatives
 - 2.4.1 Executive decision points
 - 2.4.2 Critical success factors
- 2.5 Future Outlook and Strategic Recommendations

Chapter 3 Industry Insights

- 3.1 Industry ecosystem analysis
 - 3.1.1 Supplier Landscape
 - 3.1.2 Profit Margin
 - 3.1.3 Value addition at each stage
 - 3.1.4 Factor affecting the value chain
 - 3.1.5 Disruptions
- 3.2 Industry impact forces
 - 3.2.1 Growth drivers
 - 3.2.1.1 Increase in demand for fuel-efficient vessel operations
 - 3.2.1.2 Surge in compliance needs due to IMO regulations
 - 3.2.1.3 Rise in deployment of remote diagnostics and IoT-based solutions
 - 3.2.1.4 Rising maritime trade & vessel fleet expansion
 - 3.2.2 Industry pitfalls and challenges
 - 3.2.2.1 High initial investment cost for MEMS systems
 - 3.2.2.2 Shortage of skilled maritime technicians for system deployment
 - 3.2.3 Market opportunities
- 3.3 Growth potential analysis
- 3.4 Regulatory landscape
 - 3.4.1 North America
 - 3.4.2 Europe
 - 3.4.3 Asia Pacific
 - 3.4.4 Latin America
 - 3.4.5 Middle East & Africa
- 3.5 Porter's analysis
- 3.6 PESTEL analysis
 - 3.6.1 Technology and Innovation landscape
 - 3.6.2 Current technological trends
 - 3.6.3 Emerging technologies
- 3.7 Price trends
 - 3.7.1 By region
 - 3.7.2 By product
- 3.8 Future market trends
- 3.9 Technology and Innovation landscape
 - 3.9.1 Current technological trends
 - 3.9.2 Emerging technologies
- 3.10 Patent Landscape
- 3.11 Trade statistics (HS code) (Note: the trade statistics will be provided for key countries only)
 - 3.11.1 Major importing countries

Scotts International. EU Vat number: PL 6772247784

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

www.scotts-international.com

- 3.11.2 Major exporting countries
- 3.12 Sustainability and Environmental Aspects
 - 3.12.1 Sustainable Practices
 - 3.12.2 Waste Reduction Strategies
 - 3.12.3 Energy Efficiency in Production
 - 3.12.4 Eco-friendly Initiatives
- 3.13 Carbon Footprint Considerations

Chapter 4 Competitive Landscape, 2024

- 4.1 Introduction
- 4.2 Company market share analysis
 - 4.2.1 By region
 - 4.2.1.1 North America
 - 4.2.1.2 Europe
 - 4.2.1.3 Asia Pacific
 - 4.2.1.4 LATAM
 - 4.2.1.5 MEA
- 4.3 Company matrix analysis
- 4.4 Competitive analysis of major market players
- 4.5 Competitive positioning matrix
- 4.6 Key developments
 - 4.6.1 Mergers & acquisitions
 - 4.6.2 Partnerships & collaborations
 - 4.6.3 New Product Launches
 - 4.6.4 Expansion Plans

Chapter 5 Market Estimates and Forecast, By Technology, 2021 - 2034 (USD Million, Units)

- 5.1 Key trends
- 5.2 Carbon nanotube-based coatings
 - 5.2.1 Single-wall carbon nanotube (SWCNT) coatings
 - 5.2.2 Multi-wall carbon nanotube (MWCNT) coatings
 - 5.2.3 Carbon nanotube composite coatings
- 5.3 Graphene-based nanocoatings
 - 5.3.1 Graphene oxide coatings
 - 5.3.2 Reduced graphene oxide coatings
 - 5.3.3 Graphene nanoplatelets coatings
- 5.4 Metal oxide nanocoatings
 - 5.4.1 Titanium dioxide (TiO₂) based
 - 5.4.2 Zinc oxide based
 - 5.4.3 Iron oxide based
 - 5.4.4 Other metal oxides
- 5.5 Polymer-based nanocoatings
 - 5.5.1 Conducting polymer coatings
 - 5.5.2 Polymer-nanoparticle composites
- 5.6 Hybrid and composite systems
 - 5.6.1 Carbon-metal oxide hybrids
 - 5.6.2 Polymer-carbon composites

Scotts International. EU Vat number: PL 6772247784

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

www.scotts-international.com

5.6.3 Multi-layer systems

Chapter 6 Market Estimates and Forecast, By Application Type, 2021 - 2034 (USD Million, Units)

6.1 Key trends

6.2 Defense and military applications

6.2.1 Stealth aircraft coatings

6.2.2 Naval vessel coatings

6.2.3 Ground vehicle stealth systems

6.2.4 Military equipment and weaponry

6.3 Automotive applications

6.3.1 Thermal management systems

6.3.2 Engine component coatings

6.3.3 Body panel applications

6.3.4 Electric vehicle components

6.4 Electronics and semiconductors

6.4.1 Thermal interface materials

6.4.2 Electronic device coatings

6.4.3 Semiconductor packaging

6.4.4 Display technologies

6.5 Solar energy applications

6.5.1 Solar panel coatings

6.5.2 Concentrated solar power systems

6.5.3 Solar thermal collectors

6.6 Aerospace applications

6.6.1 Aircraft thermal management

6.6.2 Satellite and space systems

6.6.3 Engine component coatings

6.7 Industrial applications

6.7.1 Manufacturing equipment

6.7.2 Process industry applications

6.7.3 Energy infrastructure

6.8 Other applications

6.8.1 Building and construction

6.8.2 Medical and healthcare

6.8.3 Consumer electronics

Chapter 7 Market Estimates and Forecast, By End Use Type, 2021 - 2034 (USD Million, Units)

7.1 Key trends

7.2 Military and defense

7.2.1 Government defense spending impact

7.2.2 Stealth technology requirements

7.2.3 Regional defense market analysis

7.3 Automotive industry

7.3.1 Traditional automotive segment

7.3.2 Electric vehicle segment

7.3.3 Autonomous vehicle applications

7.4 Electronics and semiconductors

Scotts International. EU Vat number: PL 6772247784

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

www.scotts-international.com

- 7.4.1 Consumer electronics
- 7.4.2 Industrial electronics
- 7.4.3 Telecommunications equipment
- 7.5 Energy and power
 - 7.5.1 Renewable energy sector
 - 7.5.2 Traditional power generation
 - 7.5.3 Energy storage systems
- 7.6 Aerospace and aviation
 - 7.6.1 Commercial aviation
 - 7.6.2 Military aviation
 - 7.6.3 Space and satellite industry
- 7.7 Industrial manufacturing
 - 7.7.1 Heavy industry
 - 7.7.2 Process industries
 - 7.7.3 Manufacturing equipment
- 7.8 Other end use industries
 - 7.8.1 Healthcare and medical
 - 7.8.2 Construction and infrastructure
 - 7.8.3 Consumer goods

Chapter 8 Market Estimates and Forecast, By Region, 2021 - 2034 (USD Million, Units)

- 8.1 Key trends
- 8.2 North America
 - 8.2.1 U.S.
 - 8.2.2 Canada
- 8.3 Europe
 - 8.3.1 Germany
 - 8.3.2 UK
 - 8.3.3 France
 - 8.3.4 Italy
 - 8.3.5 Spain
 - 8.3.6 Rest of Europe
- 8.4 Asia Pacific
 - 8.4.1 China
 - 8.4.2 India
 - 8.4.3 Japan
 - 8.4.4 Australia
 - 8.4.5 South Korea
 - 8.4.6 Rest of Asia Pacific
- 8.5 Latin America
 - 8.5.1 Brazil
 - 8.5.2 Mexico
 - 8.5.3 Argentina
 - 8.5.4 Rest of Latin America
- 8.6 Middle East & Africa
 - 8.6.1 Saudi Arabia
 - 8.6.2 South Africa

Scotts International. EU Vat number: PL 6772247784

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

www.scotts-international.com

8.6.3 UAE

8.6.4 Rest of Middle East & Africa

Chapter 9 Company Profiles

9.1 Nanotech coatings inc.

9.2 Surmet corporation

9.3 Nei corporation

9.4 Tripleo coatings

9.5 Advenira enterprises inc.

9.6 Nanosolid smart coatings

9.7 Applied thin films inc.

9.8 Lynx materials inc.

9.9 Aulon inc.

9.10 Tani coat

9.11 Clean Corp nanocoatings

9.12 Act nano inc.

9.13 Henkel ag & co. KGAA

9.14 PPG industries inc.

9.15 Akzo Nobel N.V.

9.16 3m company

9.17 The Sherwin-Williams company

9.18 Axalta coating systems ltd.

9.19 BASF SE

9.20 Hempel a/s

Scotts International. EU Vat number: PL 6772247784

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

www.scotts-international.com

**IR-Absorbing Nanocoating Market Opportunity, Growth Drivers, Industry Trend
Analysis, and Forecast 2025 - 2034**

Market Report | 2025-07-28 | 192 pages | Global Market Insights

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 | \$4850.00 |
| | Multi User | \$6050.00 |
| | Enterprise User | \$8350.00 |
| | | 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="2026-03-05"/> |
| | | Signature | |

Scotts International. EU Vat number: PL 6772247784

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

www.scotts-international.com



Scotts International. EU Vat number: PL 6772247784

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

www.scotts-international.com