

Global Room Temperature Blackening Agent 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 Room Temperature Blackening Agent market size was valued at US\$ 313 million in 2025 and is forecast to a readjusted size of US\$ 421 million by 2032 with a CAGR of 4.3% during review period.

In 2025, the global production of room-temperature blackening agents was approximately 87,000 tons, with an average selling price of around US\$3,500 per ton. Single-line production capacity is approximately 2,000-4,000 tons per year, with an average gross profit margin of about 10-20%. Room-temperature blackening agents are chemical reagents used for surface treatment of steel materials. They can form a black oxide film on the metal surface at room temperature, providing corrosion protection and decorative effects. This treatment method offers advantages over traditional high-temperature blackening, including being pollution-free, energy-efficient, and easy to operate.

The upstream core raw materials for room-temperature blackening agents mainly include film-forming main salts (such as selenite, copper sulfate, and molybdate), pH regulators (such as phosphoric acid and organic acids), complexing agents (such as citrate and EDTA), and accelerators and stabilizers; its downstream applications are directly in end-processing industries that require decorative, anti-rust, and anti-reflective properties on the surface of steel workpieces. These industries mainly include standard parts and fasteners, mechanical parts, hardware tools, automotive parts, and military and instrumentation fields, achieving aesthetic and anti-rust functions by forming a black conversion film.

The market for room-temperature blackening agents has maintained steady growth in recent years, driven by the continuous development of the manufacturing industry and the increasing demand for metal surface treatment. Room-temperature blackening agents are primarily used for rust prevention and decorative treatment of metal surfaces and are widely applied in industries such as automotive, construction, electronics, and aerospace, especially in applications requiring high standards of corrosion resistance and aesthetics for metals like steel, copper, and aluminum alloys. With increasingly stringent environmental regulations, environmentally friendly, low-toxicity, and low-pollution room-temperature blackening agents are gradually becoming the market mainstream, driving innovation in related technologies and products. Market growth is mainly driven by the automotive and construction industries, particularly the high standards required for metal surface treatment in automotive parts, mechanical equipment, and precision electronic products. Furthermore, with increased consumer attention to product appearance, the demand for decorative room-temperature blackening agents is also steadily rising. In the future, with technological advancements and stricter environmental requirements, the market will become further segmented, and the trend towards multi-functional and personalized products will become more pronounced.

This report is a detailed and comprehensive analysis for global Room Temperature Blackening Agent market. Both quantitative and qualitative analyses are presented by manufacturers, by region & country, by 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 Room Temperature Blackening Agent market size and forecasts, in consumption value (\$ Million), sales quantity (Tons), and average selling prices (US\$/Ton), 2021-2032

Global Room Temperature Blackening Agent market size and forecasts by region and country, in consumption value (\$ Million), sales quantity (Tons), and average selling prices (US\$/Ton), 2021-2032

Global Room Temperature Blackening Agent market size and forecasts, by Type and by Application, in consumption value (\$ Million), sales quantity (Tons), and average selling

prices (US\$/Ton), 2021-2032

Global Room Temperature Blackening Agent market shares of main players, shipments in revenue (\$ Million), sales quantity (Tons), and ASP (US\$/Ton), 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 Room Temperature Blackening Agent

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 Room Temperature Blackening Agent 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 Birchwood, ECOSOND, JAX Chemical, Henkel, Guangzhou Yishun Chemical, Nantong Rui'ao New Materials Technology, Cangzhou Sanyu Chemical Products, Liuzhou Guodian Chemicals, Shandong Shiqiang New Materials Technology, Shenzhen Shengdeyi Surface Treatment Technology, etc.

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

Market Segmentation

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

Market segment by Type

Liquid

Powder

Market segment by Suitable Substrates

Steel

Copper Alloy

Cast Iron

Others

Market segment by Reaction Mechanism

Acidic Room Temperature Blackening Agent

Neutral Room Temperature Blackening Agent

Alkaline Room Temperature Blackening Agent

Market segment by Application

Machinery Components

Electronics & Precision Instruments

Aerospace

Automotive

Others

Major players covered

Birchwood

ECOSOND

JAX Chemical

Henkel

Guangzhou Yishun Chemical

Nantong Rui'ao New Materials Technology

Cangzhou Sanyu Chemical Products

Liuzhou Guodian Chemicals

Shandong Shiqiang New Materials Technology

Shenzhen Shengdeyi Surface Treatment Technology

Hunan Guterui Novel Material Science and Technology

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 Room Temperature Blackening Agent product scope, market overview, market estimation caveats and base year.

Chapter 2, to profile the top manufacturers of Room Temperature Blackening Agent, with price, sales quantity, revenue, and global market share of Room Temperature Blackening Agent from 2021 to 2026.

Chapter 3, the Room Temperature Blackening Agent competitive situation, sales quantity, revenue, and global market share of top manufacturers are analyzed emphatically by landscape contrast.

Chapter 4, the Room Temperature Blackening Agent 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 Type and by Application, with sales market share and growth rate by 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 Room Temperature Blackening Agent market forecast, by regions, by 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 Room Temperature Blackening Agent.

Chapter 14 and 15, to describe Room Temperature Blackening Agent sales channel, distributors, customers, research findings and conclusion.

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