

Global Nano Cuprous Oxide 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 Nano Cuprous Oxide market size was valued at US\$ 107 million in 2025 and is forecast to a readjusted size of US\$ 144 million by 2032 with a CAGR of 4.3% during review period.

Nano-cuprous oxide (Cu_2O) is a functional semiconductor oxide material with a particle size typically ranging from 1 to 100 nanometers. It is a red or brownish-red powder. Belonging to the p-type semiconductor family, it possesses excellent photoelectric properties, catalytic activity, antibacterial properties, and high chemical stability. Due to the significant increase in specific surface area and enhanced surface activity after nano-sizing, nano-cuprous oxide has broad application value in photocatalysis, sensors, new energy, antibacterial materials, and electronic devices.

In the fields of photoelectricity and catalysis, nano-cuprous oxide, with its moderate band gap and strong visible light response, is widely used in photocatalytic degradation, organic pollutant treatment, water splitting for hydrogen production, and solar cells. Its excellent electron transport properties and redox activity also make it an important functional material for lithium-ion batteries, supercapacitors, and electrochemical sensors. Furthermore, nano- Cu_2O possesses natural antibacterial properties and can be used in antibacterial coatings, textiles, medical materials, and antifungal products.

The upstream of the industry chain mainly includes suppliers of copper raw materials, copper salts (such as copper sulfate and copper chloride), reducing agents, dispersants, surfactants, and equipment for nanomaterial preparation. High-purity copper sources and stable dispersion systems have a significant impact on product performance. The midstream is the production and manufacturing of nano-cuprous

oxide, primarily employing processes such as chemical reduction, hydrothermal methods, electrochemical methods, and sol-gel methods. Key competitive areas for companies include particle size control, dispersion stability, purity, and antioxidant properties. Downstream applications cover antibacterial materials, catalysts, conductive pastes, semiconductor materials, antifouling coatings, lithium-ion batteries, solar cells, and environmental remediation. Electronic materials, new energy, and high-performance antibacterial coatings are currently the fastest-growing application areas.

In 2025, global sales of nano-cuprous oxide will reach 800 tons, with a production capacity of approximately 1,150 tons, an average selling price of US\$130 per kilogram, and an average gross profit margin of 32%-38%.

The demand for nano-cuprous oxide primarily stems from fields such as antibacterial materials, photocatalysis, energy storage, electrochemical sensors, and semiconductor materials. Among these, antibacterial coatings, medical materials, and functional textiles are currently among the largest consumer applications. With the development of the new energy and environmental protection industries, the demand for nano-Cu₂O is showing significant growth in lithium-ion batteries, electrocatalytic hydrogen production, CO₂ reduction, and wastewater treatment. Simultaneously, its excellent visible light response performance has garnered widespread attention in solar cells and photocatalytic degradation. The Asia-Pacific region, particularly China, South Korea, and Japan, has become the fastest-growing region globally in terms of demand.

Currently, nano-cuprous oxide products mainly include nanoparticles, nanocubes, nanowires, nanofilms, and composite materials. Technological approaches are gradually upgrading from traditional chemical precipitation methods to hydrothermal methods, electrochemical methods, microwave synthesis methods, and green biosynthesis methods to improve particle size uniformity, crystallinity, and photoelectric properties. In recent years, two-dimensional Cu₂O composite materials, graphene-composite Cu₂O, and noble metal doping technologies have become research hotspots, focusing on improving material conductivity, photocatalytic efficiency, and stability. In the future, the industry will place greater emphasis on low cost, environmental friendliness, and large-scale controllable preparation.

This report is a detailed and comprehensive analysis for global Nano Cuprous Oxide 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 Nano Cuprous Oxide market size and forecasts, in consumption value (\$ Million), sales quantity (Tons), and average selling prices (US\$/kg), 2021-2032

Global Nano Cuprous Oxide market size and forecasts by region and country, in consumption value (\$ Million), sales quantity (Tons), and average selling prices (US\$/kg), 2021-2032

Global Nano Cuprous Oxide market size and forecasts, by Type and by Application, in consumption value (\$ Million), sales quantity (Tons), and average selling prices (US\$/kg), 2021-2032

Global Nano Cuprous Oxide market shares of main players, shipments in revenue (\$ Million), sales quantity (Tons), 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 Nano Cuprous Oxide
- 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 Nano Cuprous Oxide 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 American Elements, US Research Nanomaterials, Nanografi, SkySpring Nanomaterials, IoLiTec Ionic Liquids Technologies, GetNanoMaterials, Sigma-Aldrich, Nihon Kagaku Sangyo, Dongguan SAT Nano Technology Material, Xuancheng Jingrui, etc.

This report also provides key insights about market drivers, restraints, opportunities,

new product launches or approvals.

Market Segmentation

Nano Cuprous Oxide 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

Cube

Octahedron

Sphere

Polyhedron

Market segment by Morphology and Structure

Nanoparticles

Nanosheets

Nanowires

Market segment by Particle Size

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