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Global Nuclear-Grade Elastomers Supply, Demand and Key Producers, 2026-2032

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Abstracts

The global Nuclear-Grade Elastomers market size is expected to reach $ 94.70 million by 2032, rising at a market growth of 5.1% CAGR during the forecast period (2026-2032).

The global production of nuclear-grade elastomers reached 865 tons in 2025, with a price of 74,000 US dollars per ton.Nuclear-grade elastomers are high-performance rubber or elastomer materials specifically designed and manufactured for the harsh environments of the nuclear industry. They possess excellent radiation resistance, high-temperature resistance, aging resistance, chemical corrosion resistance, and long-term sealing reliability. Their core functions cover critical applications such as nuclear island sealing, nuclear fuel cycle equipment, and radiation protection equipment. The material system mainly includes ethylene propylene diene monomer (EPDM), fluororubber (FKM), silicone rubber (VMQ), and special perfluoroether rubber (FFKM). Through optimized formulation and cross-linking processes, they ensure that elasticity, strength, and sealing performance are maintained under extreme conditions such as gamma rays, neutron radiation, high temperature and pressure, and boric acid solutions. Nuclear-grade elastomers must pass rigorous nuclear-grade certification (such as RCC-M, ASME III, IEEE 382), possessing low exudates, long service life, and integrity under accident conditions. They are key basic materials for ensuring the safe operation of nuclear power plants and preventing the leakage of radioactive materials.

In the cost structure of nuclear-grade elastomers, raw material costs account for approximately 40%-50%, mainly consisting of specialty polymers such as perfluoroether rubber (FFKM) and fluororubber (FKM) and radiation-resistant additives, with suppliers highly concentrated (DuPont, 3M, Solvay). R&D and certification costs account for approximately 20%-30%, covering RCC-M/ASME nuclear-grade certification, LOCA

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simulation testing, and long-term aging verification. Process and quality control costs account for approximately 15%-20%, as nuclear-grade products require full traceability and zero-defect management. Gross profit margins are significantly higher than ordinary elastomers, reaching 50%-70%, primarily due to technological barriers, certification thresholds, and small-batch customization. The market is dominated by Europe and the United States. North America and Europe are traditionally strong regions, possessing core technologies for high-end raw materials and nuclear-grade products.

The upstream of the industry chain consists of specialty polymer suppliers (DuPont, 3M, Daikin) and radiation-resistant additive manufacturers; the midstream consists of nuclear-grade elastomer manufacturers; and the downstream customers are nuclear power plant owners and nuclear island equipment manufacturers, with typical customers including China National Nuclear Corporation (CNNC), State Power Investment Corporation (SPIC), EDF (?lectricit? de France), and Westinghouse Electric. Profits are concentrated in leading manufacturers with nuclear-grade certification, stable raw material supply, and long-term performance accumulation.

This report studies the global Nuclear-Grade Elastomers production, demand, key manufacturers, and key regions.

This report is a detailed and comprehensive analysis of the world market for Nuclear-Grade Elastomers and provides market size (US$ million) and Year-over-Year (YoY) Growth, considering 2025 as the base year. This report explores demand trends and competition, as well as details the characteristics of Nuclear-Grade Elastomers that contribute to its increasing demand across many markets.

Highlights and key features of the study
Global Nuclear-Grade Elastomers total production and demand, 2021-2032, (Tons)
Global Nuclear-Grade Elastomers total production value, 2021-2032, (USD Million)
Global Nuclear-Grade Elastomers production by region & country, production, value, CAGR, 2021-2032, (USD Million) & (Tons), (based on production site)
Global Nuclear-Grade Elastomers consumption by region & country, CAGR, 2021-2032 & (Tons)
U.S. VS China: Nuclear-Grade Elastomers domestic production, consumption, key domestic manufacturers and share
Global Nuclear-Grade Elastomers production by manufacturer, production, price, value and market share 2021-2026, (USD Million) & (Tons)
Global Nuclear-Grade Elastomers production by Type, production, value, CAGR,

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2021-2032, (USD Million) & (Tons)
Global Nuclear-Grade Elastomers production by Application, production, value, CAGR, 2021-2032, (USD Million) & (Tons)

This report profiles key players in the global Nuclear-Grade Elastomers market based on the following parameters - company overview, production, value, price, gross margin, product portfolio, geographical presence, and key developments. Key companies covered as a part of this study include Borflex, Canyon Components, DuPont, Elkem, Huntsman Tecnoelastomeri, James Walker, Klaus-H?berlin AG, Nexa-X, Technetics Group, TRP Polymer Solutions, etc.

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

Stakeholders would have ease in decision-making through various strategy matrices used in analyzing the World Nuclear-Grade Elastomers market

Detailed Segmentation:

Each section contains quantitative market data including market by value (US$ Millions), volume (production, consumption) & (Tons) and average price (US$/Ton) by manufacturer, by Type, and by Application. Data is given for the years 2021-2032 by year with 2025 as the base year, 2026 as the estimate year, and 2027-2032 as the forecast year.

Global Nuclear-Grade Elastomers Market, By Region:

United States

China

Europe

Japan

South Korea

ASEAN

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India

Rest of World

Global Nuclear-Grade Elastomers Market, Segmentation by Type:

Ethylene Propylene Diene Monomer (EPDM) Type

Fluororubber (FKM) Type

Silicone Rubber (VMQ/PVMQ) Type

Perfluoroether Rubber (FFKM) Type

Special Modified Elastomer Type

Others

Global Nuclear-Grade Elastomers Market, Segmentation by Radiation Tolerance:

Low Radiation Tolerance (Tolerable Cumulative Dose ? 10? Gy)

Medium Radiation Tolerance (Tolerable Cumulative Dose 10?~10? Gy)

High Radiation Tolerance (Tolerable Cumulative Dose 10?~10? Gy)

Global Nuclear-Grade Elastomers Market, Segmentation by Application:

Reactor Pressure Vessel

Valves/Piping

Main Pump/Circulation Pump

Electrical Penetrations

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Radiation Protection

Others

Companies Profiled:

Borflex

Canyon Components

DuPont

Elkem

Huntsman Tecnoelastomeri

James Walker

Klaus-H?berlin AG

Nexa-X

Technetics Group

TRP Polymer Solutions

Key Questions Answered:
1. How big is the global Nuclear-Grade Elastomers market?
2. What is the demand of the global Nuclear-Grade Elastomers market?
3. What is the year over year growth of the global Nuclear-Grade Elastomers market?
4. What is the production and production value of the global Nuclear-Grade Elastomers market?
5. Who are the key producers in the global Nuclear-Grade Elastomers market?
6. What are the growth factors driving the market demand?

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