

Global Hafnium Dioxide for Semiconductors Market 2025 by Manufacturers, Regions, Type and Application, Forecast to 2031

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Abstracts

According to our (Global Info Research) latest study, the global Hafnium Dioxide for Semiconductors market size was valued at US\$ 31.3 million in 2024 and is forecast to a readjusted size of USD 51.9 million by 2031 with a CAGR of 7.5% during review period.

Hafnium dioxide (HfO₂) is an oxide of hafnium element, which is a white solid at room temperature and pressure. White powder, with three crystal structures: monoclinic, tetragonal, and cubic, with a melting point of 2780-2920K. Boiling point 5400K. The coefficient of thermal expansion is $5.8 \times 10^{-6}/^{\circ}\text{C}$. Insoluble in water, hydrochloric acid, and nitric acid, soluble in concentrated sulfuric acid and hydrofluoric acid. Produced by thermal decomposition or hydrolysis of compounds such as hafnium sulfate and hafnium oxychloride. To produce raw materials for hafnium metal and hafnium alloys. Used as refractory materials, anti radioactive coatings, and catalysts. Hafnium dioxide (HfO₂) is a ceramic material with a wide bandgap and high dielectric constant, which has recently attracted high attention in the industry, especially in the field of microelectronics. Due to its potential to replace the gate insulating layer silicon dioxide (SiO₂) of the core device metal oxide semiconductor field-effect transistor (MOSFET) in silicon-based integrated circuits, it can solve the size problem in the development of traditional SiO₂/Si structures in MOSFETs.

In the past two years, China's 99.99% hafnium oxide market has experienced two waves of significant price increases. Before 2022, there will be little change in the supply and demand situation of hafnium oxide market in China. The supply side shipment level will be mainly weak and stable, while the overall demand from the consumer side will be weak. The market will maintain stable operation, and the price will remain stable at around 4500 yuan/kg. At the end of October, the price of hafnium oxide

experienced its first wave of increase, with a slight increase in downstream semiconductor market demand and a slight shortage of supply in the market. The price rose to 7000 yuan/kg, an increase of 55.6%, and the overall economic circulation speed in the market was slow. In the first half of 2023, the price of hafnium oxide experienced a second wave of increase, with overall market supply being tight and downstream market demand being strong. The price rose to 9500 yuan/kg, an increase of 35.7%. With the deepening of research on the performance of hafnium products in China, in addition to the aerospace and electronics industries, there is still significant market growth potential for hafnium applications in industries such as toothpaste, beauty, medicine, and chemical engineering. In the future, the market price of hafnium in China may continue to rise. The market price of hafnium oxide raw materials remains high, and the available raw materials for enterprises are limited. Most suppliers insist on high prices, and it is expected that the market price of 99.99% hafnium oxide will stabilize at around 9000-10000 yuan/kg in the short term. Hafnium is widely used in aerospace, semiconductor, atomic energy and other fields. The complete industry chain of hafnium is: zircon sand zirconium oxychloride hafnium oxide (purity requirement for producing nuclear grade sponge zirconium is 99.9%) - metallic hafnium (sponge hafnium) - crystalline hafnium (high-purity hafnium), hafnium containing alloys. Hafnium is widely used in high-temperature alloys, semiconductor coatings, nuclear industry, plasma cutting, optical coatings, and high-power gas turbine fields.

This report is a detailed and comprehensive analysis for global Hafnium Dioxide for Semiconductors 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 Hafnium Dioxide for Semiconductors market size and forecasts, in consumption value (\$ Million), sales quantity (Tons), and average selling prices (US\$/kg), 2020-2031

Global Hafnium Dioxide for Semiconductors market size and forecasts by region and country, in consumption value (\$ Million), sales quantity (Tons), and average selling prices (US\$/kg), 2020-2031

Global Hafnium Dioxide for Semiconductors market size and forecasts, by Type and by

Application, in consumption value (\$ Million), sales quantity (Tons), and average selling prices (US\$/kg), 2020-2031

Global Hafnium Dioxide for Semiconductors market shares of main players, shipments in revenue (\$ Million), sales quantity (Tons), and ASP (US\$/kg), 2020-2025

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 Hafnium Dioxide for Semiconductors
- 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 Hafnium Dioxide for Semiconductors 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 ATI, Framatome, Chepetsky Mechanical Plant, LTS Research Laboratories, Australian Strategic Materials (ASM), State Nuclear BaoTi Zirconium Industry, Vital Thin Film Materials, etc.

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

Market Segmentation

Hafnium Dioxide for Semiconductors market is split by Type and by Application. For the period 2020-2031, 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

Purity?99.9%

Purity?99.99%

Market segment by Application

Gate Dielectric Material

Memory Device

Major players covered

ATI

Framatome

Chepetsky Mechanical Plant

LTS Research Laboratories

Australian Strategic Materials (ASM)

State Nuclear BaoTi Zirconium Industry

Vital Thin Film Materials

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 Hafnium Dioxide for Semiconductors product scope, market overview, market estimation caveats and base year.

Chapter 2, to profile the top manufacturers of Hafnium Dioxide for Semiconductors, with price, sales quantity, revenue, and global market share of Hafnium Dioxide for Semiconductors from 2020 to 2025.

Chapter 3, the Hafnium Dioxide for Semiconductors competitive situation, sales quantity, revenue, and global market share of top manufacturers are analyzed emphatically by landscape contrast.

Chapter 4, the Hafnium Dioxide for Semiconductors breakdown data are shown at the regional level, to show the sales quantity, consumption value, and growth by regions, from 2020 to 2031.

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 2020 to 2031.

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 2020 to 2025. and Hafnium Dioxide for Semiconductors market forecast, by regions, by Type, and by Application, with sales and revenue, from 2026 to 2031.

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 Hafnium Dioxide for Semiconductors.

Chapter 14 and 15, to describe Hafnium Dioxide for Semiconductors sales channel, distributors, customers, research findings and conclusion.

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