

Global Semiconductor Grade Etching Gas Market 2023 by Manufacturers, Regions, Type and Application, Forecast to 2029

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Abstracts

According to our (Global Info Research) latest study, the global Semiconductor Grade Etching Gas market size was valued at USD 808 million in 2022 and is forecast to a readjusted size of USD 1402 million by 2029 with a CAGR of 8.2% during review period. The influence of COVID-19 and the Russia-Ukraine War were considered while estimating market sizes.

In the field of electronic semiconductors, etching gases are widely used in industries such as integrated Circuits, liquid crystal panels, LED and photovoltaics. Among them, integrated circuit manufacturing is the most important application. In recent years, downstream industry technologies have rapidly changed, especially in the field of integrated circuit manufacturing, where process nodes have been continuously reduced, ranging from 28nm to 5nm processes, and wafer sizes from 8-inch to 12-inch wafers. As a key material in integrated circuit manufacturing, with the rapid iteration of downstream industrial technology, the requirements for purity and accuracy of special gases continue to improve.

Asia Pacific is the region with the largest demand for semiconductor grade etching gases. Etching gases mainly include fluorine containing gas, chlorine containing gas, oxygen containing gas and other types. And the fluorine containing gas is the most common. Fluorinated containing gas include the following gases: CF₄, NF₃, SF₆, CH₂F₂, CHF₃, C₂F₆, C₃F₈, C₄F₈, C₅F₈, HF, etc. Silicon wafer etching gases are mainly fluorine-containing gases, but they are isotropic and have poor selectivity.

Electronics manufacturing uses both wet and dry etching, but for different processes, much like using course- and fine-toothed saws to make different size and different

quality cuts. In wet etching, aqueous solutions of acids or bases are used to quickly remove large amounts of material, or to completely remove a particular material. Dry etching uses plasma-activated etchant gases, usually containing halogen atoms, to selectively remove a portion of a material with greater precision and accuracy than wet etching can achieve. It is the dry etching process, often referred to as reactive ion etching or RIE.

The etching process requires a chemical reaction between the electron gas and the etched material. The etching process requires a large amount of fluorocarbon gases, such as hexafluoroethane, carbon tetrafluoride, trifluoromethane, octafluorocyclobutane, octafluorobutane, etc. The etched gas undergoes a chemical reaction with the etched material, resulting in the elimination of the etched material. In the etching process of wafer manufacturing, especially in the dry etching process, in order to achieve directional etching, it is necessary to use electronic special gases to form plasma under ionization conditions. The plasma undergoes chemical or physical reactions with the etched material to remove a portion of the etched material. Different electron gases are also used for reactions in different etching targets.

The commonly used etching gases include fluorinated and chlorinated gases, as well as oxygen-containing gases and some rare gases.

This report is a detailed and comprehensive analysis for global Semiconductor Grade Etching Gas 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 2023, are provided.

Key Features:

Global Semiconductor Grade Etching Gas market size and forecasts, in consumption value (\$ Million), sales quantity (MT), and average selling prices (US\$/Kg), 2018-2029

Global Semiconductor Grade Etching Gas market size and forecasts by region and country, in consumption value (\$ Million), sales quantity (MT), and average selling prices (US\$/Kg), 2018-2029

Global Semiconductor Grade Etching Gas market size and forecasts, by Type and by

Application, in consumption value (\$ Million), sales quantity (MT), and average selling prices (US\$/Kg), 2018-2029

Global Semiconductor Grade Etching Gas market shares of main players, shipments in revenue (\$ Million), sales quantity (MT), and ASP (US\$/Kg), 2018-2023

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 Semiconductor Grade Etching Gas

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 Semiconductor Grade Etching Gas 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 Linde, SK Materials, Kanto Denka Kogyo, ADEKA and PERIC Special Gases, etc.

This report also provides key insights about market drivers, restraints, opportunities, new product launches or approvals, COVID-19 and Russia-Ukraine War Influence.

Market Segmentation

Semiconductor Grade Etching Gas market is split by Type and by Application. For the period 2018-2029, 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

Fluorine Containing Gas

Chlorine Containing Gas

Oxygen Containing Gas

Others

Market segment by Application

Integrated Circuits

Display Panels

Solar

LED

Major players covered

Linde

SK Materials

Kanto Denka Kogyo

ADEKA

PERIC Special Gases

Merck (Versum Materials)

Showa Denko

Nippon Sanso

Hyosung

Air Liquide

Haohua Chemical

Zibo Feiyuan Chemical

Kemeite (Yoke Technology)

Solvay

Huate Gas

Yongjing Technology

Air Products

Jinhong Gas

Concorde Specialty Gases

Linggas

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 Semiconductor Grade Etching Gas product scope, market overview, market estimation caveats and base year.

Chapter 2, to profile the top manufacturers of Semiconductor Grade Etching Gas, with price, sales, revenue and global market share of Semiconductor Grade Etching Gas from 2018 to 2023.

Chapter 3, the Semiconductor Grade Etching Gas competitive situation, sales quantity, revenue and global market share of top manufacturers are analyzed emphatically by landscape contrast.

Chapter 4, the Semiconductor Grade Etching Gas breakdown data are shown at the regional level, to show the sales quantity, consumption value and growth by regions, from 2018 to 2029.

Chapter 5 and 6, to segment the sales by Type and application, with sales market share and growth rate by type, application, from 2018 to 2029.

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 2017 to 2022. and Semiconductor Grade Etching Gas market forecast, by regions, type and application, with sales and revenue, from 2024 to 2029.

Chapter 12, market dynamics, drivers, restraints, trends, Porters Five Forces analysis, and Influence of COVID-19 and Russia-Ukraine War.

Chapter 13, the key raw materials and key suppliers, and industry chain of Semiconductor Grade Etching Gas.

Chapter 14 and 15, to describe Semiconductor Grade Etching Gas sales channel, distributors, customers, research findings and conclusion.

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