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Global Semiconductor Waste Gas Abatement Systems Supply, Demand and Key Producers, 2026-2032

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Abstracts

The global Semiconductor Waste Gas Abatement Systems market size is expected to reach $ 3763 million by 2032, rising at a market growth of 9.3% CAGR during the forecast period (2026-2032).

Semiconductor Waste Gas Abatement Systems have evolved from environmental compliance equipment into mission-critical Sub-FAB infrastructure for process safety, uptime protection, EHS approval, and carbon management. These systems are installed between process tools, dry vacuum pumps, and fab exhaust systems to treat PFCs, NF3, CF4, SF6, SiH4, NH3, HCl, HF, VOCs, and other toxic, hazardous, pyrophoric, corrosive, or high-GWP exhaust gases generated by plasma etching, CVD and ALD, epitaxy, ion implantation, cleaning, and other semiconductor processes. The commercial value of Semiconductor Waste Gas Abatement Systems is no longer limited to emission compliance; it increasingly includes fab continuity, process-tool protection, safety interlock management, energy and water optimization, and sustainability reporting. By technology type, the market is segmented into combustion-wash type, dry type, catalytic type, wet type, plasma wet type, and other hybrid systems. Combustion-wash systems are suited to pyrophoric and highly reactive gases, dry systems fit low-flow or water-sensitive hazardous gases, catalytic systems are mainly used for VOCs and oxidizable organic streams, wet systems address acid, alkaline, and water-soluble gases, and plasma wet systems target PFCs, NF3, and fluorinated gases that are difficult to decompose. Upstream components include corrosion-resistant materials, adsorbents, catalysts, burners, plasma power supplies, sensors, valves, PLC controls, and safety interlock modules, while midstream suppliers include Ebara, Atlas Copco, GST, Shanghai Shengjian Technology, Busch Group, DAS Environmental Expert, CS Clean Solutions, Kanken Techno, UNISEM, Beijing Jingyi Automation Equipment, Greenstar, Goldenway Environmental Technology, Yasheng Semiconductor, Gaopin

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Tech, Wuxi Haileide Intelligent Technology, and Shanghai Gaosheng Integrated Circuit Equipment.

In 2025, the Top 5 suppliers generated approximately USD 898 million in combined revenue, representing about 50.65% of the global market. By Units, the Top 5 shipped roughly 10,075 Units, representing about 45.62% of global volume. The revenue Top 5 were led by Ebara, Atlas Copco, GST, Busch Group, and DAS Environmental Expert, while the volume Top 5 were led by Atlas Copco, Ebara, GST, Busch Group, and Shanghai Shengjian Technology. The gap between revenue concentration and shipment concentration reflects differences in technology mix, customer base, ASP level, and high-end fab penetration.

Regional demand is highly concentrated in Asia-Pacific, while production capacity remains more distributed across Europe, China, Japan, North America, and South Korea. In 2025, Asia-Pacific consumed 16,643 Units, accounting for about 75.36% of global demand, followed by North America with 2,608 Units and Europe with 2,319 Units. This demand structure reflects the concentration of wafer fabs, memory capacity, mature-node expansion, display production, power semiconductors, and compound-semiconductor activity across Taiwan, South Korea, mainland China, Japan, and other Asian manufacturing hubs. On the production side, Europe produced 5,880 Units in 2025, China produced 5,275 Units, Japan produced 4,273 Units, North America produced 2,782 Units, and South Korea produced 2,685 Units. China?s production is expected to increase from 5,739 Units in 2026 to 9,952 Units in 2032, making it one of the most important incremental manufacturing bases for Semiconductor Waste Gas Abatement Systems. The regional pattern suggests that demand gravity, equipment manufacturing, service networks, and supply-chain localization will not evolve at the same pace, creating room for both global leaders and regional challengers.

Technology segmentation shows that Semiconductor Waste Gas Abatement Systems are shifting from general wet scrubbing toward high-energy treatment, hybrid configurations, and process-specific solutions. In 2025, combustion-wash type led the market with 6,916 Units, followed by dry type with 5,252 Units, catalytic type with 3,324 Units, wet type with 3,123 Units, and plasma wet type with 2,354 Units. By revenue, combustion-wash type reached USD 463.73 million, dry type reached USD 420.28 million, catalytic type reached USD 307.85 million, plasma wet type reached USD 300.05 million, and wet type reached USD 196.13 million. ASP differentiation is material: plasma wet type recorded an ASP of USD 127,460/Unit in 2025, far above the market average of USD 80,300/Unit. Catalytic type reached USD 92,610/Unit, dry type reached USD 80,020/Unit, combustion-wash type reached USD 67,050/Unit, and wet

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type reached USD 62,800/Unit. From 2026 to 2032, dry type revenue CAGR reaches 10.64%, plasma wet reaches 9.38%, and catalytic reaches 10.17%, confirming that compact, low-utility, high-efficiency, and higher-complexity gas treatment solutions are becoming more valuable within the Semiconductor Waste Gas Abatement Systems market.

Application structure confirms that CVD and ALD, together with plasma etching, form the core demand base for Semiconductor Waste Gas Abatement Systems. In 2025, CVD and ALD accounted for 8,034 Units and USD 679.03 million in revenue, making them the largest application segment. Plasma etching accounted for 6,875 Units and USD 550.43 million, while EPI, ion implantation, and other applications contributed USD 196.85 million, USD 215.79 million, and USD 133.24 million, respectively. CVD, ALD, and plasma etching involve fluorinated cleaning gases, PFC emissions, reactive precursors, powders, and complex by-products, creating higher requirements for DRE, thermal control, downstream washing, powder handling, and safety interlocks. Ion implantation is smaller in scale but has higher requirements for localized hazardous gas management and dry abatement. EPI requires strong treatment of hydrogen-related and pyrophoric exhaust streams. These differences explain why Semiconductor Waste Gas Abatement Systems cannot be standardized around a single technology route; suppliers must build cross-process, cross-technology, and fab-interface capabilities.

Recent industry momentum is concentrated around high-efficiency PFC destruction, lower energy and water consumption, consumables localization, and digital maintenance systems. Advanced logic, high-layer-count memory, high-aspect-ratio etching, and deposition intensity are increasing the treatment load for NF3, CF4, C2F6, SF6, and other fluorinated gases. The evaluation framework for Semiconductor Waste Gas Abatement Systems has moved beyond a standalone DRE metric toward a combined assessment of DRE, fuel and electricity use, cooling-water demand, wastewater load, PM cycle, footprint, safety redundancy, and total cost of ownership. Ebara, Atlas Copco, and GST continue to benefit from installed base, high-end customer qualification, and global service capabilities. Chinese suppliers such as Shanghai Shengjian Technology, Beijing Jingyi Automation Equipment, Greenstar, Goldenway Environmental Technology, Yasheng Semiconductor, Wuxi Haileide Intelligent Technology, Gaopin Tech, and Shanghai Gaosheng Integrated Circuit Equipment are accelerating penetration through local delivery, customized engineering, and supply-chain security demand. Procurement logic is increasingly shifting from unit price to an integrated assessment of process coverage, delivery speed, consumables supply, on-site service, digital monitoring, and carbon-management value.

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This report studies the global Semiconductor Waste Gas Abatement Systems production, demand, key manufacturers, and key regions.

This report is a detailed and comprehensive analysis of the world market for Semiconductor Waste Gas Abatement Systems 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 Semiconductor Waste Gas Abatement Systems that contribute to its increasing demand across many markets.

Highlights and key features of the study
Global Semiconductor Waste Gas Abatement Systems total production and demand, 2021-2032, (Units)
Global Semiconductor Waste Gas Abatement Systems total production value, 2021-2032, (USD Million)
Global Semiconductor Waste Gas Abatement Systems production by region & country, production, value, CAGR, 2021-2032, (USD Million) & (Units), (based on production site)
Global Semiconductor Waste Gas Abatement Systems consumption by region & country, CAGR, 2021-2032 & (Units)
U.S. VS China: Semiconductor Waste Gas Abatement Systems domestic production, consumption, key domestic manufacturers and share
Global Semiconductor Waste Gas Abatement Systems production by manufacturer, production, price, value and market share 2021-2026, (USD Million) & (Units)
Global Semiconductor Waste Gas Abatement Systems production by Technology, production, value, CAGR, 2021-2032, (USD Million) & (Units)
Global Semiconductor Waste Gas Abatement Systems production by Process, production, value, CAGR, 2021-2032, (USD Million) & (Units)

This report profiles key players in the global Semiconductor Waste Gas Abatement Systems 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 Ebara, Atlas Copco, GST (Global Standard Technology), Shanghai Shengjian Technology, Busch Group, DAS Environmental Expert, CS Clean Solutions, Kanken Techno, UNISEM, Beijing Jingyi Automation Equipment, etc.

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

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Stakeholders would have ease in decision-making through various strategy matrices used in analyzing the World Semiconductor Waste Gas Abatement Systems market

Detailed Segmentation:

Each section contains quantitative market data including market by value (US$ Millions), volume (production, consumption) & (Units) and average price (US$/Unit) by manufacturer, by Technology, and by Process. 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 Semiconductor Waste Gas Abatement Systems Market, By Region:

United States

China

Europe

Japan

South Korea

ASEAN

India

Rest of World

Global Semiconductor Waste Gas Abatement Systems Market, Segmentation by Technology:

Combustion-wash Type

Dry Type

Catalytic Type

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Wet Type

Plasma-wet Type

Others

Global Semiconductor Waste Gas Abatement Systems Market, Segmentation by Deployment:

Integrated Type

Standalone Type

Global Semiconductor Waste Gas Abatement Systems Market, Segmentation by End-use Manufacturing:

Logic/Wafer Foundry

DRAM/HBM

3D NAND

Photovoltaics

Display Panel

LED/Compound Optoelectronics

Others

Global Semiconductor Waste Gas Abatement Systems Market, Segmentation by Process:

Plasma Etching

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CVD and ALD

EPI

Ion Implantation

Others

Companies Profiled:

Ebara

Atlas Copco

GST (Global Standard Technology)

Shanghai Shengjian Technology

Busch Group

DAS Environmental Expert

CS Clean Solutions

Kanken Techno

UNISEM

Beijing Jingyi Automation Equipment

Ecosys Abatement

CECO Environmental

Greenstar

Goldenway Environmental Technology

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Yasheng Semiconductor

Highvac

Nippon Sanso (Mitsubishi Chemical)

Anguil Environmental Systems

Wuxi Haileide Intelligent Technology

Shanghai Gaosheng Integrated Circuit Equipment

Gaopin Tech

PNC Process Systems

Resonac (formerly Showa Denko)

Key Questions Answered:
1. How big is the global Semiconductor Waste Gas Abatement Systems market?
2. What is the demand of the global Semiconductor Waste Gas Abatement Systems market?
3. What is the year over year growth of the global Semiconductor Waste Gas Abatement Systems market?
4. What is the production and production value of the global Semiconductor Waste Gas Abatement Systems market?
5. Who are the key producers in the global Semiconductor Waste Gas Abatement Systems market?
6. What are the growth factors driving the market demand?

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