Microelectronics Cleaning Equipment - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2025 - 2030)

Market Report | 2025-04-28 | 120 pages | Mordor Intelligence

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Report description:

The Microelectronics Cleaning Equipment Market is expected to register a CAGR of 5.97% during the forecast period.

Microelectronics devices such as wafers, MEMS, ICs, and PCBs, which are considered building blocks of almost all the electronic devices, require the cleaning process to maintain performance and reliability. Hence, microelectronics cleaning is a crucial step concerning the functioning of any electronic device in the semiconductor industry. The demand for cleaning such devices is rising, thereby driving the market growth during the forecast period.

Key Highlights
- According to World Semiconductor Trade Statistics (WSTS), the global semiconductor market size is expected to reach USD 460 billion by 2021, compared to USD 412.3 billion in 2019. The semiconductor market is driven by the increasing need to manage power across electronics and miniaturization.
- With the increase in the growth of the semiconductor industry due to the integration of semiconductors into consumer electronics devices, such as smartphones, tablets, television, laptops, iPods, cameras, washing machines, printers, music systems, and others, the market is experiencing significant growth as microelectronics cleaning equipment are used to clean silicon wafers, compound semiconductor device wafers, etc.
- Moreover, the growing adoption of automation has led to an increase in the number of cleaning methods during production and high demand for silicon-based sensors, which is likely to trigger the need for microelectronics cleaning equipment. Also, the primary application of microelectronics cleaning equipment is in the IC fabrication industry, where a significant percentage of the fabrication process involves cleaning the wafers.
- Further, rising awareness about the adverse effect of surface contamination & defects on an electronic product that hampers functioning & performance is the significant factor that propels the market growth. Furthermore, with the introduction of ISO

14000, the cleaning has become more important for different parts of technological processes. However, growing environmental concerns regarding chemicals & toxic gasses and lack of skilled workforce are the factors that are hindering the market growth.
- The Outbreak of COVID-19 has an adverse effect on the semiconductor industry with massive disruptions in the supply chain due to lockdown imposed by the governments that have affected manufacturing and hauled consumer demand for semiconductor devices. Moreover, small and medium scale companies are struggling to sustain in the market.

Microelectronics Cleaning Equipment Market Trends

Microelectromechanical Systems (MEMS) to Drive the Market Growth

- Microelectromechanical system (MEMS) sensors offer several advantages, such as accuracy and reliability, and the potential to make smaller electronic devices. As a result, they have gained significant traction in the past few years. Industrial automation and demand for miniaturized consumer devices, such as wearables and IoT-connected devices, among others, across regions, are among the significant factors driving the MEMS sensors.
- Hence, with the growing demand for MEMS, the market is likely to grow. Wafer impurities and process particulates are one of the prime reasons for MEMS device failure. Therefore cleaning remains the crucial process in the MEMS domain.
- Moreover, the increasing military spending across regions is paving the way for MEMS sensors, like drones/unmanned aerial vehicles (UAVs). The usage of MEMS pressure sensors in traditional fighter jets, with high-end navigation systems, is increasing significantly. MEMS solutions that have minimum standardization, based on applications, are highly customizable. ?
- Governments are focusing on smart manufacturing techniques by increasing automation and industrial control systems (ICS), to create a connected automated environment and improve the operational efficiencies across regions, such as Germany, the United States, China, and India. ?In addition to process control, the MEMS sensors find applications, such as automotive testing, condition monitoring of refrigerators, HVAC control, leak detection, pressure drops, etc. Such instances are likely to boost the market growth.

Asia-Pacific Holds Highest Market Share

- Asia-Pacific's semiconductor industry is driven by China, Japan, Taiwan, and South Korea, constituting around 65% of the global discrete semiconductor market. In contrast, others like Vietnam, Thailand, Malaysia, and Singapore also contribute significantly to its dominance.
- Significant demand for smartphones and other consumer electronics devices from countries like India, China, Japan, and Singapore encourages many vendors to set up production establishments in the region. The abundant availability of raw materials and the low establishment and labor costs have also helped companies launch their production centers in the region. ?
- Asia-pacific is witnessing demand for microelectronics from industries, such as automotive, consumer electronics, and industrial. Vendors operating in the market studied, such as Panasonic Corporation, Dainippon Screen Mfg. Co., Ltd. is headquartered in the region. Several other discrete semiconductor companies have a strong production base in the region due to the low-cost manufacturing benefit.
- Moreover, Taiwan is known for microelectronics manufacturing powerhouse for innovations and considered as one of the best producers of notebook PCs, LCD monitors, chip-testing, and chip-foundry services worldwide. Hence, the region has a vast scope for the market.

Microelectronics Cleaning Equipment Industry Overview

The microelectronics cleaning equipment market is moderately fragmented. Players in the market are adopting strategic partnerships, mergers, and acquisitions and investing in improving their product offering to cater to the high demands from the semiconductor industry. Some of the recent developments in the market are:

- In May 2020 - Panasonic Corporation and Blue Yonder, an end-to-end supply chain software provider, extended its strategic partnership to accelerate the autonomous supply chain.

Additional Benefits:

- The market estimate (ME) sheet in Excel format
- 3 months of analyst support

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