

# **Global Dry Etching Equipment Market: Analysis By Type (Conductor Dry Etching, and Dielectric Dry Etching), By Region Size and Trends with Impact of COVID-19 and Forecast up to 2027**

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## **Abstracts**

The global dry etching equipment market in 2021 stood at US\$17.76 billion and is likely to reach US\$26.47 billion by 2027. Etching is the process of removing unsuitable materials off the surface of a wafer using chemical or physical means. Etching can be separated into two types: dry etching and wet etching. Dry etching is the process of exposing a surface to a bombardment of ions that dislodge portions of the material.

Dry etch equipment has grown in popularity in recent years due to its ability to provide excellent isotropic control, greater precision, and overall safety. Dry etching can also provide a high etch rate while using less chemicals, depending on the procedure. The global dry etching equipment market is projected to grow at a CAGR of 6.88% during the forecast period of 2022-2027.

### **Market Segmentation Analysis:**

**By Type:** The market report has segmented the global dry etching equipment market into two segments on the basis of type: conductor dry etching equipment, and dielectric dry etching equipment. The dielectric dry etching equipment segment is the fastest growing segment during the forecast period, attributable to increased demand for neuromorphic chips, and the emergence of 3D integrated circuits.

**By Region:** According to this report, the global market can be divided into four major regions: Asia Pacific (China, Japan, South Korea and Rest of Asia Pacific), North America (The US, Canada, and Mexico), Europe (Germany, Spain, UK, Italy, France,

and the Rest of Europe), and Rest of the World. Due to the presence of some of the leading semiconductor manufacturers, growing demand for advanced technologies across numerous end-user industries, and supportive government policies for the region's semiconductor industry, the Asia Pacific region has dominated the global dry etching equipment market in 2021. China has become the largest producer of dry etching equipment in 2021, owing to rising demand for electric vehicles, in Asia Pacific.

#### Global Dry Etching Equipment Market Dynamics:

**Growth Drivers:** Silicon wafers act as a substrate for microelectronic devices and are especially useful in building electronic circuits. Silicon wafer manufacturing process involves various steps, one of the most important ones is the etching process. Emergent global demand for silicon wafer market is aiding to bolster the growth of the global dry etching equipment market. Further, the market is expected to grow owing to growth of semiconductor rapid urbanization, increased demand for consumer electronic devices, rise in automotive industry, etc. in recent years.

**Challenges:** Geopolitical tensions are political issues that exist between or involve two or more countries. As trade tensions rise, the US is considering new ways to avoid slipping farther behind China in chip manufacturing. Because of the enmity between China and the US, the two economies may decouple. Geopolitical tensions have presented a risk to the etch industry because China is the world leader in semiconductor manufacturing and other associated products. Additionally, other factors like manufacturing of machines outpaces the demand, etc. are other challenges to the market.

**Market Trends:** The next decade of AI appears to be highly brilliant and dramatic, as it has paved the way for smarter monitoring, faster feedback, and better business lines. Enhancements to semiconductor architecture are necessary to handle data utilization in artificial intelligence (AI) integrated circuits. Improvements in AI semiconductor design will concentrate on faster data transit in and out of memory, as well as more power and more efficient memory systems. More trends in the market are believed to grow the dry etching equipment market during the forecasted period, which may include escalation of Internet of Things (IOT), emerging industrial robotics, launch of 5g network, growing global demand for photovoltaic cells, etc.

#### Impact Analysis of COVID-19 and Way Forward:

The COVID-19 pandemic helped the global dry etching equipment industry. Since dry

etching is needed to grow semiconductors, its impact on semiconductor production has had a significant market impact. Furthermore, the employment of dry etching technology to produce an important component in the manufacturing of microelectronic devices, which were in high demand during the pandemic in the form of laptops, solar cells, smart phones, and so on, resulted in some good improvements throughout the pandemic. Understanding the demand drivers for dry etch end-applications would aid in determining COVID's impact on the global dry etching equipment market. The market is likely to grow faster in the next years as a result of changes brought about by the pandemic, such as increasing semiconductor demand.

#### Competitive Landscape and Recent Developments:

The global market for dry etching equipment is highly concentrated, dominated by the US and Japan players including Lam Research, Applied Materials, and Tokyo Electron. Due to the extensive market penetration of several established organizations in the market, vendors are likely to face stiff competition. Long-standing players are seen to have an advantage since strong brands are associated with high performance.

Further, key players in the global dry etching equipment market are:

Lam Research Corporation

Tokyo Electron Limitedv Samsung Electronics Co., Ltd. (SEMES Co Ltd.)

Hitachi, Ltd. (Hitachi High Tech Corporation)

Oxford Instruments PLC

Applied Materials Inc.

ULVAC Inc.

KLA Corporation (SPTS Technologies)

Advanced Micro-Fabrication Equipment Inc. China

NAURA Technology Group Co., Ltd.

Giga Lane Co. Ltd.

Plasma-Therm

Samco Inc.

Beijing's E-Town Capital (Mattson Technology, Inc.)

Despite the presence of a limited number of dry etching equipment manufacturers in various regions of the world, there is fierce competition among vendors due to the significant market penetration of select existing producers. All of the top companies control a significant portion of the market and are focused on expanding their consumer base globally. Companies are increasing their market share during the projection period by forming various collaborations with smaller players and investing in the launch of new goods to acquire a competitive advantage. For example, In July 2022, Lam Research, Entegris, and Gelest collaborated to Advance EUV Dry Resist Technology Ecosystem. The companies are working together to accelerate the development of future cost-effective dry resist solutions. Dry resist offers the excellent etch resistance and variable thickness scaling of deposition and growth required to fulfil the lowered depth of focus requirements of high-NA EUV.?

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