

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.?

Contents

1. EXECUTIVE SUMMARY

2. INTRODUCTION

2.1 Dry Etch: An Overview

2.1.1 Definition of Dry Etch

2.1.2 Process of Dry Etching

2.2 Dry Etch Segmentation: An Overview

2.2.1 Dry Etch Segmentation

3. GLOBAL MARKET ANALYSIS

3.1 Global Dry Etching Equipment Market: An Analysis

3.1.1 Global Dry Etching Equipment Market: An Overview

3.1.2 Global Dry Etching Equipment Market by Value

3.1.3 Global Dry Etching Equipment Market by Type (conductor dry etching equipment, and dielectric dry etching equipment)

3.1.4 Global Dry Etching Equipment Market by Region

3.2 Global Dry Etching Equipment Market: Type Analysis

3.2.1 Global Dry Etching Equipment Market by Type: An Overview

3.2.2 Global Conductor Dry Etching Equipment Market by Value

3.2.3 Global Dielectric Dry Etching Equipment Market by Value

4. REGIONAL MARKET ANALYSIS

4.1 Asia Pacific Dry Etching Equipment Market: An Analysis

4.1.1 Asia Pacific Dry Etching Equipment Market: An Overview

4.1.2 Asia Pacific Dry Etching Equipment Market by Value

4.1.3 Asia Pacific Dry Etching Equipment Market by Region (China, Japan, South Korea and Rest of Asia Pacific)

4.1.4 China Dry Etching Equipment Market by Value

4.1.5 Japan Dry Etching Equipment Market by Value

4.1.6 South Korea Dry Etching Equipment Market by Value

4.1.7 Rest of Asia Pacific Dry Etching Equipment Market by Value

4.2 North America Dry Etching Equipment Market: An Analysis

4.2.1 North America Dry Etching Equipment Market: An Overview

4.2.2 North America Dry Etching Equipment Market by Value

4.2.3 North America Dry Etching Equipment Market by Region (The US, Canada, and Mexico)

4.2.4 The US Dry Etching Equipment Market by Value

4.2.5 Canada Dry Etching Equipment Market by Value

4.2.6 Mexico Dry Etching Equipment Market by Value

4.3 Europe Dry Etching Equipment Market: An Analysis

4.3.1 Europe Dry Etching Equipment Market: An Overview

4.3.2 Europe Dry Etching Equipment Market by Value

4.3.3 Europe Dry Etching Equipment Market by Region (Germany, Spain, UK, Italy, France, and the Rest of Europe)

4.3.4 Germany Dry Etching Equipment Market by Value

4.3.5 Spain Dry Etching Equipment Market by Value

4.3.6 UK Dry Etching Equipment Market by Value

4.3.7 Italy Dry Etching Equipment Market by Value

4.3.8 France Dry Etching Equipment Market by Value

4.3.9 Rest of Europe Dry Etching Equipment Market by Value

4.4 Rest of the World Dry Etching Equipment Market: An Analysis

4.4.1 Rest of the World Dry Etching Equipment Market: An Overview

4.4.2 Rest of the World Dry Etching Equipment Market by Value

5. IMPACT OF COVID

5.1 Impact of COVID-19 on Semiconductor Industry

5.2 Impact of COVID-19 on Dry Etch Market

5.3 post-COVID-19 Impact on Global Dry Etch Market

6. MARKET DYNAMICS

6.1 Growth Driver

6.1.1 Growth of Semiconductor Market

6.1.2 Rapid Urbanization

6.1.3 Increased Demand for Consumer Electronic Devices

6.1.4 Rise in Automotive Industry

6.1.5 Emergent Global Demand for Silicon Wafer

6.2 Challenges

6.2.1 Manufacturing of Machines Outpaces the Demand

6.2.2 Geo Political Tension

6.3 Market Trends

6.3.1 Increasing Penetration of AI applications

- 6.3.2 Escalation of Internet of Things (IOT)
- 6.3.3 Emerging Industrial Robotics
- 6.3.4 Launch of 5G Network
- 6.3.5 Growing Global Demand for Photovoltaic Cells

7. COMPETITIVE LANDSCAPE

- 7.1 Global Dry Etching Equipment Players by Market Share
- 7.2 Global Dielectric Dry Etching Equipment Players by Market Share
- 7.3 Global Conductor Dry Etching Equipment Players by Market Share

8. COMPANY PROFILES

- 8.1 Lam Research Corporation
 - 8.1.1 Business Overview
 - 8.1.2 Operating Regions
 - 8.1.3 Business Strategy
- 8.2 Tokyo Electron Limited
 - 8.2.1 Business Overview
 - 8.2.2 Operating Segments
 - 8.2.3 Business Strategy
- 8.3 Samsung Electronics Co., Ltd. (SEMES Co Ltd.)
 - 8.3.1 Business Overview
 - 8.3.2 Operating Segments
 - 8.3.3 Business Strategy
- 8.4 Hitachi, Ltd. (Hitachi High Tech Corporation)
 - 8.4.1 Business Overview
 - 8.4.2 Operating Segments
 - 8.4.3 Business Strategy
- 8.5 Oxford Instruments PLC
 - 8.5.1 Business Overview
 - 8.5.2 Operating Segments
 - 8.5.3 Business Strategy
- 8.6 Applied Materials Inc.
 - 8.6.1 Business Overview
 - 8.6.2 Operating Segments
 - 8.6.3 Business Strategy
- 8.7 ULVAC Inc.
 - 8.7.1 Business Overview

- 8.7.2 Business Segment
- 8.7.3 Business Strategy
- 8.8 KLA Corporation (SPTS Technologies)
 - 8.8.1 Business Overview
 - 8.8.2 Operating Segments
 - 8.8.3 Business Strategy
- 8.9 Advanced Micro-Fabrication Equipment Inc. China
 - 8.9.1 Business Overview
 - 8.9.2 Business Strategy
- 8.10 NAURA Technology Group Co., Ltd.
 - 8.10.1 Business Overview
 - 8.10.2 Business Strategy
- 8.11 Giga Lane Co. Ltd.
 - 8.11.1 Business Overview
 - 8.11.2 Business Strategy
- 8.12 Plasma-Therm
 - 8.12.1 Business Overview
 - 8.12.2 Business Strategy
- 8.13 Samco Inc.
 - 8.13.1 Business Overview
 - 8.13.2 Business Strategy
- 8.14 Beijing's E-Town Capital (Mattson Technology, Inc.)
 - 8.14.1 Business Overview

List Of Figures

LIST OF FIGURES

Figure 1: Process of Dry Etching

Figure 2: Dry Etch Segmentation by Type

Figure 3: Global Dry Etching Equipment Market by Value; 2017-2021 (US\$ Billion)

Figure 4: Global Dry Etching Equipment Market by Value; 2022-2027 (US\$ Billion)

Figure 5: Global Dry Etching Equipment Market by Type; 2021 (Percentage, %)

Figure 6: Global Dry Etching Equipment Market by Region; 2021 (Percentage, %)

Figure 7: Global Conductor Dry Etching Equipment Market by Value; 2017-2021 (US\$ Billion)

Figure 8: Global Conductor Dry Etching Equipment Market by Value; 2022-2027 (US\$ Billion)

Figure 9: Global Dielectric Dry Etching Equipment Market by Value; 2017-2021 (US\$ Billion)

Figure 10: Global Dielectric Dry Etching Equipment Market by Value; 2022-2027 (US\$ Billion)

Figure 11: Asia Pacific Dry Etching Equipment Market by Value; 2017-2021 (US\$ Billion)

Figure 12: Asia Pacific Dry Etching Equipment Market by Value; 2022-2027 (US\$ Billion)

Figure 13: Asia Pacific Dry Etching Equipment Market by Region; 2021 (Percentage, %)

Figure 14: China Dry Etching Equipment Market by Value; 2017-2021 (US\$ Billion)

Figure 15: China Dry Etching Equipment Market by Value; 2022-2027 (US\$ Billion)

Figure 16: Japan Dry Etching Equipment Market by Value; 2017-2021 (US\$ Million)

Figure 17: Japan Dry Etching Equipment Market by Value; 2022-2027 (US\$ Billion)

Figure 18: South Korea Dry Etching Equipment Market by Value; 2017-2021 (US\$ Million)

Figure 19: South Korea Dry Etching Equipment Market by Value; 2022-2027 (US\$ Million)

Figure 20: Rest of Asia Pacific Dry Etching Equipment Market by Value; 2017-2021 (US\$ Million)

Figure 21: Rest of Asia Pacific Dry Etching Equipment Market by Value; 2022-2027 (US\$ Billion)

Figure 22: North America Dry Etching Equipment Market by Value; 2017-2021 (US\$ Billion)

Figure 23: North America Dry Etching Equipment Market by Value; 2022-2027 (US\$ Billion)

Figure 24: North America Dry Etching Equipment Market by Region; 2021 (Percentage, %)

Figure 25: The US Dry Etching Equipment Market by Value; 2017-2021 (US\$ Billion)

Figure 26: The US Dry Etching Equipment Market by Value; 2022-2027 (US\$ Billion)

Figure 27: Canada Dry Etching Equipment Market by Value; 2017-2021 (US\$ Million)

Figure 28: Canada Dry Etching Equipment Market by Value; 2022-2027 (US\$ Million)

Figure 29: Mexico Dry Etching Equipment Market by Value; 2017-2021 (US\$ Million)

Figure 30: Mexico Dry Etching Equipment Market by Value; 2022-2027 (US\$ Million)

Figure 31: Europe Dry Etching Equipment Market by Value; 2017-2021 (US\$ Billion)

Figure 32: Europe Dry Etching Equipment Market by Value; 2022-2027 (US\$ Billion)

Figure 33: Europe Dry Etching Equipment Market by Region; 2021 (Percentage, %)

Figure 34: Germany Dry Etching Equipment Market by Value; 2017-2021 (US\$ Million)

Figure 35: Germany Dry Etching Equipment Market by Value; 2022-2027 (US\$ Billion)

Figure 36: Spain Dry Etching Equipment Market by Value; 2017-2021 (US\$ Million)

Figure 37: Spain Dry Etching Equipment Market by Value; 2022-2027 (US\$ Million)

Figure 38: UK Dry Etching Equipment Market by Value; 2017-2021 (US\$ Million)

Figure 39: UK Dry Etching Equipment Market by Value; 2022-2027 (US\$ Million)

Figure 40: Italy Dry Etching Equipment Market by Value; 2017-2021 (US\$ Million)

Figure 41: Italy Dry Etching Equipment Market by Value; 2022-2027 (US\$ Million)

Figure 42: France Dry Etching Equipment Market by Value; 2017-2021 (US\$ Million)

Figure 43: France Dry Etching Equipment Market by Value; 2022-2027 (US\$ Million)

Figure 44: Rest of Europe Dry Etching Equipment Market by Value; 2017-2021 (US\$ Million)

Figure 45: Rest of Europe Dry Etching Equipment Market by Value; 2022-2027 (US\$ Billion)

Figure 46: Rest of the World Dry Etching Equipment Market by Value; 2017-2021 (US\$ Billion)

Figure 47: Rest of the World Dry Etching Equipment Market by Value; 2022-2027 (US\$ Billion)

Figure 48: Global Semiconductor Market Sales; 2017-2021 (US\$ Billion)

Figure 49: Global Urban Population; 2017-2021 (Percentage, %)

Figure 50: Global Consumer Electronics Revenue, 2017-2021; (US\$ Billion)

Figure 51: Global Motor Vehicle Production Statistics by Region; 2018-2021 (Million)

Figure 52: Global Demand For 300mm Silicon Wafer; 2019-2024 (Million Wafer/Month)

Figure 53: Global Artificial Intelligence (AI) Market Revenues; 2020-2023 (US\$ Billion)

Figure 54: Global Number of Internet of Things (IOT) Connected Devices; 2017-2025 (Billion)

Figure 55: Global Annual Installations of Industrial Robots; 2017-2025 (Thousands)

Figure 56: Global 5G Smartphone Subscriptions; 2020-2027 (Billion)

Figure 57: Global Solar PV Net Additional Capacity; 2017-2026 (GW)

Figure 58: Global Dry Etching Equipment Players by Market Share; 2021 (Percentage, %)

Figure 59: Global Dielectric Dry Etching Equipment Players by Market Share; 2021 (Percentage, %)

Figure 60: Global Conductor Dry Etching Equipment Players by Market Share; 2021 (Percentage, %)

Figure 61: Lam Research Corporation Revenue by Region; 2022 (Percentage, %)

Figure 62: Tokyo Electron Limited Net Sales by Segments; 2022 (Percentage, %)

Figure 63: Samsung Electronics Co., Ltd. Net Revenue by Segments; 2021 (Percentage, %)

Figure 64: Hitachi Ltd. Revenue by Segments; 2021 (Percentage, %)

Figure 65: Oxford Instruments PLC Revenue by Segments; 2021 (Percentage, %)

Figure 66: Applied Materials Revenue by Segments; 2022 (Percentage, %)

Figure 67: ULVAC Inc. Net Sales by Business Segments; 2021 (Percentage, %)

Figure 68: KLA Corporation Revenue by Segments; 2022 (Percentage, %)

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