TECHCET
Electronics Materials Information

2024-2025 CMR™
ALD/CVD, Hi-K and Metal Precursor

Supply-Chain & Market Analysis
A Critical Materials Report™

Prepared By:
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RESEARCH METHODOLOGY

TECHCET employs subject matter experts having first-hand experience within the industries which they analyze. Most of TECHCET's analysts have over 25 years of direct and relevant experience in their field. Our analysts survey the commercial and technical staff of IC manufacturers and their suppliers, and conduct extensive research of literature and commerce statistics to ascertain the current and future market environment and global supply risks. Combining this data with TECHCET's proprietary, quantitative wafer forecast results in a viable long-term market forecast for a variety of process materials.

READER'S NOTE

This report represents the interpretation and analysis of information generally available to the public or released by responsible agencies or individuals. Data was obtained from sources considered reliable. However, accuracy or completeness is not guaranteed.

All market shares, revenue and volume numbers represented in the report are estimates only. Many of these companies do not report actual revenues or volumes per segment.

Analyst Biography

Jonas Sundqvist, Ph.D., Senior Technology Analyst

Senior Analyst for CVD, ALD Dielectric Precursors and Deposition and Etch Equipment

Jonas Sundqvist is an accomplished professional with a background in inorganic chemistry and semiconductor wafer processing. He received his PhD from Uppsala University and has made significant contributions in the field of thin film deposition processes. Dr. Sundqvist's expertise spans research, development, and practical applications in the semiconductor industry, including Etch, Epi, ALD and CVD processes, market insights, and co-founding AlixLabs, a company focused on innovative Atomic Layer Etch technology solutions

In 2003, he joined Infineon Memory Development Centre (MDC) as a process engineer, focusing on high-k and metal nitride ALD processes. Later, at Qimonda (2006), he was part of the Materials Management team, responsible for precursor procurement and acquisition, with a specific emphasis on ALD precursors for DRAM development and production. In 2009, Dr. Sundqvist joined Fraunhofer CNT as a group leader and expert in thin film deposition, emphasizing high-k dielectrics and electrode materials for Memory and CMOS. CEO of AlixLabs since 2020.

Degree in electrical engineering (Lars Kagg, Sweden), Master in Inorganic Chemistry & PhD in Inorganic Chemistry (Uppsala University, Sweden), Adjunct Associate Professor in Inorganic Chemistry (Linköping University, Sweden)

Jonas Sundqvist, PhD.
Senior Technology Analyst

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TECHCET
Electronics Materials Information

2.1 Scope

- This report covers the market landscape and supply-chain for Precursors used in semiconductor device fabrication. It includes information about key suppliers, issues/trends in the material supply chain, estimates on supplier market share, and forecast for the material segments.

- This Critical Materials Report™ (CMR) provides focused information for
  - Business Development Managers
  - Supply Chain Managers
  - R&D directors
  - Investors / Financial Analysts
  - Policy Makers

2.2 Methodology

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- Data and analysis is generated from both primary and secondary market research performed by TECHCET's staff of market and technology analysts. Forecasts models are developed from TECHCET's database of historical information, process flows and wafer forecasts by technology node and device type. These are then validated with market research interviews with industry experts. For more information on TECHCET Critical materials Reports™ please go to https://TECHCET.com

2.3 Overview of Other TECHCET CMR™ Offerings

- TECHCET produces electronic material supply chain reports each year as one of its functions for the Critical Materials Council. Reports to be published in 2024 can be found at www.techcet.com and are listed in the table below:

TECHCET's Critical Materials Expert Data & Consulting	
1	CMP Consumables (Pads & Slurry)
2	CMP Equipment Ancillaries (Conditioners, Filters, etc.)
3	CVD /ALD Hi K Precursors
4	CVD DIELECTRIC Precursors
5	Equipment Components – Quartz
6	Equipment Components – Silicon
7	Equipment Components – SiC/Ceramics
8	Equipment Components - Elastomers
9	Gases - Electronic Specialty, Bulk & Rare Gases
10	Metal Plating Chemicals
11	Photoresists, Ancillaries & Extension Materials
12	Sputtering Targets
13	Silicon and SOI Wafers
14	Special Report: SiC Wafers and Manufacturing Costing
15	Wet Chemicals / Specialty Cleans & Containment
16	Special Report: Impact of Chip Expansions on Chemical Supply-Chains
17	Packaging Materials (die attach, EMC, lead frame, wire, etc.)