



# 2021 TECHCET'S CRITICAL MATERIALS REPORT™

## ELECTRONIC GASES SUPPLY-CHAIN & MARKET ANALYSIS

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# RESEARCH METHODOLOGY

TEHCET employs subject matter experts having first-hand experience within the industries which they analyze. Most of TEHCET'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 TEHCET'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.



- Jonas Sundqvist, Ph.D. – Sr. Technology Analyst of TECHCET— covers Electronic Gases and ALD & CVD precursors and related technologies, and the co-chair of the Annual Critical Materials Council (CMC) Conference. His over 20 years of work experience includes Group Leader of the Thin-Film Technologies Group at The Fraunhofer Institute for Ceramic Technologies and Systems (IKTS) in Germany, Clean Room Operations Manager for Lund Nano Lab, Lund University in Sweden and Group Leader of the ALD & High-k devices group at Fraunhofer's Center Nanoelectronic Technologies (CNT) in Germany, which included 28nm node work for GLOBALFOUNDRIES Fab1.
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- Jonas Sundqvist is on the Scientific Committee for AVS ALD and has co-chaired ALD2016 Dublin Ireland, and the annual EFDS ALD for Industry Workshop in Germany.

## Jonas Sundqvist, Ph.D.



Jonas Sundqvist,  
Sr. Technology Analyst of TECHCET,  
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# 2 SCOPE, PURPOSE AND METHODOLOGY

# 2.1

## SCOPE

This report covers the electronic gas materials market and supply-chain for these materials used in semiconductor device fabrication. The report contains data and analysis from TECHCET's data base and Sr. Analyst experience, as well as that developed from primary and secondary market research. For more information on TECHCET Critical materials Reports™ please go to <https://TEHCET.com>

One of the challenges that the gas companies encounter is profitability due to the timing of investments and industry downturns for large installations like Air Separation Units (ASUs) and Semiconductor fabs. In the meantime, new suppliers are emerging in the China market to support the “Made in China” program backed by the government. When these suppliers gain in capability and capacity, their influence could dramatically impact the gas supply chain in the next 3+ years.

# 2.2

## PURPOSE

This Critical Materials Report™ (CMR) provides focused information for supply-chain managers, process integration and R&D directors, as well as business development managers, and financial analysts. The report covers information about key suppliers, issues/trends in the material supply chain, estimates on supplier market share, and forecast for the material segments.

# 2.3

## METHODOLOGY

TEHCET employs subject matter experts having first-hand experience within the industries which they analyze. Most of TEHCET'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 TEHCET's proprietary, quantitative wafer forecast results in a viable long-term market forecast for a variety of process materials.

# 2.4

## OVERVIEW OF OTHER TECHCET CMR™ REPORTS

TEHCET produces electronic material supply chain reports each year as one of its functions for the Critical Materials Council. Reports to be published in 2021 can be found at [www.techcet.com](http://www.techcet.com) and are listed in the table below:

2021	CMR Report Schedule
1	CMP Pads and Slurry
2	Equipment Components – Quartz
3	Gases + Xeon / Neon
4	Photoresist
5	Precursors - Dielectric Precursors
6	Precursors - Hi K / ALD CVD Metal Precursors
7	Silicon Wafers
8	Specialty Cleaning Chems / Wet Chems
9	Equipment Components – Ceramics/SiC
10	Metal Chemicals
11	Targets
12	Equipment Components- Silicon 2020 version with 2021 forecast