Electronic Specialty Gases

Etch and deposition demand, supply concentration and the domestic substitution path

Base year	History	Forecast
2025	**2020–2025**	**2026–2032**
Regions	Segments	Formats
5	**5**	**PDF / Excel / PPT**

Abstract

Electronic specialty gases are irreplaceable consumables in semiconductor manufacturing, spanning etch, deposition, doping, cleaning and excimer laser applications. In 2025 they accounted for 34.3% of the semiconductor-grade chemicals market — the second-largest category after wet chemicals.

The report focuses on supply concentration risk: over 70% of critical semiconductor materials originate from a limited set of regions, and noble gas prices rose more than 300% during past shortages. That structure is both a risk and an opening for suppliers with purification and blending capability.

Key findings (excerpt)

- TECHCET forecasts the 2025 global electronic gases market at USD 6.34 billion, up 4.8% year on year, with specialty gases +5.2% and bulk gases +3.8%; total CAGR 2024–2029 of 5.0% and 5.3% for specialty gases.
- Etch gases and deposition precursors lead demand as advanced nodes and 3D structures spread: WF6 is forecast +12% in 2025, NF3 +5% and helium +6% (TECHCET).
- Definitions diverge enough to break any model: the same year's specialty gas market is USD 2.80 billion on Grand View Research's narrow basis, USD 5.10 billion per Persistence and gasworld, while TECHCET's total electronic gases definition is USD 6.34 billion.
- Supply is concentrated and geopolitics feeds straight into price: tariffs and US-China tension are driving localisation and reshoring, and Asian fabs in the US still source specialty gases from Asia to keep process consistency (TECHCET).
- Domestic substitution is advancing fastest in fluorinated etch gases and precursors while high-end doping and laser gases stay import-dependent; hazardous-material logistics and on-site supply models add a further barrier.

Electronic gases and specialty gases: definitions compared

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Source and scope	2025 size	Forecast year	Forecast size or CAGR
TECHCET（电子气体合计）	63.4 亿美元	2029	CAGR 5.0%
TECHCET（其中特种气体）	—	2029	CAGR 5.3%
Persistence Market Research	51.0 亿美元	2032	69.0 亿美元
Grand View Research（窄口径）	28.0 亿美元	2033	—

TECHCET is total electronic gases (including bulk); the others are narrower specialty-gas scopes, so they are not directly comparable.

Source: TECHCET / Persistence / Grand View Research，2025–2026

4 in total, all listed in the full edition

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Method and definitions

This brief is built from public sources: Chinese and English industry and consultancy reports, annual reports and prospectuses, customs and statistical series, and public capacity or expansion announcements by main participants. Where two sources disagree on the same metric, both figures are shown with the reason for the gap instead of being averaged. Amounts are in USD at nominal value unless stated; capacity is in 10k t/yr. Forecast window 2026–2032, base year 2025.

Data updated：{'zh': '半年度更新', 'en': 'Semi-annual'}

Coverage

- Mainland China
- Taiwan, China
- South Korea
- Japan
- Europe & North America

Excerpts below let you judge structure and methodology; the paid edition lists everything.

Main participants (excerpt)

- Linde
- Air Products
- Air Liquide
- 大阳日酸 / Taiyo Nippon Sanso
- 华特气体 / Huate Gas
- 金宏气体

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Sources (excerpt)

1. A TECHCET（Semiconductor Digest 报道）：2025 年全球电子气体市场 63.4 亿美元、同比 +4.8%；特种气体 +5.2%、大宗气体 +3.8%；2024–2029 年合计 CAGR 5.0%、特种气体 5.3%；WF6 +12%、NF3 +5%、氦气 +6%。https://www.semiconductor-digest.com/techcet-forecasts-6-3b-electronic-gases-market-in-2025/（2026-11 访问）
2. B Persistence Market Research（Newstrail 转载）：2025 年电子特气 51.0 亿美元、2032 年 69.0 亿美元。https://www.newstrail.com/electronic-specialty-gases-market-to-reach-us6-9-billion-by-2032-persistence-market-research/（2026-11 访问）
3. C Grand View Research《Electronic Specialty Gas Market》：2025 年 28.0 亿美元（窄口径）。https://www.grandviewresearch.com/industry-analysis/electronic-specialty-gas-market-report（2026-11 访问）

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