

PRAXAIR
Making our planet more productive



Comprehensive Electronics Solutions

Praxair offers a full suite of electronics gases, equipment and services.

Applications:

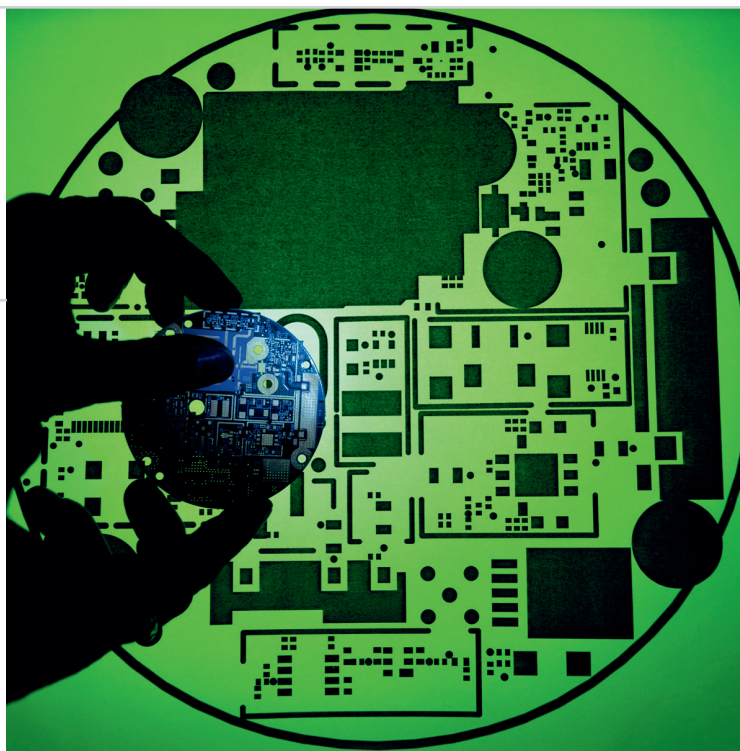
- Semiconductor
- LEDs and Photonics
- Solar
- Nanotechnology
- Electronics Assembly

From cost effectiveness to supply reliability to product quality – across North America and around the world – Praxair is the gas supply partner with a proven track record of success. Praxair's experts are uniquely positioned to address the key needs of your operation, helping you remain competitive in today's highly complex, global electronics market.

Product solutions with consistent performance

Praxair is your industry-leading electronics solutions provider, backed by the dedicated service and industry know-how of the largest industrial gas company in North America.

Whether its cylinder specialty gases for production processes, facility support gases from a microbulk system, or bulk or on-site delivery systems for large quantity demands, electronics manufacturing requires reliable, consistent products and service to get the job done right. Praxair's complete suite of electronics gases, delivery equipment and services are designed to help you boost productivity and cut costs – crucial to your bottom line.



Process gases that support your productivity

Praxair's global track record of supporting electronics producers in semiconductor, LED and electronics assembly markets among others is second to none. Our process gases maximize productivity, reduce process costs and enable new technologies. Count on Praxair for a reliable supply of gases that match your production process requirements:

Etch/Clean

- Halocarbons
- Sulfur hexafluoride
- Boron trichloride
- Chlorine
- Hydrogen chloride
- Fluorine/nitrogen mix
- Nitrogen trifluoride
- Xenon and other rare gases
- CO₂, CO, SO₂

Lithography – Laser Mixes

- Ar/Xe/Ne and ArFNe (193nm)
- Kr/Ne and KrFNe (248nm)
- HCl – hydrogen mixes
- XeCl mixes
- He/O₂ litho cleaning mixes
- Microbulk CO₂
- Other non-Excimer laser mixes

Implant/Doping

- Arsine
- Phosphine
- Boron Trifluoride
- Carbon doping (CO, etc.)
- Ge2F4; SiF4
- Advanced doping mixtures
- Xe/H₂ cleaning mixes

Deposition/CVD/Epi

- Chlorosilanes (DCS, TCS, STC)
- Silicon tetrafluoride
- Germane mixes
- Ammonia
- Nitrous and nitric oxide
- Tungsten hexafluoride
- Diborane and phosphine mixes
- Hydrocarbons and mixtures (e.g. Methane, Acetylene, Ethylene)
- Forming gas



All implant/doping process gases are available in Praxair's *UpTime*® Sub-atmospheric Delivery System – the industry-leading solution for safe, cost-effective toxic material delivery in the electronics and semiconductor industry for ion implantation and plasma doping processes.



Facility support gases in the optimal supply configuration

In addition to offering state-of-the-art process gases, Praxair specializes in manufacturing and supplying facility support gases to keep your operation working steadily. Whether you need one cylinder, or a whole truckload, look to Praxair to deliver:

- Nitrogen
- Helium
- Hydrogen
- Carbon Dioxide
- Argon

Flexible gas delivery options let you optimize your budget while ensuring you've got the gas you need to maintain your operations. Whether your work requires cylinders, clusters or dewars, Praxair supplies facility support gases from its robust network of nearby regional facilities so your supply doesn't run low, and you are assured a low-cost, local supply channel.

For mid-range volume needs, Praxair also offers microbulk gas delivery systems, a cost-effective supply solution designed to maximize your efficiency.



Your single-source supplier of gas delivery equipment

Whether you're increasing your current plant capacity, ramping up production of a new device or developing the next breakthrough technology, gases are only part of what it takes to be successful. Praxair offers a complete line of equipment to provide you a centralized resource for an efficient, safe and high-performing operation.

From standard low cost solutions to fully engineered custom systems, Praxair provides an extensive line of specialty gas handling equipment including:



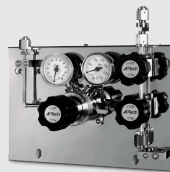
High-purity and ultra high-purity gas cabinets

Maintain the purity, integrity and safety of your system during cylinder use, replacement and maintenance



Bulk specialty gas systems (BSGS)

Extensive experience in design and installation of key BSGS such as NH₃, SiH₄ and others



Purge panels

Compact and flexible to maximize your facility space



Delivery manifolds

Full line of semi- and fully-automatic delivery manifolds offer maximum cleanliness and longevity



Regulators

Ensure the safety and effectiveness of your gases with Praxair's full line of regulators including critical purity, high purity and special purpose regulators

Consistent service and technical support



At Praxair, our job is to help ensure your operation goes off without a hitch. Combining years of hands-on industry experience in electronics and specialty gases, our team is committed to excellence and brings you effective, creative solutions at a moment's notice.

Our Kingman, Arizona electronics flagship plant produces our top electronics gases with an industry leading quality platform

Regional spec gas plants and warehousing facilities ensure the right product is cost-effective and readily available

The North American Technical Support Center offers you prompt, single-point-of-contact to help find the products, equipment and answers you need

The Praxair Technology Center provides the electronics engineering and technology experts that can troubleshoot your issues and develop the next generation gases for your development

Praxair is committed to providing you with the highest standard of electronics gases, equipment and service – from regional and local supply facilities for reliable, on-time delivery to our around-the-clock industry-leading technical support.

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Praxair is the largest industrial, medical and specialty gases company in North and South America and the premier choice of electronics manufacturing operations managers, engineers, scientists and procurement professionals. For more than 100 years, Praxair has been dedicated to safety and customer satisfaction, and we provide products, monitoring technologies and services that represent the highest standards of quality and reliability. Our products, services and technologies provide productivity and environmental benefits to a wide variety of industries, including aerospace, chemicals, food and beverage, electronics, energy, healthcare, manufacturing, metals and others.

For an evaluation of your current electronics solutions and ways you can improve, call 877.772.9247 for a free consultation today.



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