# **Supply Chain Explorer**

### By the Emerging Technology Observatory

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## **Electronic gases**

Gases are widely used in semiconductor fabrication, including common gases like nitrogen, hydrogen, helium, argon helium, and carbon dioxide as well as speciality electronic gases like nitrogen trifluoride, tungsten hexafluoride, hydrogen chloride, ammonia, disilane, germane, high-purity carbon dioxide, and nitrous oxide. Photolithography involves the use of various noble gases (e.g. neon, argon, and krypton) to create lasers to draw circuit patterns on wafers. (However, the most advanced photolithography equipment, EUV, uses a tin light source rather than a gas-based light source.)

#### **Country provision**

- · China (mainland)
- France
- Germany
- Japan
- · United States

### Notable supplier companies

- Air Liquide France
- · Air Products United States
- BASF Germany
- Entegris United States
- · Huate Gas China (mainland)
- · Jinhong Gas China (mainland)
- · Linde Germany
- Merck Group Germany
- · Nata Opto-electronic Material China (mainland)
- PERIC China (mainland)
- · Praxair United States
- SK Materials South Korea
- Showa Denko Japan
- TNSC Japan
- · Wonik South Korea