



**Honeywell Chemicals
for Solar Cells**

Si Etchants and PV-grade hydrofluoric acid (HF)

Various grades and packaging available

Benefits:

- Reduces contamination and defect densities
- Improves purity for blended etchants
- Flexible to customers' needs
- Guarantees for a range of specifications

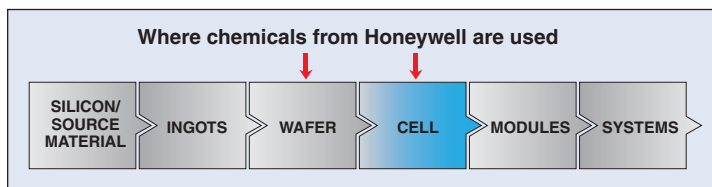
Features:

- Aqueous Isotropic etch
- Ultra High-purity (UHP) HF
- Various grades available
- 1-year shelf life
- Centrally located manufacturing facility
- Efficient logistics and supply
- Available in 1-gallon bottles, drums, totes and bulk

Honeywell Chemicals for Photovoltaic Industry

Honeywell Electronic Materials (HEM) offers a full range of electronic chemical grades to the photovoltaic industry. Our chemicals are used in the main production processes of solar cells and are customized to meet the requirements of the photovoltaic industry. We supply a specially designed PV-quality hydrofluoric acid called Puranal, a key chemical in the etchant process. As a world leader in Fluorine chemistry, Honeywell has established a broad base of application specific products to enable the photovoltaic industry to meet its technology roadmap.

Our expertise in the area of chemical packaging ensures that the purity of our products is maintained from the point of manufacturing to consumption. Our chemical containers and dispensing systems maintain the highest product purity while maximizing safety and convenience. HEM has the experience and expertise in the development of packaging technologies that you can rely on. We provide a full range of container options; our packaging specialists are able to deliver any type of packaging up to ISO-tanks. In addition, our specialists help our customers plan storage and recommend safe handling procedures for our materials



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HEM Chemicals for Solar Cells:

- Hydrofluoric Acid (HF)
- Nitric Acid (HNO₃)
- Hydrochloric Acid (HCl)
- Sulfuric Acid (H₂SO₄)
- Acetic Acid (CH₃COOH)
- Ammonia solution (NH₄OH) at different concentrations
- Potassium Hydroxide Solution (KOH 50% / 45%)
- 2-Propanol (IPA)
- Acetone
- Phosphoric Acid (for doping processes ULSI-quality)
- Other etchants and chemical mixtures according to customer demands

The Quality and Reliability You Can Expect from Honeywell

The technology behind our Etchants is based on Honeywell Electronic Materials (HEM) proprietary technology and is validated by both strong internal development processes and recognized industry test methods and laboratories. HEM is one of the world's leading materials suppliers to the semiconductor industry and adjacent marketplaces. With almost 50 years of experience, HEM has built significant expertise in several critical areas: ultra-high purity (UHP) material handling, polymer formulation, doping processes, management of optical properties, and precise coating techniques. All of this critical knowledge has been leveraged and applied to the needs of PV industry.

HEM provides its customers around the world with the best technology knowledge and expertise, outstanding material quality, world-class research and development, reliability and stability. HEM is committed to meeting our customers quality expectations in through a standard global manufacturing protocol. In all aspects of our business we continuously strive to improve our product quality and business processes by adopting policies of; Quality and Six Sigma Plus, Quality Certifications, Quality System Registration for Honeywell Electronic Materials, Worldwide Technical Support, Commitment to Safety and Environmental Certification.