

PURETCH™

UNMATCHED RELIABILITY AND
CONSISTENCY IN ULTRA HIGH PURITY
SEMICONDUCTOR GRADE
PHOSPHORIC ACID

PurEtch™ delivers unmatched reliability and consistency in ultra high purity semiconductor grade phosphoric acid. It exceeds the highest quality standards for Grade 3 Phosphoric Acid as defined by SEMI (Semiconductor Equipment & Materials International). Taking quality to the next level, PurEtch guarantees delivery within control limits every time and beats all other suppliers in terms of supply, consistency and purity.

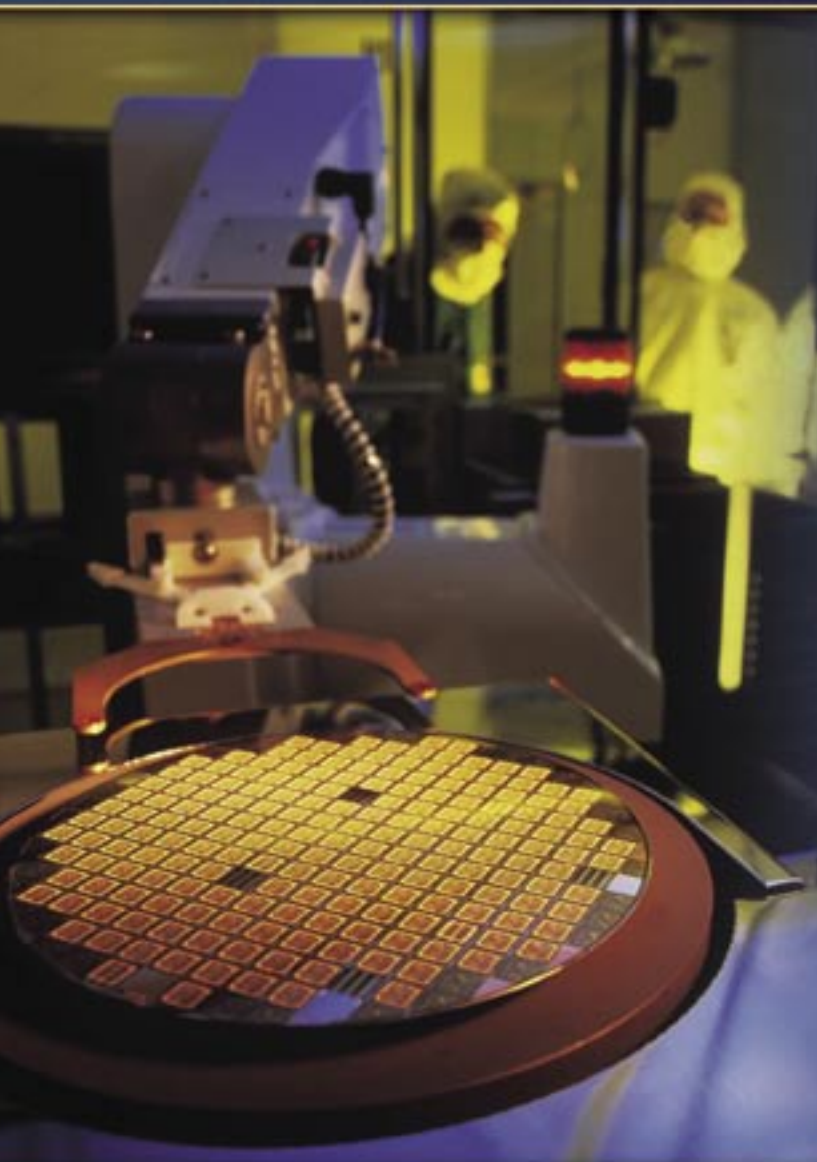
Astaris LLC has a long history in servicing the electronics industry. We are the worldwide leader in the manufacture of high purity phosphoric acids. Astaris is proud to be the only North American producer of ultra high purity semiconductor grade phosphoric acid.

Our raw material sourcing and manufacturing in North America ensures unmatched security of supply. And with the highest quality raw material source in the world, patented technology and proprietary manufacturing, we deliver a statistically consistent quality product. With storage, packaging, equipment and transportation resources dedicated exclusively to PurEtch and with multiple package options we deliver the product precisely when and how you want it.

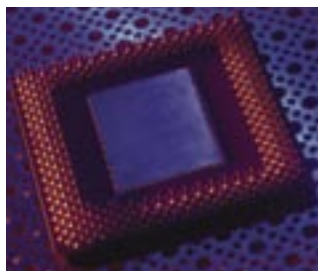
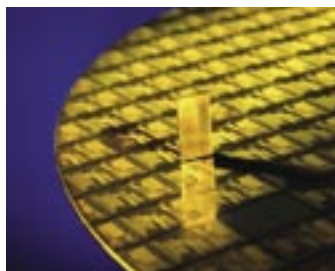
You can depend on PurEtch.
You have our guarantee.



 **ASTARIS**
Quality Products. Exceptional Response.



SEMICONDUCTOR GRADE PHOSPHORIC ACID



PRODUCT INFORMATION

PURETCH™, PHOSPHORIC ACID 85%

Semiconductor Grade 3, Code: 861

General Description: Clear, colorless liquid with no foreign odor

Formula: H_3PO_4

Molecular Weight: 98.0

Cas No.: 7664-38-2

Date Effective: July 12, 2005

CHARACTERISTICS

SPECIFICATION LIMITS

H_3PO_4 , %	85.0-87.0
Color, APHA	< 10 Maximum
Chloride (Cl), ppm	1 Maximum
Nitrate (NO_3), ppm	5 Maximum
Sulfate (SO_4), ppm	12 Maximum

METALS (ppb Maximum)

Aluminum (Al)	30	Cobalt (Co)	20	Nickel (Ni)	45
Antimony (Sb)	700	Copper (Cu)	20	Potassium (K)	100
Arsenic (As)	40	Gold (Au)	40	Sodium (Na)	150
Barium (BA)	10	Iron (Fe)	100	Strontium (Sr)	10
Boron (B)	40	Lead (pb)	20	Titanium (Ti)	10
Cadmium (Cd)	40	Lithium (Li)	10	Zinc (Zn)	50
Calcium (Ca)	100	Magnesium (Mg)	20		
Chromium (Cr)	40	Manganese (Mn)	10		

NOTE: Specification Limits are subject to change from time to time. Please contact us for current data sheet.

PHOSPHORIC ACID, 85%

Semiconductor Grade 2, Code: 852

General Description: Clear, colorless liquid with no foreign odor

Formula: H_3PO_4

Molecular Weight: 98.0

Cas No.: 7664-38-2

Date Effective: March 3, 2005

CHARACTERISTICS

SPECIFICATION LIMITS

H_3PO_4 , %	85.0-87.0
Color, APHA	10 Maximum
Chloride (Cl), ppm	1 Maximum
Nitrate (NO_3), ppm	5 Maximum
Sulfate (SO_4), ppm	12 Maximum

METALS (ppb Maximum)

Aluminum (Al)	300	Copper (Cu)	50	Nickel (Ni)	200
Antimony (Sb)	3500	Gold (Au)	150	Potassium (K)	450
Arsenic (As)	50	Iron (Fe)	700	Sodium (Na)	500
Cadmium (Cd)	450	Lead (pb)	300	Strontium (Sr)	100
Calcium (Ca)	1100	Lithium (Li)	100	Titanium (Ti)	300
Chromium (Cr)	200	Magnesium (Mg)	200	Zinc (Zn)	400
Cobalt (Co)	50	Manganese (Mn)	100		

NOTE: Specification Limits are subject to change from time to time. Please contact us for current data sheet.

BACKGROUND

Phosphoric acid is used in a variety of applications including as an etchant in the manufacture of semiconductor and TFT-LCD products. With advances in electronic technology and reduced geometries, it's increasingly important for etchants to perform to exacting standards. Materials with the highest consistency and purity from reliable suppliers are a necessity as even the slightest inconsistency can put millions of dollars of product at risk. As part of our dedication to continuous improvement and in order to meet the needs of our customers, we've added PurEtech to our product portfolio. Our quality products, diverse package options, and technical support make Astaris the number one choice for semiconductor grade phosphoric acid.

QUALITY CONTROL AND EXPERTISE

Strict manufacturing controls and handling procedures allow Astaris phosphoric acid to meet the rigorous SEMI specification for phosphoric acids. Our analytical instrumentation is best-in-class and the most advanced for phosphoric acid. Astaris phosphoric acid is produced using the highest quality elemental phosphorus in the world. Our high purity raw materials and world class manufacturing facilities allow the production of phosphoric acid with minimal impurities.

Astaris is a member of the SEMI organization and provides leadership to the Liquid Chemicals Committee for Phosphoric Acid. Astaris researchers have been at the forefront in the development of advanced analytical test procedures including automated ion chromatography method for trace anions, adopted by SEMI. Similarly, Astaris performs collaborative research in wet chemicals for the electronics industry. And we continue to explore innovative ways to enhance our products for this industry.

PACKAGING OPTIONS

Astaris phosphoric acid is available in multiple package options including bulk, drums and totes. Select the packaging that best meets your needs.



Astaris® LLC

622 Emerson Road • St. Louis, Missouri 63141

800-244-6169 • E-mail: info@astaris.com

www.puretech.us

NOTICE: Although the information and recommendations set forth herein (hereinafter "information") are presented in good faith and believed to be correct as of the date hereof, Astaris makes no representations or warranties as to the completeness or accuracy thereof. Information is supplied on the condition that the persons receiving same will make their own determination as to its suitability for their purposes prior to use. In no event will Astaris be responsible for damages of any nature whatsoever resulting from the use of or reliance upon information or the product to which the information refers. Nothing contained herein is to be construed as a recommendation to use any product, process, equipment or formulation in conflict with any patent and Astaris makes no representation or warranty, express or implied, that the use thereof will not infringe any patent. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESSED OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR THE PRODUCT TO WHICH INFORMATION REFERS.