Fisher Chemical High-Purity Acids

Trace Elemental Analysis Detect to ppq Levels

Fisher Chemical

Fisher Scientific

Introduction

Improve your detection limits with our high-purity acids.

Whether you are analyzing environmental samples, etching glass, conducting routine testing or using ICP, our high-purity acids meet the challenge, offering superior performance at exceptional value. We can supply the type of acid you need, in the grades, sizes and packaging that meet your requirements.

We offer a complete line of acid grades to meet the most challenging applications:

- **Optima™ Acids (1-100 ppt)** – Suitable for detection at ppq levels. Feature the lowest metal content (1 ppt for key metals) and the highest purity
- **Trace Metal™ Acids (0.1-1 ppb)** – High-purity, exceptional value. Specification measured at 0.1 ppb for key metals
- **Primar Plus™ Acids (1-10 ppb)** – The perfect choice for routine applications
- **For Analysis, AR Acids (Low cadmium, lead and mercury level)** – Suitable for use in environmental and food applications

For your convenience, our high-purity acids products are provided in fully recyclable, robust packaging for easier and safer handling.

Discover our high-purity acids today!

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Detection level ppt to as low as ppq

Fisher Chemical Optima Acids

Nitric Acid packaging

The highest purity of acids and bases for ultra-trace metal analysis. All products are certified below 100 parts per trillion (ppt or pg/g) with critical impurities specified at 1 ppt level. This range contains the fewest trace metallic impurities of any other acid. Our Optima Acids are tested for up to 65 elements at ppt levels using the Thermo Scientific™ Element™ 2 High Resolution ICP-MS.

Packaging highlights

Acids are packaged in either a fluorinated ethylene propylene resin bottle or a perfluoroalkoxy resin bottle with HCl and HF (to avoid vapor permeability issues).

- **Reliable** – Bottled in class 10 clean room environment and individually double-bagged in class 100 clean room to ensure product quality
- **Convenient** – Each bottle is individually packaged for easier and safer handling

Fisher Chemical Optima Acids			
Product code	**Product description**	**Pack size**	**Packaging**
A465-250		250mL	
A465-500	Acetic Acid Glacial min. 99%, Optima	500mL	Pre-cleaned FEP
A465-1		1L	
A470-250		250mL	
A470-500	Ammonia Solution 20-22%, Optima	500mL	Pre-cleaned HDPE
A470-1		1L	
A471-500	Hydrobromic Acid 44-49%, Optima	500mL	Pre-cleaned FEP
A466-250		250mL	
A466-500	Hydrochloric Acid 32-35%, Optima	500mL	Pre-cleaned PFA
A466-1		1L	
A463-250		250mL	
A463-500	Hydrofluoric Acid 47-51%, Optima	500mL	Pre-cleaned PFA
A463-1		1L	
P170-500	Hydrogen Peroxide 30-32%, Optima	500mL	Pre-cleaned FEP
A467-250		250mL	
A467-500	Nitric Acid 67-69%, Optima	500mL	Pre-cleaned FEP
A467-1		1L	
A468-250		250mL	
A468-500	Sulfuric Acid 93-98%, Optima	500mL	Pre-cleaned FEP
A468-1		1L	
W9-500		500mL	
W9-1	Water, Optima	1L	Pre-cleaned LDPE
W9-2		2L	
The certificate of analysis is delivered with each bottle and is available from www.acros.com			

Application example

ICP-Mass Spectrometry

ICP-MS is the routine tool for multi-element analysis, from ultra-trace (ppq) to matrix (%). The entire periodic table can be analyzed routinely in a few minutes. The Thermo Scientific™ portfolio features the most complete range of ICP-MS instrumentation. To exploit the full power of ICP-MS, chemicals of the highest quality and purity are required.

Our combined strengths in chemicals and analytical instrumentation guarantees unmatched quality for highest performance and undisputable results. The Fisher Chemical Optima Acids are a full range of chemicals for ultrapure analysis. Superiority is guaranteed by quality control using unparalleled Thermo Scientific™ instrumentation.

For more information, go to www.thermoscientific.com/elemental.

From ppb to ppt level detection

Fisher Chemical Trace Metal Acids

These high-purity acids and bases are certified below one part per billion (ppb or ng/g) with key impurities specified at 0.1 ppb and the majority of impurities at 0.5 ppb or lower. Our Trace Metal Acids range is tested up to 65 elements by ICP-MS. Fisher Chemical Trace Metal Grade acids are suitable for ICP-MS and ICP applications.

A508-P500 and A508-P212

Packaging highlights

- **Convenient** – Packaged in HDPE bottles, for safer, easier handling and to maintain quality
- **Reliable** – Bottled in class 10 clean room environment to ensure product quality

Fisher Chemical Trace Metal Acids

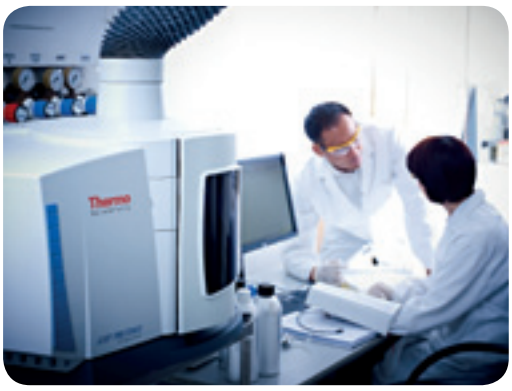
Product code	Product description	Pack size	Packaging
A507-P500	Acetic Acid, glacial min 99%,Trace Metal	500mL	HDPE bottle
A507-P1		1L	
A507-P212		2.5L	
A512-P500	Ammonia Solution 20-22%, Trace Metal	500mL	HDPE bottle
A508-P500	Hydrochloric Acid 34-37%, Trace Metal	500mL	HDPE bottle
A508-P1		1L	
A508-P212		2.5L	
A513-500	Hydrofluoric Acid 47-51%, Trace Metal	500mL	HDPE bottle
A509-P500	Nitric Acid 67-69%, Trace Metal	500mL	HDPE bottle
A509-P1		1L	
A509-P212		2.5L	
P/1292/PB08	Perchloric Acid 65-71%, Trace Metal	500mL	PVC coated bottle
P/1292/PB15		1L	
A510-P500	Sulfuric Acid 93-98%, Trace Metal	500mL	HDPE Bottle
A510-P1		1L	
A510-P212		2.5L	

The certificate of analysis is available from www.acros.com. Lot analysis is available on the label.

Application example

ICP Optical Emission Spectrometry

ICP-OES is a fast multi-element analysis technique capable of determining up to 72 elements in a very wide range of samples, including food, environmental, metallurgy and petrochemical samples.



With detection limit requirements from ppm to ppb levels, the Thermo Scientific™ iCAP™ 7000 Series ICP-OES is the laboratory workhorse for multi-element analysis, providing stable, efficient and low cost elemental analysis for all facilities. It is your simplified route to compliance in environmental, pharmaceutical and food safety fields, and a robust solution for exploratory or QA/QC industrial applications.

The best-performing ICP on the market deserves the best reagents. Our combined strengths in reagents and instrumentation guarantees unmatched quality for highest performance and the best results.

Fisher Chemical Trace Metal and Primar Plus grade acids allow iCAP instruments to achieve the ultimate in performance and guarantee high-quality results every time.

For more information, go to www.thermoscientific.com/elemental.

From ppm to ppb level detection

Fisher Chemical Primar Plus Acids

Range of acids for trace elemental analysis tested up to 40 elements at ppb levels at ICP. 1-10 ppb level detection.

Fisher Chemical Primar Plus Acids			
Product code	**Product description**	**Pack size**	**Packaging**
A/0411/PB08	Acetic Acid Glacial >99.8%, Primar Plus	500mL	HDPE bottle
A/0411/PB15		1L	
A/0411/PB17		2.5L	
H/1196/PB08	Hydrochloric Acid min. 37%, Primar Plus	500mL	HDPE bottle
H/1196/PB15		1L	
H/1196/PB17		2.5L	
N/2272/PB08	Nitric Acid min. 68%, Primar Plus	500mL	HDPE bottle
N/2272/PB15		1L	
N/2272/PB17		2.5L	
S/9231/PB08	Sulfuric Acid min. 95%, Primar Plus	500mL	HDPE bottle
S/9231/PB15		1L	
S/9231/PB17		2.5L	
The certificate of analysis is available from www.acros.com. Lot analysis is available on the label.			

Fisher Chemical For Analysis, AR Acids

A range of acids For Analysis, AR with a low cadmium, lead and mercury level. Suitable for use in environmental and food applications. From ppm to ppb level detection.

Fisher Chemical For Analysis, AR Acids			
Product code	**Product description**	**Pack size**	**Packaging**
H/1020/PB15	Hydrochloric Acid 25% – For Analysis, AR; low cadmium, lead & mercury level	1L	HDPE bottle
H/1020/PB17		2.5L	
H/1180/PB15	Hydrochloric Acid 37% – For Analysis, AR; low cadmium, lead & mercury level	1L	HDPE bottle
H/1180/PB17		2.5L	
N/2320/PB15	Nitric Acid 69% – For Analysis, AR; low cadmium, lead & mercury level	1L	HDPE bottle
N/2320/PB17		2.5L	
S/9220/PB15	Sulfuric Acid 95% – For Analysis, AR; low cadmium, lead & mercury level	1L	HDPE bottle
S/9220/PB17		2.5L	
The certificate of analysis is available from www.acros.com. Lot analysis is available on the label.			

Packaging highlight

- **Convenient** – Packaged in HDPE bottles, for safer, easier handling and to maintain quality

Application example

AA Spectrometry

AA spectrometry provides parts per million and parts per billion detection limits for most metallic elements in many different sample matrices with minimal interferences. Although invented over 50 years ago, AA is still the technique of choice for many laboratories.

With dedicated flame, furnace or combined flame and furnace options, the fast, easy-to-use and fully automated Thermo Scientific™ iCE 3000 Series AAs offers refreshingly good value for money. Our scientists designed this complete AA portfolio for your demanding analytical needs, offering stunning simplicity, innovative design and superior analytical performance, in a compact package.

For more information, go to www.thermoscientific.com/elemental.

Product specifications guide

At a time when you are striving for new levels of integration, sensitivity and performance in your laboratories, we offer an unmatched portfolio of products for the most common to the most complex applications.

Analyte	Specifications		
	Optima Nitric Acid, A467 Assay (HNO_3, w/w): 67-69%	**Trace Metal Nitric Acid, A509** Assay (HNO3, w/w): 67-69% Colour (APHA): 10	**Primar Plus Nitric Acid, Acid N/2272** Assay (HNO3, w/w): > 67-69%
	Trace impurites in ppt (pg/g)	**Trace impurities in ppb (ng/g)**	**Trace impurities in ppb (ng/g)**
	Maximum specifications		
Aluminium (Al)	20	1	100
Antimony (Sb)	10	0.5	5
Arsenic (As)	20	0.5	5
Barium (Ba)	10	0.1	50
Beryllium (Be)	10	0.1	5
Bismuth (Bi)	10	0.1	5
Boron (B)	10	1	5
Cadmium (Cd)	10	0.5	2
Calcium (Ca)	10	1	50
Cerium (Ce)	10	0.1	*
Cesium (Cs)	10	0.1	*
Chromium (Cr)	10	1	5
Cobalt (Co)	10	0.5	*
Copper (Cu)	10	0.5	5
Dysprosium (Dy)	1	0.1	*
Erbium (Er)	1	0.1	*
Europium (Eu)	1	0.1	*
Gadolinium (Gd)	1	0.1	*
Gallium (Ga)	10	0.1	5
Germanium (Ge)	10	0.1	5
Gold (Au)	20	0.1	*
Hafnium (Hf)	10	0.1	*
Holmium (Ho)	1	0.1	*
Indium (In)	1	0.1	5
Iron (Fe)	10	1	50
Lanthanum (La)	1	0.1	*
Lead (Pb)	10	0.1	2
Lithium (Li)	10	0.1	2
Lutetium (Lu)	1	0.1	*
Magnesium (Mg)	10	1	20
Manganese (Mn)	10	0.1	2
Mercury (Hg)	50	0.1	5
Molybdenum (Mo)	10	0.1	2
Neodymium (Nd)	1	0.1	*
Nickel (Ni)	20	0.5	2
Niobium (Nb)	1	0.1	*
Palladium (Pd)	20	0.5	*
Platinum (Pt)	20	0.5	*
Potassium (K)	10	1	20
Praseodymium (Pr)	1	0.1	*
Residue after ignition	*	*	<0,0002%
Rhenium (Re)	10	0.1	*
Rhodium (Rh)	10	0.5	*
Rubidium (Rb)	10	0.1	*
Ruthenium (Ru)	20	0.5	*
Samarium (Sm)	1	0.1	*
Scandium (Sc)	10	0.1	*
Selenium (Se)	Information only	1	2
Silver (Ag)	10	0.1	5
Sodium (Na)	10	1	100
Strontium (Sr)	10	0.1	2
Tantalum (Ta)	Information only	Information only	*
Tellurium (Te)	1	0.1	*
Terbium (Tb)	1	0.1	*
Thallium (Tl)	10	0.1	5
Thorium (Th)	1	0.1	*
Thulium (Tm)	1	0.1	*
Tin (Sn)	20	0.5	5
Titanium (Ti)	10	0.5	2
Tungsten (W)	10	0.1	*
Total chloride	*	*	<0,0002%
Total sulfur	*	*	200
Uranium (U)	1	0.1	*
Vanadium (V)	10	0.5	2
Ytterbium (Yb)	1	0.1	*
Yttrium (Y)	1	0.1	*
Zinc (Zn)	10	0.5	10
Zirconium (Zr)	10	0.1	5

* not tested

Select the suitable Fisher Chemical High-Purity Acid for your application !

Fisher Chemical High-Purity Acids selection guide						
		Optima detection level ppt to as low as ppq	**Trace Metal** 1 ppb level detection	**Primar Plus** 1-10 ppb level detection	**For Analysis, AR** (low cadmium, lead and mercury level)	
Product description	**Pack size**			**Product code**		
Acetic Acid Glacial	250mL	A465-250				
	500mL	A465-500	A507-P500	A/0411/PB08		
	1L	A465-1	A507-P1	A/0418/PB15		
	2.5L		A507-P212	A/0411/PB17		
Ammonia Solution	250mL	A470-250				
	500mL	A470-500	A512-P500			
	1L	A470-1				
Hydrobromic Acid	500mL	A471-500				
Hydrochloric Acid	250mL	A466-250				
	500mL	A466-500	A508-P500	H/1196/PB08		
	1L	A466-1	A508-P1	H/1196/PB15	H/1020/PB15*	H/1180/PB15**
	2.5L		A508-P212	H/1196/PB17	H/1020/PB17*	H/1180/PB17**
Hydrofluoric Acid	250mL	A463-250				
	500mL	A463-500	A513-500			
	1L	A463-1				
Hydrogen Peroxide	500mL	P170-500				
Nitric Acid	250mL	A467-250				
	500mL	A467-500	A509-P500	N/2272/PB08		
	1L	A467-1	A509-P1	N/2272/PB15	N/2320/PB15	
	2.5L		A509-P212	N/2272/PB17	N/2320/PB17	
Perchloric Acid	250mL					
	500mL		P/1292/PB08			
	1L		P/1292/PB15			
	2.5L					
Sulfuric Acid	250mL	A468-250				
	500mL	A468-500	A510-P500	S/9231/PB08		
	1L	A468-1	A510-P1	S/9231/PB15	S/9220/PB15	
	2.5L		A510-P212	S/9231/PB17	S/9220/PB17	
Water	500mL	W9-500				
	1L	W9-1				
	2L	W9-2				

*Hydrochloric acid 25% ** Hydrochloric acid 37%

Do you want to improve your detection limits?

Look closer for answers to your analytical challenges.

- Optima, Trace Metal, Primar Plus and For Analysis, AR grade products, depending on your application
- Sizes and quantities for your project scope, from bench to batch
- Packaging design that preserves chemical quality and promotes lab safety
- Product specification and certificate of analysis available on the website

To place an order, contact your local Fisher Scientific office.

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