

Chemicals

High purity acids for trace elemental analysis

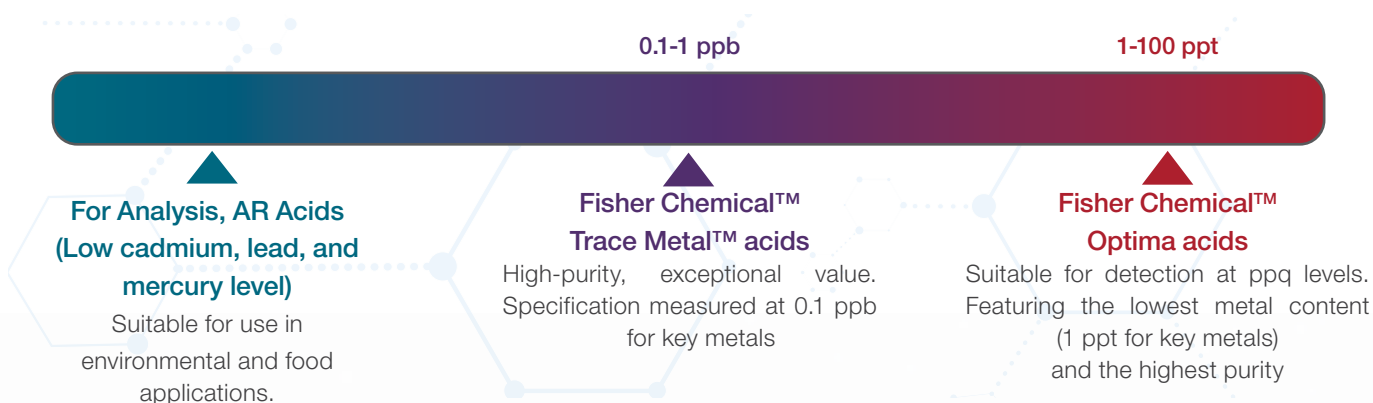
Taking your analysis to greater
heights with unparalleled performance

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



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

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Atomic adsorption spectroscopy (AAS)

AR acids: detection levels from ppm to as low as ppb

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.

Packaging highlights

Convenience – Packaged in HDPE bottles, for safer, easier handling and to maintain quality

Cat. No.	Product description	Pack size	Packaging
H/1020/PB15	Hydrochloric Acid 25%– For Analysis, AR; low cadmium, lead & mercury level	1 L	HDPE bottle
H/1020/PB17		2.5 L	
H/1180/PB15	Hydrochloric Acid 37% – For Analysis, AR; low cadmium, lead & mercury level	1 L	HDPE bottle
H/1180/PB17		2.5 L	
N/2320/PB15	Nitric Acid 69% – For Analysis, AR; low cadmium, lead & mercury level	1 L	HDPE bottle
N/2320/PB15		2.5 L	
S/9220/PB15	Sulfuric Acid 95% – For Analysis, AR; low cadmium, lead & mercury level	1 L	HDPE bottle
S/9220/PB17		2.5 L	

The certificate of analysis is available from thermofisher.com/chemicals
Lot analysis is available on the label.

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 thermofisher.com/elemental



ICP-OES applications

Trace Metal acids: detection levels from ppb to ppt

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.

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

Cat. No.	Product description	Pack size	Packaging
A507-P500	Acetic Acid, glacial min 99%, Trace Metal	500 mL	HDPE bottle
A507-P1		1 L	
A507-P212		2.5 L	
A512-P500	Ammonia solution, 20-22%, Trace Metal	500 mL	HDPE bottle
A508-P500	Hydrochloric Acid 34-37%, Trace Metal	500 mL	HDPE bottle
A508-P1		1 L	
A508-P212		2.5 L	
A513-500	Hydrofluoric Acid 47-51%, Trace Metal	500 mL	HDPE bottle
A509-P500	Nitric Acid 67-69%, Trace Metal	500 mL	HDPE bottle
A509-P1		1 L	
A509-P212		2.5 L	
P/1292/PB08	Perchloric Acid 65-71%, Trace Metal	500 mL	PVC coated bottle
P/1292/PB15		1 L	
A510-P500	Sulfuric Acid 93-98%, Trace Metal	500 mL	HDPE bottle
A510-P1		1 L	
A510-P212		2.5 L	

The certificate of analysis is available from thermofisher.com/chemicals

Lot analysis is available on the label.

Application example: ICP-OES

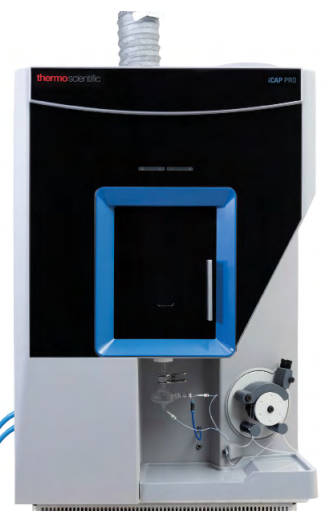
ICP-optical emission spectrometry (ICP-OES) is a fast multi-element analysis technique capable of determining up to 72 elements in a very wide range of samples, including food, environmental, metallurgy and petrochemical samples.

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 grade acids allow iCAP instruments to achieve the ultimate in performance and guarantee high-quality results every time.

For more information, go to thermofisher.com/elemental



ICP-Mass spectrometry (ICP-MS)

Optima acids: detection levels from ppt to as low as ppq

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.

Packaging highlights

Reliable – Bottled in class 10 clean room environment and individually double-bagged in a class 100 clean room to ensure product quality and consistency

Convenient – Each bottle is individually packaged for easier and safer handling

Cat. No.	Product description	Pack size	Packaging
A465-250	Acetic Acid Glacial min. 99%, Optima	250 mL	Pre-cleaned FEP
A465-500		500 mL	
A465-1		1 L	
A470-250	Ammonia Solution 20-22%, Optima	250 mL	Pre-cleaned HDPE
A470-500		500 mL	
A470-1		1 L	
A471-500	Hydrobromic Acid 44-49%, Optima	500 mL	Pre-cleaned FEP
A466-250	Hydrochloric Acid 32-35%, Optima	250 mL	Pre-cleaned PFA
A466-500		500 mL	
A466-1		1 L	
A463-250	Hydrofluoric Acid 47-51%, Optima	250 mL	Pre-cleaned PFA
A463-500		500 mL	
A463-1		1 L	
P170-500	Hydrogen Peroxide 30-32%, Optima	500 mL	Pre-cleaned FEP
A467-250	Nitric Acid 67-69%, Optima	250 mL	Pre-cleaned FEP
A467-500		500 mL	
A467-1		1 L	
A468-250	Sulfuric Acid 93-98%, Optima	250 mL	Pre-cleaned FEP
A468-500		500 mL	
A468-1		1 L	
W9-500	Water, Optima	500 mL	Pre-cleaned LDPE
W9-1		1 L	
W9-2		2 L	

The certificate of analysis is delivered with each bottle and is available from thermofisher.com/chemicals

Application example: ICP-MS

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 thermofisher.com/elemental

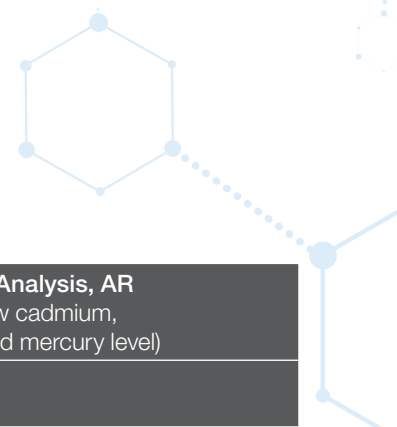


Product specifications guide

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 (HNO ₃ , w/w): 67-69% Colour (APHA): 10
	Trace impurities in ppt (pg/g)	Trace impurities in ppb (ng/g)
	Maximum specifications	
Aluminium (Al)	20	1
Antimony (Sb)	10	0.5
Arsenic (As)	20	0.5
Barium (Ba)	10	0.1
Beryllium (Be)	10	0.1
Bismuth (Bi)	10	0.1
Boron (B)	10	1
Cadmium (Cd)	10	0.5
Calcium (Ca)	10	1
Cerium (Ce)	10	0.1
Cesium (Cs)	10	0.1
Chromium (Cr)	10	1
Cobalt (Co)	10	0.5
Copper (Cu)	10 0	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
Germanium (Ge)	10 0	1
Gold (Au)	20	0.1
Hafnium (Hf)	10	0.1
Holmium (Ho)	1	0.1
Indium (In)	1	0.1
Iron (Fe)	10	1
Lanthanum (La)	1	0.1
Lead (Pb)	10	0.1
Lithium (Li)	10	0.1
Lutetium (Lu)	1	0.1
Magnesium (Mg)	10	1
Manganese (Mn)	10	0.1
Mercury (Hg)	50	0.1
Molybdenum (Mo)	10	0.1
Neodymium (Nd)	1	0.1
Nickel (Ni)	20	0.5
Niobium (Nb)	1	0.1
Palladium (Pd)	20	0.5
Platinum (Pt)	20	0.5
Potassium (K)	10	1
Praseodymium (Pr)	1	0.1
Residue after ignition	*	*
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
Silver (Ag)	10	0.1
Sodium (Na)	10	1
Strontium (Sr)	10	0.1
Tantalum (Ta)	Information only	Information only
Tellurium (Te)	1	0.1
Terbium (Tb)	1	0.1
Thallium (Tl)	10	0.1
Thorium (Th)	1	0.1
Thulium (Tm)	1	0.1
Tin (Sn)	20	0.5
Titanium (Ti)	10	0.5
Tungsten (W)	10	0.1
Total chloride	*	*
Total sulfur	*	*
Uranium (U)	1	0.1
Vanadium (V)	10	0.5
Ytterbium (Yb)	1	0.1
Yttrium (Y)	1	0.1
Zinc (Zn)	10	0.5
Zirconium (Zr)	10	0.1

Select the suitable high-purity acid for your applications



Product description	Pack size	Optima detection level ppt to as low as ppq		Trace Metal 1 ppb level detection		For Analysis, AR (low cadmium, lead and mercury level)	
		Catalog No.					
Acetic Acid Glacial	250 mL	A465-250					
	500 mL	A465-500		A507-P500			
	1 L	A465-1		A507-P1			
	2.5 L			A507-P212			
Ammonia Solution	250 mL	A470-250					
	500 mL	A470-500		A512-P500			
	1 L	A470-1					
Hydrobromic Acid	500 mL	A471-500					
Hydrochloric Acid	250 mL	A466-250					
	500 mL	A466-500		A508-P500			
	1 L	A466-1		A508-P1	H/1180/PB15**	H/1180/PB15**	
	2.5 L			A508-P212	H/1020/PB17*	H/1180/PB17**	
Hydrofluoric Acid	250 mL	A463-250					
	500 mL	A463-500		A513-500			
	1 L	A463-1					
Hydrogen Peroxide	500 mL	P170-500					
Nitric Acid	250 mL	A467-250					
	500 mL	A467-500		A509-P500			
	1 L	A467-1		A509-P1	N/2320/PB15		
	2.5 L			A509-P212	N/2320/PB17		
Perchloric acid	500 mL			P/1292/PB08			
	1 L			P/1292/PB15			
Sulfuric Acid	250 mL	A468-250					
	500 mL	A468-500		A510-P500			
	1 L	A468-1		A510-P1	S/9220/PB15		
	2.5 L			A510-P212	S/9220/PB17		
Water	500 mL	W9-500					
	1 L	W9-1					
	2 L	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, 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.



Learn more at thermofisher.com/chemicals or e-mail us at chemicals.seatw@thermofisher.com

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