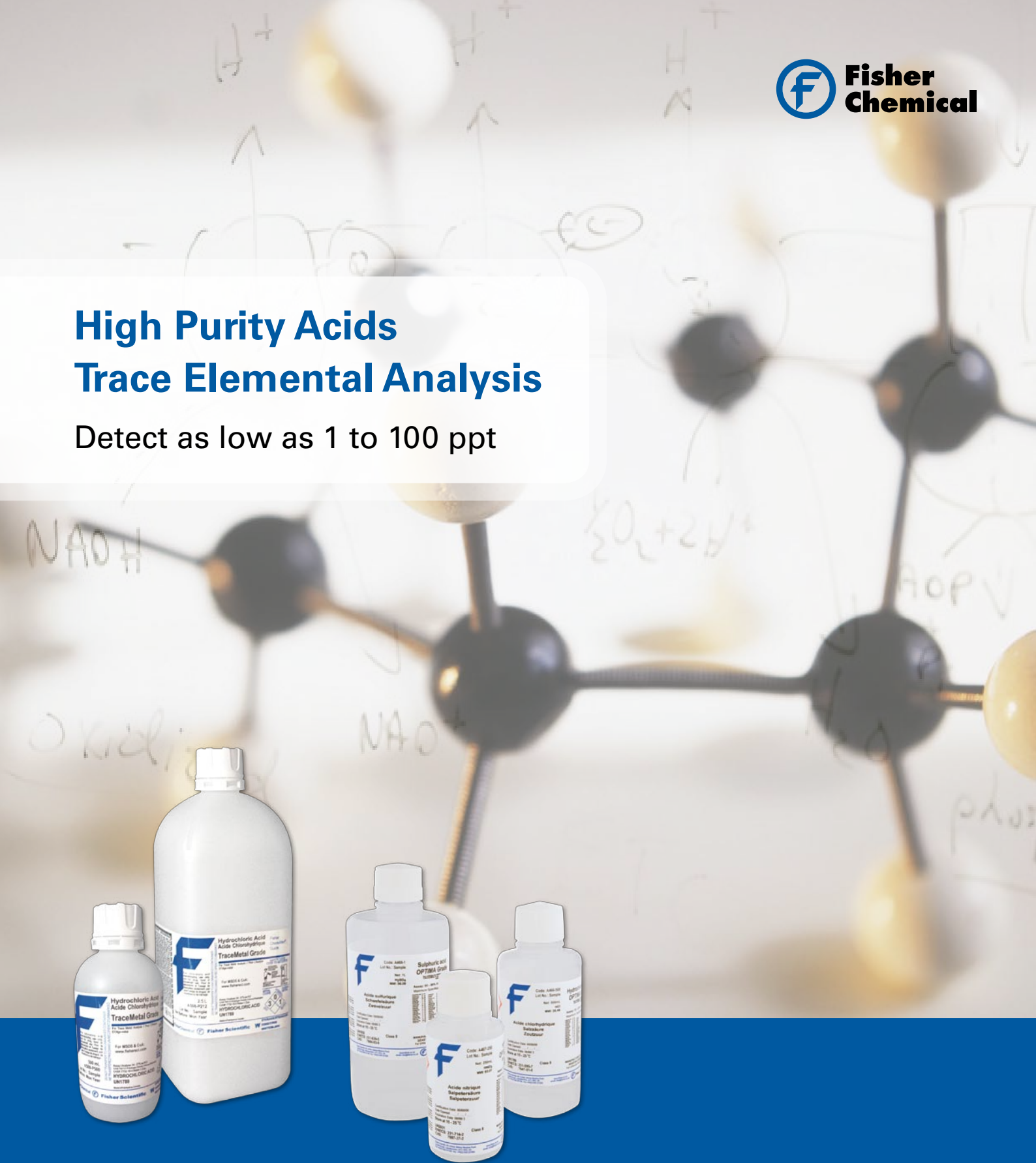
Fisher Chemical

High Purity Acids
Trace Elemental Analysis

Detect as low as 1 to 100 ppt



High purity acids

If you are looking for acids, look no further.

Whether you are analyzing environmental samples, etching glass, conducting routine testing or performing the most demanding laboratory procedures, Fisher Chemical can supply virtually any 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) – The most demanding applications. Lowest metal content, highest purity; 10 ppt key metals.
- **Trace Metal® Acids** (0.1-1 ppb) – Superior purity, exceptional value. Highest purity; 0.1 ppb key metals.
- **Primar Plus® Acids** (1-10 ppb) – The perfect choice for routine applications.
- **For Analysis, AR grade** (Low cadmium, lead and mercury level) – Suitable for use in environmental and food applications.

In addition to high-quality acids, we offer premium packaging that provides:

- Safety
- Sustainable product quality
- Less weight and more convenience

Try our high purity acids today.

Contents

As low as 1-100 ppt level detection

Fisher Chemical Optima Acids

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 10 ppt level. This range contains the fewest trace metallic impurities of any other acids tested up to 65 parameters at ppt levels by ICP-MS.

Fisher Chemical Optima packaging

Teflon® FEP bottle, Teflon PFA with HCl and HF (to avoid vapor permeability issues)

1. Bottled in class 10 cleanroom conditions.
2. Individually double-bagged in class 100 clean room for product integrity.
3. Each bottle is individually packaged.

Old catalog number	New catalog number	Product name	Pack size	Packaging
A/0415/07	A465-250	Acetic Acid Glacial min. 99%, Optima	250mL	Pre-cleaned Teflon FEP
A/0415/08	A465-500		500mL	
A/0415/15	A465-1		1L	
A/3365/07	A470-250	Ammonia Solution 20-22%, Optima	250mL	Pre-cleaned HDPE
A/3365/08	A470-500		500mL	
A/3365/15	A470-1		1L	
H/0955/08	A471-500	Hydrobromic Acid 44-49%, Optima	500mL	Pre-cleaned Teflon FEP
H/1205/07	A466-250	Hydrochloric Acid 32-35%, Optima	250mL	Pre-cleaned Teflon PFA
H/1205/08	A466-500		500mL	
H/1205/15	A466-1		1L	
H/1435/07	A463-250	Hydrofluoric Acid 47-51%, Optima	250mL	Pre-cleaned Teflon PFA
H/1435/08	A463-500		500mL	
H/1435/15	A463-1		1L	
H/1830/08	P170-500	Hydrogen Peroxide 30-32%, Optima	500mL	Pre-cleaned Teflon FEP
N/2275/07	A467-250	Nitric Acid 67-69%, Optima	250mL	Pre-cleaned Teflon FEP
N/2275/08	A467-500		500mL	
N/2275/15	A467-1		1L	
P/1295/07	A469-250	Perchloric Acid 65-71%, Optima	250mL	Pre-cleaned Teflon FEP
P/1295/08	A469-500		500mL	
P/1295/15	A469-1		1L	
S/9225/07	A468-250	Sulfuric Acid 93-98%, Optima	250mL	Pre-cleaned Teflon FEP
S/9225/08	A468-500		500mL	
S/9225/15	A468-1		1L	
W/0115/08	W9-500	Water, Optima	500mL	Pre-cleaned LDPE
W/0115/15	W9-1		1L	
W/0115/99	W9-2		2L	

The certificate of analysis is delivered with each bottle and 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. Thermo Fisher Scientific provides 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.

Thermo Fisher Scientific with its combined strengths in chemicals and analytical instrumentation guarantees unmatched quality for highest performance and undisputable results. The Fisher Chemical Optima Series provides a full range of chemicals for ultrapure analysis. Superiority is guaranteed by quality control when using unparalleled instrumentation from Thermo Fisher Scientific.

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

Optima Packaging

0.1-1 ppb 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. We test up to 65 parameters by ICP-MS. Fisher Chemical Trace Metal Grade is suitable for ICP-MS and ICP applications.

Fisher Chemical Trace Metal packaging

1. Packaged in HDPE bottles, for safer, easier handling and to maintain quality.
2. Bottled in class 10 cleanroom conditions.

Catalog Number	Product name	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	
A511-P500	Perchloric Acid 65-71%, Trace Metal	500mL	HDPE Bottle
A511-P1		1L	
A511-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.

A508-P500 and A508-P212

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 limits ranging from sub ppb to % levels and typical analysis times of 60-90 seconds, ICP-OES is ideally suited for busy laboratories with a large workload. The Thermo Scientific iCAP 6000 Series is a dramatically different ICP specifically designed to provide high performance, occupy less bench space, be easier to use, and reduce the cost of ownership.

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

Fisher Chemical Trace Metal and Primar grade reagents allow the iCAP to achieve the ultimate in performance and guaranteed high-quality results every time.

For more information, go to **www.thermoscientific.com/icp**

From ppm to ppb level detection

Fisher Chemical Primar Plus Acids

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

Catalog Number	Product name	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% d=1.18, Primar Plus	500mL	HDPE Bottle
H/1196/PB15		1L	
H/1196/PB17		2.5L	
N/2272/PB08	Nitric Acid min. 68% d=1.42, Primar Plus	500mL	HDPE Bottle
N/2272/PB15		1L	
N/2272/PB17		2.5L	
S/9231/PB08	Sulfuric Acid min. 95% d=1.83, 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

A new 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.

Catalog Number	Product name	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.

Fisher Chemical Primar Plus and For Analysis, AR packaging

1. New packaging. Now packaged in HDPE bottles, for safer, easier handling and to maintain quality.
2. No risk of breakage during transportation.

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.

Thermo Scientific iCE 3000 Series are a range of revolutionary stylish, intelligent and fully automatic AA spectrometers coupled with intelligent accessories that will exceed your performance criteria for a wide range of analyses, including environmental, clinical, food and WEEE/RoHS applications.

For more information, go to **www.thermoscientific.com/aa**

Do you want to improve your detection limits?

Look closer for answers to your analytical challenges

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.

Quality products with the highest specifications

Optima Nitric Acid, A467

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

Trace Metal Nitric Acid, A509

Assay (HNO3, w/w)	67-69%
Colour (APHA)	10
Analyte	**Trace impurities in ppb**
	Maximum specifications
Aluminum (Al)	1
Antimony (Sb)	0.5
Arsenic (As)	0.5
Barium (Ba)	0.1
Beryllium (Be)	0.1
Bismuth (Bi)	0.1
Boron (B)	1
Cadmium (Cd)	0.5
Calcium (Ca)	1
Cerium (Ce)	0.1
Cesium (Cs)	0.1
Chromium (Cr)	1
Cobalt (Co)	0.5
Copper (Cu)	0.5
Dysprosium (Dy)	0.1
Erbium (Er)	0.1
Europium (Eu)	0.1
Gadolinium (Gd)	0.1
Gallium (Ga)	0.1
Germanium (Ge)	0.1
Gold (Au)	0.1
Hafnium (Hf)	0.1
Holmium (Ho)	0.1
Indium (In)	0.1
Iron (Fe)	1
Lanthanum (La)	0.1
Lead (Pb)	0.1
Lithium (Li)	0.1
Lutetium (Lu)	0.1
Magnesium (Mg)	1
Manganese (Mn)	0.1
Mercury (Hg)	0.1
Molybdenum (Mo)	0.1
Neodymium (Nd)	0.1
Nickel (Ni)	0.5
Niobium (Nb)	0.1
Palladium (Pd)	0.5
Platinum (Pt)	0.5
Potassium (K)	1
Praseodymium (Pr)	0.1
Rhenium (Re)	0.1
Rhodium (Rh)	0.5
Rubidium (Rb)	0.1
Ruthenium (Ru)	0.5
Samarium (Sm)	0.1
Scandium (Sc)	0.1
Selenium (Se)	1
Silver (Ag)	0.1
Sodium (Na)	1
Strontium (Sr)	0.1
Tantalum (Ta)	Information only
Tellurium (Te)	0.1
Terbium (Tb)	0.1
Thallium (Tl)	0.1
Thorium (Th)	0.1
Thulium (Tm)	0.1
Tin (Sn)	0.5
Titanium (Ti)	0.5
Tungsten (W)	0.1
Uranium (U)	0.1
Vanadium (V)	0.5
Ytterbium (Yb)	0.1
Yttrium (Y)	0.1
Zinc (Zn)	0.5
Zirconium (Zr)	0.1
Analyte	**Trace impurities in ppm**
Chloride (Cl)	0.2
Total Phosphorus (P)	0.01
Total Sulfur (S)	0.3

Primar Plus Nitric Acid N/2272

Assay (HNO3, w/w)	>68%
Analyte	**Trace impurities in ppb (ng/g)**
	Maximum specifications
Aluminum (Al)	100
Antimony (Sb)	5
Arsenic (As)	5
Barium (Ba)	50
Beryllium (Be)	5
Bismuth (Bi)	5
Boron (B)	5
Cadmium (Cd)	2
Calcium (Ca)	50
Chromium (Cr)	5
Copper (Cu)	5
Gallium (Ga)	5
Germanium (Ge)	5
Indium (In)	5
Iron (Fe)	50
Lead (Pb)	2
Lithium (Li)	2
Magnesium (Mg)	20
Manganese (Mn)	2
Mercury (Hg)	5
Molybdenum (Mo)	2
Nickel (Ni)	2
Potassium (K)	20
Residue after ignition	<0,0002%
Selenium (Se)	2
Silver (Ag)	5
Sodium (Na)	100
Strontium (Sr)	2
Thallium (Tl)	5
Tin (Sn)	5
Titanium (Ti)	2
Total chloride (Cl)	<0,0002%
Total sulfur (S)	200
Vanadium (V)	2
Zinc (Zn)	10
Zirconium (Zr)	5

Product overview

Choose from a complete product range

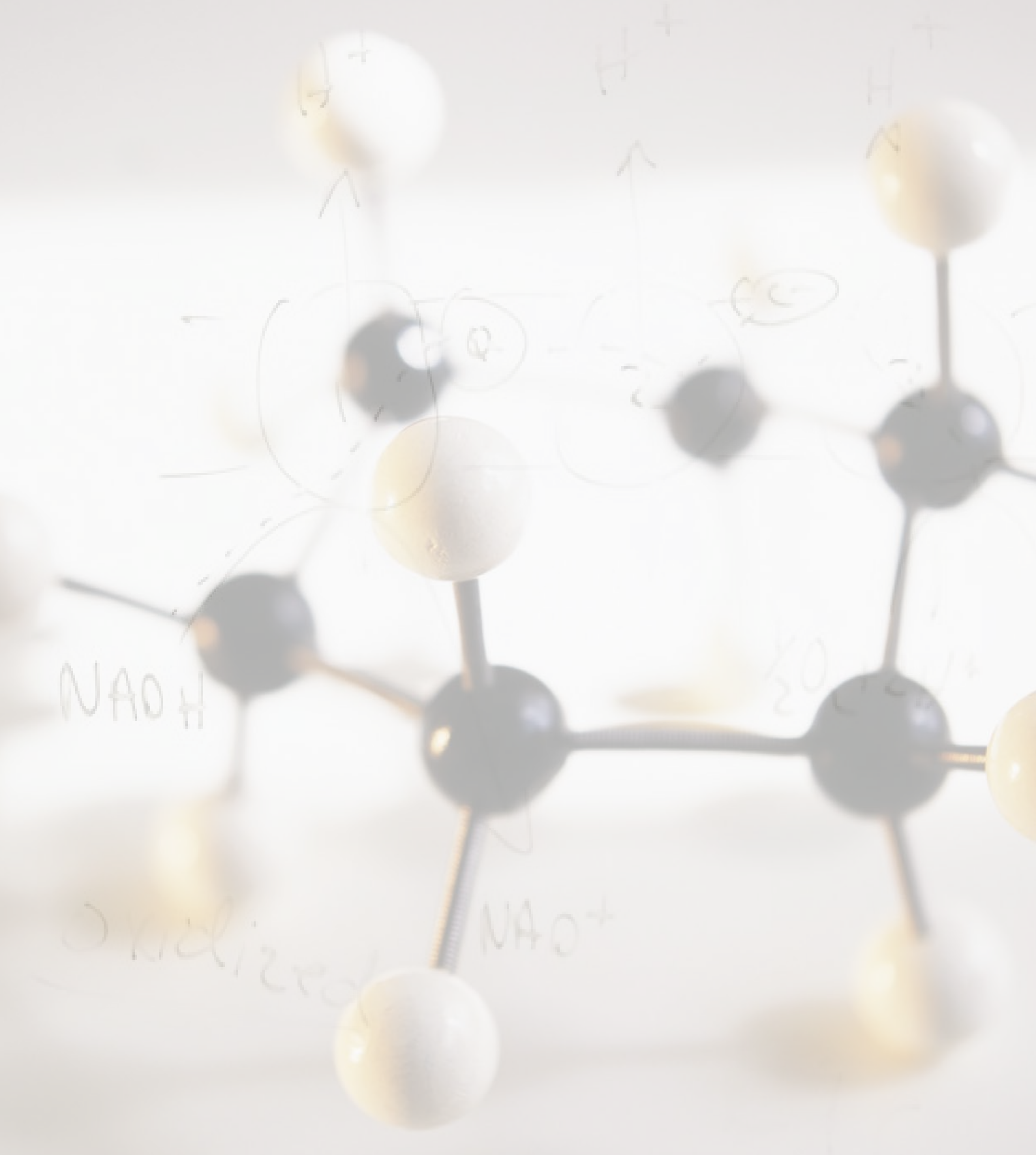
- Optima, Trace Metal, Primar Plus and For Analysis, AR grade products, depending on your application
- Sizes and quantities for your project scope, from bench to batch
- Packaging design that preserves chemical quality and promotes lab safety
- Product specification and Certificate of Analysis available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

Description	Pack size	Optima as low as 1-100 ppt level detection		Trace Metal 1 ppb level detection	Primar Plus 1-10 ppb level detection	For Analysis, AR (low cadmium, lead and mercury level)
		Old catalog number	New catalog number			
Acetic Acid Glacial	250mL	A/0415/07	A465-250			
	500mL	A/0415/08	A465-500	A507-P500	A/0411/PB08	
	1L	A/0415/15	A465-1	A507-P1	A/0418/PB15	
	2.5L			A507-P212	A/0411/PB17	
Ammonia Solution	250mL	A/3365/07	A470-250			
	500mL	A/3365/08	A470-500	A512-P500		
	1L	A/3365/15	A470-1			
Hydrobromic Acid	500mL	H/0955/08	A471-500			
Hydrochloric Acid	250mL	H/1205/07	A466-250			
	500mL	H/1205/08	A466-500	A508-P500	H/1196/PB08	
	1L	H/1205/15	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**
Hydrogen Peroxide	500mL	H/1830/08	P170-500			
Nitric Acid	250mL	N/2275/07	A467-250			
	500mL	N/2275/08	A467-500	A509-P500	N/2272/PB08	
	1L	N/2275/15	A467-1	A509-P1	N/2272/PB15	N/2320/PB15
	2.5L			A509-P212	N/2272/PB17	N/2320/PB17
Perchloric Acid	250mL	P/1295/07	A469-250			
	500mL	P/1295/08	A469-500	A511-P500 P/1292/PB08		
	1L	P/1295/15	A469-1	A511-P1 P/1292/PB15		
	2.5L			A511-P212		
Sulfuric Acid	250mL	S/9225/07	A468-250			
	500mL	S/9225/08	A468-500	A510-P500	S/9231/PB08	
	1L	S/9225/15	A468-1	A510-P1	S/9231/PB15	S/9220/PB15
	2.5L			A510-P212	S/9231/PB17	S/9220/PB17
Water	500mL	W/0115/08	W9-500			
	1L	W/0115/15	W9-1			
	2L	W/0115/99	W9-2			

* Hydrochloric acid 25% ** Hydrochloric acid 37%

Order today !

Fisher Chemical reagents are available globally from the Fisher Scientific distribution network.



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ACROS ORGANICS

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