

J.T.Baker® Brand

# High-Purity Acids & Reagents

Purity and consistency are essential for all reagent chemicals, particularly acids. Whether used for trace-metal analysis or for general use, aligning the correct acid quality to your application is necessary to achieve optimal results. The J.T.Baker® brand has a well-deserved reputation for high-quality acids, beginning with the launch of the ultra-high-purity ULTREX™ acids product line four decades ago. Today, J.T.Baker® acids offer four distinct levels of purity:

- **J.T.BAKER® ULTREX™ II** acids for critical elemental analysis with less than 10 parts-per-trillion (ppt) levels of up to 65 elements
- **J.T.BAKER® BAKER INSTRA-ANALYZED™ Plus** acids for elemental analysis, tested in extremely low ppb range for up to 64 metals

- **J.T.BAKER® BAKER INSTRA-ANALYZED™** acids for elemental analysis, tested in the low ppb range for up to 35 metals
- **J.T.BAKER® BAKER ANALYZED™ ACS** reagent grade acids that meet or exceed ACS specifications and provide exceptional quality and value
- **J.T.BAKER® Instrument Calibration and Standards** for atomic absorption and ICP applications offer the reliability and accuracy critical to the success of your instrumental analyses



The success of the application, reliability of results and proper testing of trace metals all depend on the correct quality and grade of acid. The J.T.Baker® line of high-purity acids will meet your needs - even for detection of trace metals at ultra-low, parts-per-trillion levels.

## Grade Selection Made Easy

Choosing the appropriate grade of acids is essential to eliminating rework and ensuring application success.

Application	Detection Limit	Instrumentation	Grade
Critical analysis, ultra-low detection	Parts per trillion (ppt) Parts per billion (ppb)	Inductively Coupled Plasma (ICP-OES) (ICP-MS), Graphite Furnace (GFAA)	ULTREX™ II acids
Sensitive trace metal analysis, EPA protocols	Parts per billion (ppb) very low	Inductively Coupled Plasma (ICP-OES), Graphite Furnace (GFAA)	BAKER INSTRA-ANALYZED™ Plus acids
Routine trace metal analysis, EPA protocols	Parts per billion (ppb) low	Inductively Coupled Plasma (ICP-OES), Flame Atomic Absorption (FAA), Wet Chemistry	BAKER INSTRA-ANALYZED™ acids
Qualitative metal analysis	Parts per million (ppm)	Atomic Absorption (FAA), Wet Chemistry	BAKER ANALYZED™ ACS acids

## Key Applications and Industries

Industry	Examples of Sample Types	Methods/Regulations
Environmental and Agriculture	Natural Water (rivers, lakes, streams)	US EPA Method 1638 Metals by ICPMS
	Drinking Water	Method 200.8 Metals in Drinking Water by ICPMS
	Waste Water	EPA Method 1311 Hazardous Waste
	Industrial Influent and Effluents	EPA Method 6010 Total Metals in Waste Water
	Sludge	SW-846 Methods 3005 - 3051A
	Livestock Feed Fertilizer	EPA 6010B
	Soil	EPA Method 3050B
Food and Beverage	Food Additives Raw/In-Process and Finished Products Packaging Material	US FDA Elemental Analysis Manual for Food and Related Product
	Nutraceutical	Herbal Remedies, Supplements, Medical Foods
Pharmaceutical	Drugs, Vaccines, Vitamins	US Pharmacopeia - National Formulary Standards
Semiconductor and Microelectronics	Fab Air	SEMI Guidelines
	Fab Chemicals QC	
Clinical Biological Medical Devices Occupational Health and Safety	Tissues (liver, kidney), Blood/Blood Products, Urine, Dental Alloys Implants	CDC Metals in Urine 8310 or Elements in Blood and Tissue 8005 NIOHS

## J.T.Baker® ULTREX™ II Ultrapure Reagents

J.T.Baker® ULTREX™ II grade high-performance reagents are recommended for use in your most demanding trace element analyses by ICP-MS, ICP-OES/AES, and Graphite Furnace Atomic Absorption (GFAA).

ULTREX™ II grade acids are analyzed for up to 65 trace elements in the low ppt range with specifications of less than 10 ppt for 50 elements and total element impurities that typically do not exceed 500 ppt.

To ensure product purity, ULTREX™ II grade acids come packaged in inert, pre-leached fluoropolymer bottles under Class 100 environment. An optional bottle-top dispenser, specifically designed for use with ULTREX™ II acids, may also be used to further reduce the risk of contamination.

### ULTREX™ II Acids Products

Description	Size	Avantor Part Number	Fisher Scientific Cat. No.
Acetic Acids, Glacial	500 mL	6903.0500	10433191
Ammonium Hydroxide, 20%	490 mL (P)	4807.0490	10636811
Hydrochloric Acid	500 mL	6900.0500	10782232
	2 L	6900-02	15142675
Hydrofluoric Acid	500 mL	6904.0500	10138300
	1 L	6904.1000	10138300
Hydrogen Peroxide, 30%	450 mL (P)	5155-01	15558324
Nitric Acid	500 mL	6901.0500	10128300
	1 L	6901-01	10128300
	2 L	6901-02	15598374
Perchloric Acid, 70%	500 mL	4806-01	15528314
Phosphoric Acid	50 g (P)	6908-04	15528384
Sulfuric Acid	500 mL	6902.0500	10006060
Water	1 L (P)	6906-02	15518384

P=Polyethylene bottle

Multiple package sizes are available. Contact your sales representative for details.

### ULTREX™ II Acids Dispensing System

Description	Avantor Part Number	Fisher Scientific Cat. No.
ULTREX™ Acids Bottle Top Dispenser	6910-01	On request
ULTREX™ Dispenser Base	6912	On request



## J.T.Baker® BAKER INSTRA-ANALYZED™ Plus Reagents

The J.T.Baker® BAKER INSTRA-ANALYZED™ Plus line of acids is recommended for use in ICP-OES/AES and GFAA applications, and other applications requiring parts-per-billion (ppb) trace metal testing.

### BAKER INSTRA-ANALYZED™ Plus Acids

Description	Size	Avantor Part Number	Fisher Scientific Cat. No.
Acetic Acid, Glacial	500 mL	9375.0500	15538594
	1 L	9375.1000	15548594
	2.5 L	9375.2500	15558594
Ammonium Hydroxide, 20%	500 mL	9380.0500	15568594
Hydrochloric Acid	500 mL	9385.0500	15588594
	1 L	9385.1000	15598594
	2.5 L	9385.2500	15508604
Hydrofluoric Acid	500 mL	9387.0500	15518604
Nitric Acid	500 mL	9368.0500	15508594
	1 L	9368.1000	15518594
	2.5 L	9368.2500	15584055
Perchloric Acid, 70%	500 mL	9359.0500	9359.0500
	1 L	9359.1000	9359.1000
Sulfuric Acid	500 mL	9390.0500	15528604
	1 L	9390.1000	15538604
Water	1 L	9381.1000	15578594

Packaged in space-saving and environmentally friendly HDPE bottles, BAKER INSTRA-ANALYZED™ Plus acids have testing of more trace metals with tighter specifications on existing trace metals. The products have been quality tested for up to 64 trace metals tested to very low ppb levels.



## J.T.Baker® BAKER INSTRA-ANALYZED™ Reagents

ICP – OES/AES has become one of the standards in trace metal analysis techniques due to excellent limits of detection and linear dynamic range, multi-element capability and reproducibility. BAKER INSTRA-ANALYZED™ acids are recommended for use in ICP-OES/AES and FAA applications.

### BAKER INSTRA-ANALYZED™ Acids

Description	Size	Avantor Part Number	Fisher Scientific Cat. No.
Acetic Acid, Glacial	500 mL (PC)	9524-00	15518634
	2.5 L (PC)	9524-33	15528634
Ammonium Hydroxide	500 mL (P)	9733-01	15528654
	4 L (P)	9733-03	15538654
Hydrochloric Acid	500 mL (PC)	9530-00	11311540
	2.5 L (PC)	9530-33	15504065
Hydrofluoric Acid	500 mL (P)	9563-01	15518644

BAKER INSTRA-ANALYZED™ acids were designed for routine trace metal analysis and EPA protocols by ICP-OES/AES, and are analyzed for up to 35 metals in the low ppb range.

Description	Size	Avantor Part Number	Fisher Scientific Cat. No.
Nitric Acid	500 mL (PC)	9598-04	15198594
	2.5 L (PC)	9598-34	15290053

PC=Poly coated glass bottle, P=Polyethylene bottle

## J.T.Baker® BAKER ANALYZED™ ACS Reagents

Atomic Absorption requires trace metal specifications in the parts-per-million (ppm) range in order to achieve reliable results. BAKER ANALYZED™ ACS reagent grade acids are recommended for qualitative AAS applications, as well as general wet chemistry.

Wherever possible, products are packaged in poly or poly-coated glass bottles for enhanced safety.

### BAKER ANALYZED™ ACS Reagent Grade Acids

Description	Size	Avantor Part Number	Fisher Scientific Cat. No.
Acetic Acid, Glacial (Aldehyde-Free)	500 mL	9508-01	9508-01
	2.5 L	9508-03	9508-03
	2.5 L (PC)	9508-33	9508-33
Ammonium Hydroxide	500 mL	9721-01	15598644
	2.5 L	9721-03	9721-03
	2.5 L (G)	9724-05	9724-05
	2.5 L (PC)	9721-33	9721-33
Hydrochloric Acid	500 mL (PC)	9535-00	9535-00
	500 mL	9535-01	9535-01
	2.5 L	9535-03	9535-03
	2.5 L (PC)	9535-33	9535-33
Hydrofluoric Acid	500 mL (P)	9560-01	15508644
Hydrogen Peroxide, 30%	250 mL (P)	2192.0250	15587984
	1 L (P)	2192.1000	13235413
	2.5 L	2192.2500	2192.2500

PC=Poly coated glass bottle, P=Polyethylene bottle, G=Glass

Multiple package sizes are available. Contact your sales representative for details.

Description	Size	Avantor Part Number	Fisher Scientific Cat. No.
Nitric Acid, 69 -70%	500 mL	9601-01	9601-01
	2.5 L	9601-04	9601-04
Perchloric Acid, 60 - 62%	500 mL (PC)	9656-00	9656-00
	2.5 L (PC)	9656-33	9656-33
Perchloric Acid, 69 - 72%	500 mL (PC)	9652-00	9652-00
	500 mL	9652-01	9652-01
	2.5 L (PC)	9652-33	9652-33
Phosphoric Acid	500 mL (PC)	0260-00	0260-00
	500 mL	0260-01	0260-01
	2.5 L	0260-03	0260-03
Potassium Hydroxide, 45% Solution	500 mL (P)	3143-01	3143-01
Sodium Hydroxide, 50% Solution	500 mL (P)	3727-01	15548164
	4 L (P)	3727-03	15558164
Sulfuric Acid, 95 - 98%	500 mL	9681-01	9681-01
	1 L	9681-02	15588644
	2.5 L	9681-03	9681-03

## Instrument Calibration and Standards

J.T.Baker® brand standards for atomic absorption (AA) and ICP applications offer single element AA and single plasma standards, including many standards specifically designed for environmental testing protocols and the EPA Contract Laboratory Program (CLP).

## Atomic Absorption Standards

J.T.Baker® brand atomic absorption standards are prepared from metals and salts of 99.99% spectral purity in specially selected matrices. Standards are available for 35 elements in 1,000 µg/ml concentrations packaged in 100 ml bottles. All standards are verified against those traceable to the National Institute of Standards and Technology (NIST) Standard Reference Material (SRM) numbers, which are printed on the label.

### Atomic Absorption Standards

Description	Concentration	Solute	Avantor Part Number	Fisher Scientific Cat. No.
Aluminum	1,000 µg/ml	Al	6801.0100	10445681
Antimony	1,000 µg/ml	Sb	6802.0100	10647781
Arsenic	1,000 µg/ml	As	6803.0100	10475871
Barium	1,000 µg/ml	Ba(NO <sub>3</sub> ) <sub>2</sub>	6804.0100	10536432
Beryllium	1,000 µg/ml	Be	6805.0100	10413191
Bismuth	1,000 µg/ml	Bi	6806.0100	10518732
Cadmium	1,000 µg/ml	Cd	6807.0100	10351751
Calcium	1,000 µg/ml	CaCO <sub>3</sub>	6808.0100	10128200
Chromium	1,000 µg/ml	Cr	6809.0100	10559112
Cobalt	1,000 µg/ml	Co	6810.0100	10229720
Copper	1,000 µg/ml	Cu	6811.0100	10742232
Iron	1,000 µg/ml	Fe	6812.0100	10772612
Lead	1,000 µg/ml	Pb	6813.0100	10536812
Magnesium	1,000 µg/ml	Mg	6815.0100	10381081
Manganese	1,000 µg/ml	Mn	6816.0100	10229770
Mercury	1,000 µg/ml	Hg	6817.0100	10341181
Molybdenum	1,000 µg/ml	Mo	6818.0100	10760122
Nickel	1,000 µg/ml	Ni	6819.0100	10463761
Potassium	1,000 µg/ml	KNO <sub>3</sub>	6820.0100	10341371
Silver	1,000 µg/ml	Ag	6821.0100	10289860
Sodium	1,000 µg/ml	Na <sub>2</sub> CO <sub>3</sub>	6822.0100	10056160
Strontium	1,000 µg/ml	Sr(NO <sub>3</sub> ) <sub>2</sub>	6823.0100	10229340
Tin	1,000 µg/ml	Sn	6824.0100	10761272
Titanium	1,000 µg/ml	(NH <sub>4</sub> ) <sub>2</sub> TiF <sub>6</sub>	6825.0100	10791462
Vanadium	1,000 µg/ml	V <sub>2</sub> O <sub>5</sub>	6826.0100	10138060

Multiple package sizes are available. Contact your sales representative for details.

## Single Element Plasma Standards

Produced from raw materials with greater than 99.999% spectral purity, J.T.Baker® brand standards are packaged in 100 ml bottles that are acid leached and triple rinsed. Each standard is analyzed for the calibrating element, as well as trace impurities of more than 70 elements. All solutions are NIST traceable. Products are available in concentrations of 1,000 µg/ml or 10,000 µg/ml in 100 ml bottles.

### Single Element Plasma Standards

Desc.	Con.	Solute	Matrix	Avantor Part Number	Fisher Scientific Cat. No
Aluminum	1,000 µg/ml	Al	2% HNO <sub>3</sub>	5701.0100	10637591
	10,000 µg/ml			5716.0100	10433751
Antimony	1,000 µg/ml	Sb	2% HNO <sub>3</sub>	5703.0100	10209470
	10,000 µg/ml			5717.0100	10361261
Arsenic	1,000 µg/ml	As	2% HNO <sub>3</sub>	5704.0100	10065870
	10,000 µg/ml			5718.0100	10035980
Barium	1,000 µg/ml	Ba(NO <sub>3</sub> ) <sub>2</sub>	2% HNO <sub>3</sub>	5705.0100	10219470
	10,000 µg/ml			5719.0100	10076000
Beryllium	1,000 µg/ml	Be <sub>4</sub> O(C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>6</sub>	2% HNO <sub>3</sub>	5706.0100	10311791
	10,000 µg/ml			5720.0100	10321361
Bismuth	1,000 µg/ml	Bi	2% HNO <sub>3</sub>	5707.0100	10188040
	10,000 µg/ml		10% HNO <sub>3</sub>	5721.0100	10086000
Boron	1,000 µg/ml	H <sub>3</sub> BO <sub>3</sub>	2% NH <sub>4</sub> OH	5708.0100	10321791
	10,000 µg/ml			5722.0100	10721072
Cadmium	1,000 µg/ml	Cd	2% HNO <sub>3</sub>	5709.0100	10035910
	10,000 µg/ml			5723.0100	10249900
Calcium	1,000 µg/ml	CaCO <sub>3</sub>	2% HNO <sub>3</sub>	5710.0100	10760302
	10,000 µg/ml		5% HNO <sub>3</sub>	5724.0100	10556992
Chromium	1,000 µg/ml	Cr	2% HNO <sub>3</sub>	5711.0100	10095940
	10,000 µg/ml			5727.0100	10424711
Cobalt	1,000 µg/ml	Co	2% HNO <sub>3</sub>	5794.0100	15507634
	10,000 µg/ml			5728.0100	10687771
Copper	1,000 µg/ml	Cu	2% HNO <sub>3</sub>	5713.0100	10588712
	10,000 µg/ml			5729.0100	10517572
Gallium	1,000 µg/ml	Ga	1% HNO <sub>3</sub>	5714.0100	10249660
	10,000 µg/ml			5758.0100	10567762
Germanium	1,000 µg/ml	Ge	H <sub>2</sub> O / Trace HF	5762.0100	10647801
	10,000 µg/ml			5759	

Con = Concentration

Multiple package sizes are available. Contact your sales representative for details.

Desc.	Con.	Solute	Matrix	Avantor Part Number	Fisher Scientific Cat. No
Gold	1,000 µg/ml	Au	5% HCl	5763.0100	10518342
	10,000 µg/ml			5730.0100	10444901
Iron	1,000 µg/ml	Fe	2% HNO <sub>3</sub>	5764.0100	10371311
	10,000 µg/ml			5731.0100	10107810
Lead	1,000 µg/ml	Pb	2% HNO <sub>3</sub>	5765.0100	10351411
	10,000 µg/ml			5732.0100	10701652
Lithium	1,000 µg/ml	Li <sub>2</sub> CO <sub>3</sub>	2% HNO <sub>3</sub>	5766.0100	10311461
	10,000 µg/ml		7% HNO <sub>3</sub>	5733.0100	10209330
Magnesium	1,000 µg/ml	Mg	2% HNO <sub>3</sub>	5767.0100	10444521
	10,000 µg/ml			5734.0100	10351551
Manganese	1,000 µg/ml	Mn	2% HNO <sub>3</sub>	5793.0100	10607951
	10,000 µg/ml			5735.0100	10537762
Mercury	1,000 µg/ml	Hg	2% HNO <sub>3</sub>	5768.0100	10065900
	10,000 µg/ml			5736.0100	10177900
Molybdenum	1,000 µg/ml	Mo	2% NH <sub>4</sub> OH	5769.0100	10782792
	10,000 µg/ml			5737.0100	10301651
Nickel	1,000 µg/ml	Ni	2% HNO <sub>3</sub>	5770.0100	10517952
	10,000 µg/ml			5738.0100	10157950
Niobium	1,000 µg/ml	NbCl <sub>5</sub>	H <sub>2</sub> O/Trace HF	5771.0100	10792792
	10,000 µg/ml			5760.0100	10483941
Palladium	1,000 µg/ml	Pd	2% HNO <sub>3</sub>	5772.0100	10117950
	10,000 µg/ml			5739.0100	10772412
Platinum	1,000 µg/ml	Pt	5% HCl	5773.0100	10331791
	10,000 µg/ml		10% HCl	5740.0100	10687601
Potassium	1,000 µg/ml	KNO <sub>3</sub>	2% HNO <sub>3</sub>	5774.0100	10209520
	10,000 µg/ml			5741.0100	10677791
Scandium	1,000 µg/ml	ScO <sub>3</sub>	2% HNO <sub>3</sub>	5776.0100	10462981
	10,000 µg/ml		7% HNO <sub>3</sub>	5742.0100	10035960

## Single Element Plasma Standards (continued)

Desc.	Con.	Solute	Matrix	Avantor Part Number	Fisher Scientific Cat. No
Selenium	1,000 µg/ml	Se	2% HNO <sub>3</sub>	5777.0100	10341071
	10,000 µg/ml			5743.0100	10118050
Silicon	1,000 µg/ml	Si	2% HNO <sub>3</sub>	5778.0100	10259610
	10,000 µg/ml			5744.0100	10569102
Silver	1,000 µg/ml	Ag	2% HNO <sub>3</sub>	5779.0100	10760492
	10,000 µg/ml			5745.0100	10760112
Sodium	1,000 µg/ml	Na <sub>2</sub> CO <sub>3</sub>	2% HNO <sub>3</sub>	5780.0100	10493361
	10,000 µg/ml			5746.0100	10085990
Strontium	1,000 µg/ml	Sr(NO <sub>3</sub> ) <sub>2</sub>	2% HNO <sub>3</sub>	5781.0100	10770492
	10,000 µg/ml			5747.0100	10465861
Tantalum	1,000 µg/ml	TaCl <sub>5</sub>	H <sub>2</sub> O/ Trace HF	5782.0100	10209710
	10,000 µg/ml		1% HF	5748.0100	10095990
Tellurium	1,000 µg/ml	Te	10% HCl	5783.0100	10045980
	10,000 µg/ml:		40% HCl	5749.0100	10617801
Thallium	1,000 µg/ml	Tl	2% HNO <sub>3</sub>	5784.0100	10371261
	10,000 µg/ml			5761.0100	10137810
Thorium	1,000 µg/ml	Th(NO <sub>3</sub> ) <sub>4</sub>	2% HNO <sub>3</sub>	5785.0100	10055980
	10,000 µg/ml		5% HNO <sub>3</sub>	5750.0100	10108290

Con = Concentration

Multiple package sizes are available. Contact your sales representative for details.

Desc.	Con.	Solute	Matrix	Avantor Part Number	Fisher Scientific Cat. No
Tin	1,000 µg/ml	Sn	2% HNO <sub>3</sub> / Trace HF	5786.0100	10627601
	10,000 µg/ml			5751.0100	10546802
Titanium	1,000 µg/ml	Ti	2% HNO <sub>3</sub> /HF	5787.0100	10197610
	10,000 µg/ml			5752.0100	10413181
Uranium	1,000 µg/ml	U <sub>3</sub> O <sub>8</sub>	1% HNO <sub>3</sub>	5788.0100	10096000
	10,000 µg/ml			5753.0100	10453751
Vanadium	1,000 µg/ml	V <sub>2</sub> O <sub>5</sub>	2% HNO <sub>3</sub>	5789.0100	10157660
	10,000 µg/ml		10% HNO <sub>3</sub>	5754.0100	10371121
Yttrium	1,000 µg/ml	Y <sub>2</sub> O <sub>3</sub>	1% HNO <sub>3</sub>	5790.0100	10127760
	10,000 µg/ml			5755.0100	10331171
Zinc	1,000 µg/ml	Zn	2% HNO <sub>3</sub>	5791.0100	10321411
	10,000 µg/ml			5756.0100	10587182
Zirconium	1,000 µg/ml	ZrCl <sub>2</sub> O	1% HNO <sub>3</sub>	5792.0100	10761262
	10,000 µg/ml			5757.0100	10557762



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