



**RCI Labscan**  
GROUP

# Chemicals For Electronic Industrial Applications



**Quality excellence is at the heart  
of RCI Labscan strategy.**



**Reliability based on efficient and  
standardized processes.**



**Consistent quality to ensure  
reliable analyses.**

**RCI Labscan**  
RCI Labscan Limited

# ELECTRONIC INDUSTRIAL

RCI Labscan offers a broad range of high purity chemicals for use in the electronic industry. Applications for our electronic grade chemicals are used in various electronic manufacturing processes, including semiconductor fabrication, printed circuit board assembly, and display manufacturing. Key characteristics of our chemicals include high purity (extremely low levels of impurities, such as metal ions, organic contaminants, and particulate matter), strict specifications (industry standards), stringent quality control (closely monitored and controlled to minimize the risk of contamination) and safety with packaging and handling, which we are committed to delivering the high standards of quality, precision, and reliability in the electronic chemicals industry. Our team of dedicated experts has been working tirelessly to develop cutting-edge solutions that cater to the unique needs of your industry. We believe that our electronic grade chemical products will bring added value to your operations and contribute to your success. Our goal is to be a trusted partner in your journey towards innovation and excellence.

## Semig Grade

- High purity acids and solvents for electronic industrial applications.
- Low levels of metallic impurities.

## Electro Extra Grade

- Acids for semi-conductor industry and other electronic industrial.
- Low levels of metallic impurities content 0.5 ppm maximum.

## Electropure Grade

- High purity acids and solvents for cleaning and etching in electronic industrial applications.
- Low levels of metallic impurities.
- Nitric acid 65% and Sulfuric acid 98% low Hg, both suitable for trace metal analysis.

## Extropure Grade

- High purity solvents for electronic industrial applications.
- Low levels of metallic impurities.
- Free of Silicone, DOP and Amide.

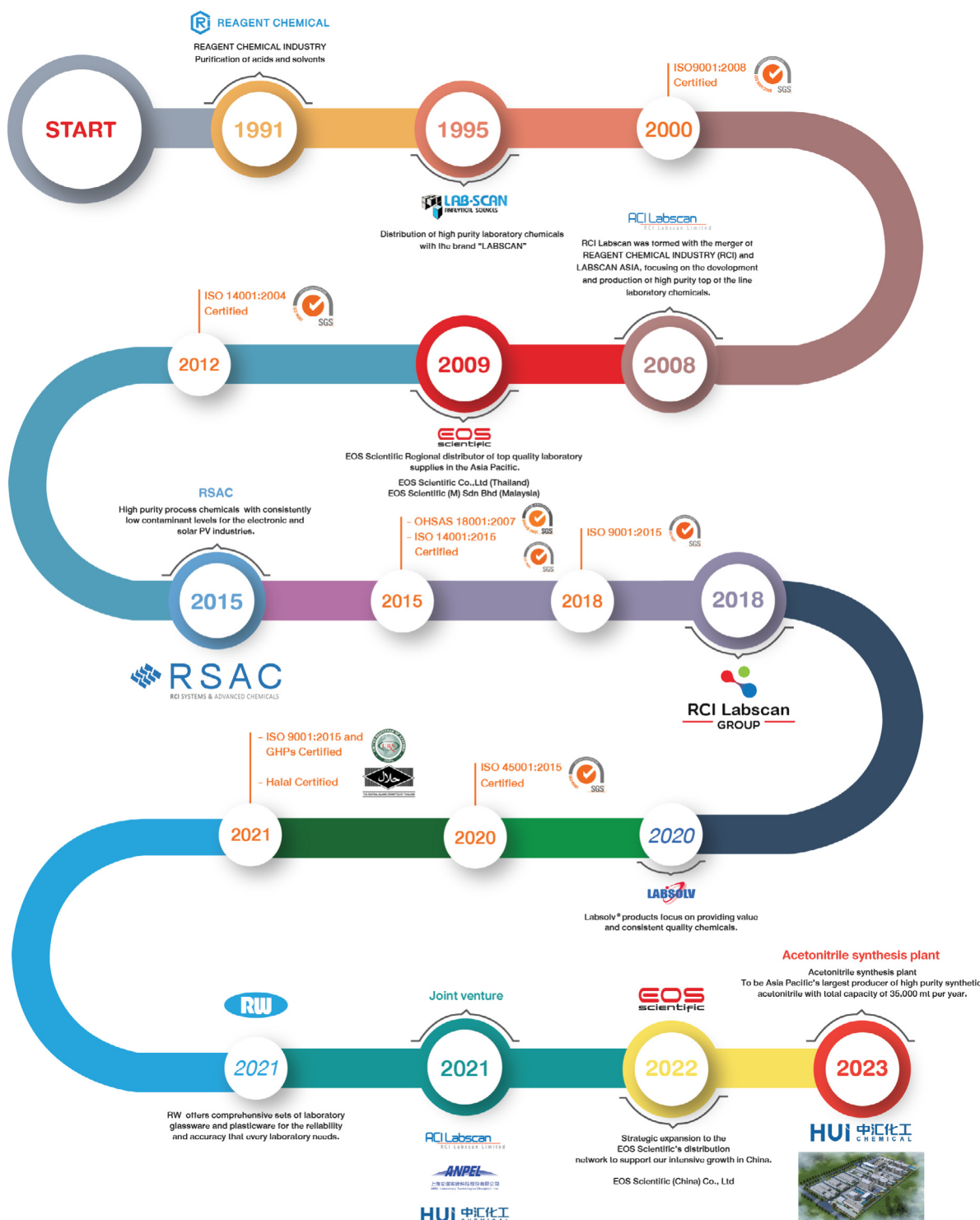
## VLSI Grade

- Ultra purity acids and solvents for cleaning and etching wafers for the semi-conductor industry and other electronic industrial applications.
- Extremely low levels of metallic impurities.
- Used for trace metal analysis.

# A timeline of our RCI Labscan group history

## We're an industry leader

Established in 1991, RCI Labscan Group is a conglomerate of companies, comprising of RCI Labscan Limited, EOS Scientific, and RCI Systems & Advanced Chemicals. We manufacture and distribute high-purity chemicals for businesses in a wide variety of industries in over 20 countries. In doing so, our company has grown to become one of Asia Pacific's leading high purity chemicals supplier.



# COMPANY PROFILE - RCI Labscan Limited

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## Company History

RCI LABSCAN Limited was established in 2008, from the acquisition and merger of Labscan Asia Co.,Ltd and Reagent Chemical Industry Co.,Ltd. The intensive investment also included the acquisition of Technology and Capability from USA, Europe (UK and Germany), and Asia. The company is already the preferred OEM supplier to a number of global multinational companies. With latest validity equipment, our Quality Control Laboratory is recognized as the Final Quality Testing Lab by some of its Multi-Nation Customer (MNC).

Our products are made available to customers under the brand RCI Labscan for chemical products with various laboratories as well as industrial applications.

With world-class technology and expertise, a strong commitment to excellence in quality, service and value to customers, RCI Labscan has grown rapidly to become one of the leading manufacturers and distributors of purified reagents in Asia.

## Labscan Asia Co., LTD. (Established in 1995)

- Joint venture with VS General Chem Group and Labscan Ireland Ltd.
- Production of HIGH PURITY Laboratory Reagents.
- Strong in OEM business and Research/Laboratories in Asia.

## Reagent Chemical Co., LTD. (Established in 1991)

Plant designed to produce Electronic Grade and Laboratory Grade ACIDS and SOLVENTS.

Strong in OEM and Electronics Industry.



# A timeline of our RCI Labscan group history

## RCI Labscan Label

Our Label is designed to provide the necessary up to date information and is in compliant to the GHS system (Globally Harmonized System of Classification and Labelling of Chemicals)

**Product Specification**

Assay (by GC):	99.9% min.	Co/d (As)	10 ppb max.
Color (APHA)	10 max.	Iron (Fe)	20 ppb max.
Water (by Coulometry)	0.05% max.	Lead (Pb)	20 ppb max.
Acidity (pH/g)	0.5 max.	Lithium (Li)	20 ppb max.
Alkalinity (pH/g)	0.5 max.	Magnesium (Mg)	20 ppb max.
Residue on Evaporation	3 ppm max.	Manganese (Mn)	10 ppb max.
Chloride (Cl)	0.1 ppm max.	Niobyl (Nb)	10 ppb max.
Phosphate (PO4)	0.1 ppm max.	Nickel (Ni)	10 ppb max.
Heavy metal (as Pb)	0.1 ppm max.	Palladium (Pd)	20 ppb max.
Aluminium (Al)	20 ppb max.	Silver (Ag)	20 ppb max.
Arsenic and Antimony (as As)	10 ppb max.	Selenium (Se)	20 ppb max.
Barium (Ba)	20 ppb max.	Silicon (Si)	20 ppb max.
Boron (B)	20 ppb max.	Titanium (Ti)	20 ppb max.
Calcium (Ca)	20 ppb max.	Tin (Sn)	20 ppb max.
Chromium (Cr)	50 ppb max.	Zirconium (Zr)	20 ppb max.
Cobalt (Co)	20 ppb max.	Particulate	0.5 µm and greater 30 max.
Copper (Cu)	10 ppb max.	1.0 µm and greater 8 max.	
Germanium (Ge)	20 ppb max.		
Gallium (Ga)	20 ppb max.		
Zinc (Zn)	50 ppb max.		
Solubility in Water	Passes test		

**Product Name**: VLI115-G2.5L  
**Product Code**: VLSI  
**Product Grade**: METHANOL  
**Hazard Statement and Precautionary Information**:  
 Hazard Statements: Highly flammable liquid and vapour. Toxic if swallowed, in contact with skin or if inhaled. Causes damage to organs (eyes).  
 Precautionary Statements: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep container tightly closed. Ground and bond container and receiving equipment. Use non-sparking tools. Take action to prevent static discharges. Do not breathe fume/gas/mist/vapours/spray. Wash hand thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection. IF SWALLOWED: Get emergency medical help immediately. IF ON SKIN: Wash with plenty water. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water (or shower). IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF exposed or concerned: Get emergency medical help immediately. Rinse mouth. Take off immediately all contaminated clothing and wash it before reuse.  
 Recommended storage condition: Keep container tightly closed in a dry, cool and well-ventilated place. Stored away from heat and direct sunlight.

**Packaging Size**: 2.5 L  
**UN Number**: UN 1230

**Batch Number**: 0001  
**Best Before Date**: OCT. 2027  
**Signal Word**: DANGER  
**Hazard Pictograms**: GHS02, GHS07, GHS09

**RCI LABSCAN LIMITED**  
 V.S.C. HEAVY HOUSE, 24 TRAVIA ROAD, PATHUMWAN, BANGKOK 10330, THAILAND  
 www.rcilabscan.com

PRODUCT CODE GUIDE  
 EXAMPLE: UM1005-G2.5L

**Grade**: VL  
**Identification**: 115  
**Packaging Type**: G  
**Packaging Size**: 2.5L

## Accreditations



ISO 9001



ISO 14001



ISO 45001



GHP Certificate



Halal

## Packaging

“Packaging for safety, convenience and product quality”

RCI Labscan offers a comprehensive range of packaging which is designed for safety, environmental protection, convenient handling and storage. All packaging are guaranteed to preserve the integrity of our products.



### Amber Glass Bottles:

Suitable for photosensitive Chemicals.

We offer 100ml., 500ml., 1 Litre, 2.5 Litres and 4 Litres sizes

500 ml. and 1 Litre:

6 bottles per box

100 ml., 2.5 Litres and 4 Litres:

4 bottles per box



### Plastic Bottles:

Plastic Bottle are supplied when chemical properties of the content and bottle are compatible, because they minimize the risk of breakage, are lighter in weight as well as being easier and more economical to transport.

We offer 25 grams, 100 grams, 500 grams, 1 kg., 500 ml., 1 Litre, 2.5 Litres and 4 Litres sizes

500 ml. and 1 Litre:

6 bottles per box

2.5 Litres and 4 Litres:

4 bottles per box

25 grams and 100 grams:

4 bottles per box

500 grams and 1 kg.:

6 bottles per box



### Drums for Bulk Quantities:

We currently offer the following sizes:

- 20 Litres HDPE drum
- 200 Litres HDPE drum
- 25 Litres Metal drum
- 200 Litres metal drum



### Intermediate Bulk Containers (IBCs):

We currently offer the following size:

- 1,000 Litres

## The Advantage of Our Signature Bottle Cap

### Outer cap

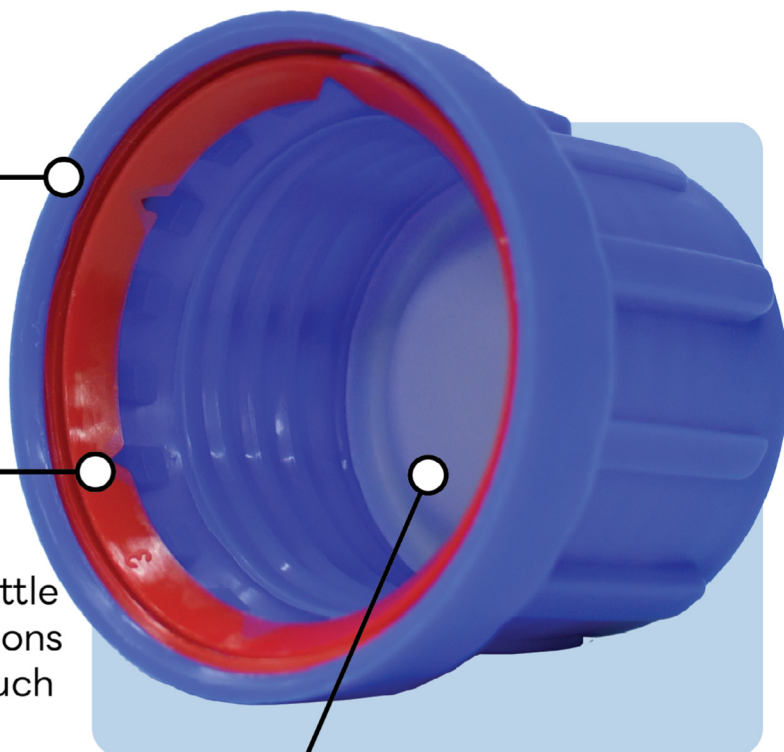
**Material :** Polypropylene  
**Function :** To seal and secure the contents of the chemical bottle.

### Pilfer proof ring

**Material :** Polypropylene  
**Function :** It remains on the bottle after opening and various options are available for this closure such as spray insert, rough groove, child resistant, pourer insert and cone sealing.

### Inner plug and Teflon sheet

**Material :** Low Density Polyethylene (Inner plug) Polytetrafluorocethylene (Teflon sheet)  
**Function :** It is a component with an inner plug that comes into contact with resistant to various types of chemicals, to enhances the sealing of chemicals for improved performance and prevent chemical leakage.





## Bottle Package

for Amber Glass 2.5/4 Litre Plastic 2.5/4 Litre

### Solvent Product



### Acid Product



RCI Labscan bottle caps, designed to provide security and prevent tampering, securely seal the tops of our bottles, ensuring the preservation of your chemicals' integrity.

#### Exceptional Material Quality

Crafted from premium-grade materials, chemical resistance, and preventing any interactions.

#### Safety Compliance

Each of our caps adheres strictly to safety standards and regulatory requirements.

#### Secure Seal

an airtight and leak-proof closure and mitigating the risk of spillage or contamination.

#### Innovative Design

User-friendly (convenience in mind) designs that make opening and closing.

#### Compatibility and Versatility

Designed to fit a wide array of bottle sizes and shapes, with meeting various needs within the industry.

#### Longevity and Cost-Efficiency

The durability and reliability of our bottle caps contribute to the longevity of stored chemicals.



Scan QR code of our product

# DISCOVER THE NEW GRADE SUPERPURE

## PRODUCT HIGHLIGHT



Ultra-Low Elemental Impurities



Critical for Trace Analysis



Instrumental Versatility



Quality Assurance

We currently offer the following package : Plastic bottle 1 Litre

### Nitric Acid 70%, Superpure

SP1137

HNO <sub>3</sub>	FW. 63.01	Density 1 L	= 1.41	Kg.
CAS-No.	7697-37-2	Melting Point	- 41	°C
Code	SP1137	Boiling Point	119.9	°C

#### Specifications

Assay (by acidimetry)	69.0 – 70.0%	Indium (In)	0.1	ppb max.
Appearance	Passes test	Iron (Fe)	15	ppb max.
Color (APHA)	7 max.	Lead (Pb)	0.3	ppb max.
Residue after Ignition	1 ppm max.	Lithium (Li)	0.1	ppb max.
Chloride (Cl)	0.08 ppm max.	Magnesium (Mg)	5	ppb max.
Phosphate (PO <sub>4</sub> )	0.1 ppm max.	Manganese (Mn)	0.1	ppb max.
Sulfate (SO <sub>4</sub> )	0.2 ppm max.	Mercury (Hg)	0.1	ppb max.
Silicate (as Si)	0.1 ppm max.	Molybdenum (Mo)	0.5	ppb max.
Aluminium (Al)	5 ppb max.	Nickel (Ni)	0.5	ppb max.
Antimony (Sb)	0.5 ppb max.	Niobium (Nb)	0.1	ppb max.
Arsenic (As)	0.5 ppb max.	Platinum (Pt)	0.5	ppb max.
Barium (Ba)	0.3 ppb max.	Potassium (K)	5	ppb max.
Beryllium (Be)	0.1 ppb max.	Silver (Ag)	1	ppb max.
Bismuth (Bi)	0.2 ppb max.	Sodium (Na)	10	ppb max.
Boron (B)	2 ppb max.	Strontium (Sr)	0.1	ppb max.
Cadmium (Cd)	0.5 ppb max.	Thallium (Tl)	0.1	ppb max.
Calcium (Ca)	15 ppb max.	Tin (Sn)	0.5	ppb max.
Chromium (Cr)	10 ppb max.	Titanium (Ti)	0.5	ppb max.
Cobalt (Co)	1 ppb max.	Vanadium (V)	0.5	ppb max.
Copper (Cu)	0.5 ppb max.	Zinc (Zn)	1	ppb max.
Gallium (Ga)	0.1 ppb max.	Zirconium (Zr)	0.1	ppb max.
Germanium (Ge)	0.1 ppb max.	Particle/ml :		
Gold (Au)	0.1 ppb max.	0.5 µm and greater	64	max.

PRODUCT NAME	CODE	PAGE
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Acetic Acid 96%, Electropure	EP 1000	1
Acetic Acid, Glacial Electropure	EP 1002	1
Acetic Acid, Glacial Semig	SM 1002	2
Acetic Acid, Glacial VLSI	VL 1002	2
Acetone, Electropure	EP 1003	3
Acetone, Extropure	XP 1003	3
Acetone, Semig	SM 1003	4
Acetone, VLSI	VL 1003	4
Ammonium Hydroxide 28% Solution, Electropure	EP 1404	5
Chloroform (stabilized with 1% Ethanol), Electropure	EP 1027E	5
Cyclohexane, Extropure	XP 1033	6
Dichloromethane (stabilized with Amylene), Electropure	EP 1040A	6
Dichloromethane (stabilized with Amylene), Extropure	XP 1040A	7
Diethyl Ether (stabilized with 1% Ethanol), Electropure	EP 1047E	7
Hexanes, Extropure (SDF Low Chloride)	XP 1101	8
Hexanes, Extropure (SDF)	XP 1100	8
Hydrochloric Acid 3%, Semig	SM 1301	8
Hydrochloric Acid 37%, Electropure	EP 1107	9
Hydrochloric Acid 37%, Semig	SM 1107	9
Hydrochloric Acid 37%, VLSI	VL 1107	10
Hydrochloric Acid 6%, Semig	SM 1415	10
Hydrofluoric Acid 49%, Electropure	EP 1337	11
Methanol, Electropure	EP 1115	11
Methanol, Extropure	XP 1115	12
Methanol, Semig	SM 1115	12
Methanol, VLSI	VL 1115	13
Methyl Ethyl Ketone, Electropure	EP 1122	13
Methyl Ethyl Ketone, Extropure	XP 1122	14
n-Butyl Acetate, Electropure	EP 1025	14
n-Butyl Acetate, VLSI	VL 1025	15

PRODUCT NAME	CODE	PAGE
Nitric Acid 65% (Low Mercury), Electropure	EP 1134	15
Nitric Acid 65%, Semig	SM 1133	16
Nitric Acid 70%, Electropure	EP 1137	16
Nitric Acid 70%, Semig	SM 1137	17
Nitric Acid 70%, Semig Plus	SM 1136	17
Nitric Acid 70%, VLSI	VL 1137	18
Nitric Acid 95%, Semig	SM 1139	18
n-Methyl-2-Pyrrolidone, Electropure	XP 1278	19
Propan-2-ol, Electropure	EP 1162	19
Propan-2-ol, Extroplus	XP 1163	20
Propan-2-ol, Electropure	XP 1162	20
Propan-2-ol, Extropure Plus	XP 1277	21
Propan-2-ol, Extropure-MS	XP 1292	21
Propan-2-ol, Semig	SM 1162	22
Propan-2-ol, Semig Plus	SM 1163	22
Propan-2-ol, VLSI	VL 1162	23
Sulfuric Acid 20%, Semig	SM 1280	23
Sulfuric Acid 40%, Electropure	EP 1183	24
Sulfuric Acid 50%, Semig	SM 1184	24
Sulfuric Acid 60%, Electropure	EP 1185	25
Sulfuric Acid 60%, Semig	SM 1185	25
Sulfuric Acid 81%, VLSI	VL 1151	26
Sulfuric Acid 89%, Electro Extra	EX 1189	26
Sulfuric Acid 89%, Semig	SM 1189	27
Sulfuric Acid 96%, Electropure	EP 1191	27
Sulfuric Acid 96%, Semig	SM 1191	28
Sulfuric Acid 96%, VLSI	VL 1191	28
Sulfuric Acid 98%, Electropure	EP 1193	29
Sulfuric Acid 98%, Semig	SM 1193	29
Toluene, Semig	SM 1207	30
Xylene, Semig	SM 1213	30



$\text{CH}_3\text{COOH}$	FW. 60.05	Melting Point	10 °C
CAS-No.	64-19-7	Boiling Point	118 °C
Density 1 L	1.06 Kg.		

## Specifications

Assay (by acidimetry)	96.0%	min.
Color (APHA)	10	max.
Acetic Anhydride $[(\text{CH}_3\text{CO})_2\text{O}]$	0.01 %	max.
Solubility in water	Passes test	
Substances reducing dichromate	Passes test	
Substances reducing permanganate	Passes test	
Residue on Evaporation	5	ppm max.
Chloride (Cl)	0.5	ppm max.
Phosphate ( $\text{PO}_4$ )	1	ppm max.
Sulfate ( $\text{SO}_4$ )	0.5	ppm max.
Aluminium (Al)	0.05	ppm max.
Arsenic and Antimony (as As)	0.005	ppm max.
Barium (Ba)	0.05	ppm max.
Beryllium (Be)	0.02	ppm max.
Bismuth (Bi)	0.05	ppm max.
Boron (B)	0.05	ppm max.
Cadmium (Cd)	0.02	ppm max.
Calcium (Ca)	0.5	ppm max.
Chromium (Cr)	0.02	ppm max.
Cobalt (Co)	0.02	ppm max.
Copper (Cu)	0.02	ppm max.
Gallium (Ga)	0.02	ppm max.

Cat No.	Package	Size
EP1000-G500ML	Amber Glass bottle	500 ML
EP1000-G1L	Amber Glass bottle	1 L
EP1000-G2.5L	Amber Glass bottle	2.5 L
EP1000-P2.5L	Plastic bottle	2.5 L

Germanium (Ge)	0.02	ppm max.
Gold (Au)	0.1	ppm max.
Indium (In)	0.02	ppm max.
Iron (Fe)	0.2	ppm max.
Lead (Pb)	0.02	ppm max.
Lithium (Li)	0.02	ppm max.
Magnesium (Mg)	0.2	ppm max.
Manganese (Mn)	0.02	ppm max.
Molybdenum (Mo)	0.02	ppm max.
Nickel (Ni)	0.02	ppm max.
Platinum (Pt)	0.02	ppm max.
Potassium (K)	0.1	ppm max.
Silver (Ag)	0.02	ppm max.
Sodium (Na)	0.5	ppm max.
Strontium (Sr)	0.05	ppm max.
Thallium (Tl)	0.02	ppm max.
Tin (Sn)	0.1	ppm max.
Titanium (Ti)	0.05	ppm max.
Vanadium (V)	0.02	ppm max.
Zinc (Zn)	0.1	ppm max.
Zirconium (Zr)	0.05	ppm max.

Cat No.	Package	Size
EP1000-G4L	Amber Glass bottle	4 L
EP1000-P4L	Plastic bottle	4 L
EP1000-P20L	Plastic drum	20 L
EP1000-P200L	Plastic drum	200 L

## Acetic Acid, Glacial Electropure

## EP1002



$\text{CH}_3\text{COOH}$	FW. 60.05	Melting Point	17 °C
CAS-No.	64-19-7	Boiling Point	118 °C
Density 1 L	1.05 Kg.		

## Specifications

Assay (by acidimetry)	99.8%	min.
Color (APHA)	10	max.
Acetaldehyde	2	ppm max.
Acetic Anhydride $[(\text{CH}_3\text{CO})_2\text{O}]$	100	ppm max.
Residue on Evaporation	5	ppm max.
Solubility in water	Passes test	
Substances reducing dichromate	Passes test	
Substances reducing permanganate	Passes test	
Chloride (Cl)	0.5	ppm max.
Phosphate ( $\text{PO}_4$ )	1	ppm max.
Sulfate ( $\text{SO}_4$ )	0.5	ppm max.
Aluminium (Al)	0.05	ppm max.
Arsenic and Antimony (as As)	0.005	ppm max.
Barium (Ba)	0.05	ppm max.
Beryllium (Be)	0.02	ppm max.
Bismuth (Bi)	0.05	ppm max.
Boron (B)	0.05	ppm max.
Cadmium (Cd)	0.02	ppm max.
Calcium (Ca)	0.5	ppm max.
Chromium (Cr)	0.02	ppm max.
Cobalt (Co)	0.02	ppm max.
Copper (Cu)	0.02	ppm max.

Cat No.	Package	Size
EP1002-G500ML	Amber Glass bottle	500 ML
EP1002-G1L	Amber Glass bottle	1 L
EP1002-G2.5L	Amber Glass bottle	2.5 L
EP1002-P2.5L	Plastic bottle	2.5 L

Gallium (Ga)	0.02	ppm max.
Germanium (Ge)	0.02	ppm max.
Gold (Au)	0.1	ppm max.
Indium (In)	0.02	ppm max.
Iron (Fe)	0.2	ppm max.
Lead (Pb)	0.02	ppm max.
Lithium (Li)	0.02	ppm max.
Magnesium (Mg)	0.1	ppm max.
Manganese (Mn)	0.02	ppm max.
Molybdenum (Mo)	0.02	ppm max.
Nickel (Ni)	0.02	ppm max.
Platinum (Pt)	0.1	ppm max.
Potassium (K)	0.1	ppm max.
Silver (Ag)	0.02	ppm max.
Sodium (Na)	0.5	ppm max.
Strontium (Sr)	0.05	ppm max.
Thallium (Tl)	0.05	ppm max.
Tin (Sn)	0.1	ppm max.
Titanium (Ti)	0.05	ppm max.
Vanadium (V)	0.02	ppm max.
Zinc (Zn)	0.1	ppm max.
Zirconium (Zr)	0.05	ppm max.

Cat No.	Package	Size
EP1002-G4L	Amber Glass bottle	4 L
EP1002-P4L	Plastic bottle	4 L
EP1002-P20L	Plastic drum	20 L
EP1002-P200L	Plastic drum	200 L



CH <sub>3</sub> COOH	FW. 60.05	Melting Point	17 °C
CAS-No.	64-19-7	Boiling Point	118 °C
Density 1 L	1.05 Kg.		

## Specifications

Assay (by acidimetry)	99.7%	min.
Color (APHA)	10	max.
Residue on Evaporation	5	ppm max.
Solubility in Water	Passes test	
Substances reducing dichromate	Passes test	
Substances reducing permanganate	Passes test	
Chloride (Cl)	0.5	ppm max.
Phosphate (PO <sub>4</sub> )	0.5	ppm max.
Sulfate (SO <sub>4</sub> )	0.5	ppm max.
Aluminium (Al)	0.3	ppm max.
Arsenic and Antimony (as As)	0.005	ppm max.
Boron (B)	0.2	ppm max.
Calcium (Ca)	0.3	ppm max.

Chromium (Cr)	0.2	ppm max.
Copper (Cu)	0.1	ppm max.
Gold (Au)	0.3	ppm max.
Iron (Fe)	0.2	ppm max.
Lead (Pb)	0.3	ppm max.
Magnesium (Mg)	0.3	ppm max.
Manganese (Mn)	0.3	ppm max.
Nickel (Ni)	0.1	ppm max.
Potassium (K)	0.3	ppm max.
Sodium (Na)	0.3	ppm max.
Tin (Sn)	0.3	ppm max.
Titanium (Ti)	0.3	ppm max.
Zinc (Zn)	0.3	ppm max.

Cat No.	Package	Size
SM1002-G500ML	Amber Glass bottle	500 ML
SM1002-G1L	Amber Glass bottle	1 L
SM1002-G2.5L	Amber Glass bottle	2.5 L
SM1002-P2.5L	Plastic bottle	2.5 L

Cat No.	Package	Size
SM1002-G4L	Amber Glass bottle	4 L
SM1002-P4L	Plastic bottle	4 L
SM1002-P20L	Plastic drum	20 L
SM1002-P200L	Plastic drum	200 L

## Acetic Acid, Glacial VLSI

## VL1002



CH <sub>3</sub> COOH	FW. 60.05	Melting Point	17 °C
CAS-No.	64-19-7	Boiling Point	118 °C
Density 1 L	1.05 Kg.		

## Specifications

Assay (by acidimetry)	99.8%	min.
Color (APHA)	10	max.
Acetaldehyde	2	ppm max.
Acetic Anhydride [(CH <sub>3</sub> CO) <sub>2</sub> O]	100	ppm max.
Formic acid	100	ppm max.
Residue on Evaporation	5	ppm max.
Substances reducing dichromate	Passes test	
Substances reducing permanganate	Passes test	
Solubility in water	Passes test	
Chloride (Cl)	0.1	ppm max.
Phosphate (PO <sub>4</sub> )	0.05	ppm max.
Sulfate (SO <sub>4</sub> )	0.5	ppm max.
Aluminium (Al)	20	ppm max.
Arsenic and Antimony (as As)	5	ppm max.
Barium (Ba)	10	ppm max.
Beryllium (Be)	10	ppm max.
Bismuth (Bi)	50	ppm max.
Boron (B)	10	ppm max.
Cadmium (Cd)	10	ppm max.
Calcium (Ca)	100	ppm max.
Chromium (Cr)	10	ppm max.
Cobalt (Co)	10	ppm max.
Copper (Cu)	10	ppm max.

Cat No.	Package	Size
VL1002-G2.5L	Amber Glass bottle	2.5 L
VL1002-P2.5L	Plastic bottle	2.5 L

Gallium (Ga)	10	ppm max.
Germanium (Ge)	20	ppm max.
Gold (Au)	20	ppm max.
Indium (In)	10	ppm max.
Iron (Fe)	100	ppm max.
Lead (Pb)	10	ppm max.
Lithium (Li)	10	ppm max.
Magnesium (Mg)	50	ppm max.
Manganese (Mn)	10	ppm max.
Molybdenum (Mo)	20	ppm max.
Nickel (Ni)	10	ppm max.
Platinum (Pt)	20	ppm max.
Potassium (K)	50	ppm max.
Silver (Ag)	0.5	ppm max.
Sodium (Na)	200	ppm max.
Strontium (Sr)	20	ppm max.
Thallium (Tl)	20	ppm max.
Tin (Sn)	50	ppm max.
Titanium (Ti)	50	ppm max.
Vanadium (V)	10	ppm max.
Zinc (Zn)	50	ppm max.
Zirconium (Zr)	20	ppm max.

Product passed through 1 micron final filter.

Cat No.	Package	Size
VL1002-G4L	Amber Glass bottle	4 L
VL1002-P4L	Plastic drum	4 L



$\text{CH}_3\text{COOH}_3$	FW. 58.08	Melting Point	-95.4 °C
CAS-No.	67-64-1	Boiling Point	56.2 °C
Density 1 L	0.790 Kg.		

## Specifications

Assay (by GC.)	99.8%	min.
Identity	Corresponds to IR spectrum	
Color (APHA)	10	max.
Water (by Coulometry)	0.2%	max.
Acidity ( $\mu\text{Eq./g.}$ )	0.3	max.
Alkalinity ( $\mu\text{Eq./g.}$ )	0.5	max.
Specific resistance ( $\text{M}\Omega\cdot\text{cm}$ )	5	min.
Residue on Evaporation	5	ppm max.
Ethanol (GC.)	100	ppm max.
Methanol (GC.)	500	ppm max.
Aldehydes (as HCHO)	10	ppm max.
Solubility in water	Passes test	
Substances reducing permanganate (as O)	2.5	ppm max.
Chloride (Cl)	0.2	ppm max.
Phosphate ( $\text{PO}_4$ )	0.1	ppm max.
Heavy metals (as Pb)	0.1	ppm max.
Aluminium (Al)	0.05	ppm max.
Antimony (Sb)	0.01	ppm max.
Arsenic (As)	0.01	ppm max.
Barium (Ba)	0.05	ppm max.
Beryllium (Be)	0.02	ppm max.
Bismuth (Bi)	0.1	ppm max.
Boron (B)	0.01	ppm max.
Cadmium (Cd)	0.02	ppm max.
Calcium (Ca)	0.1	ppm max.

Cat No.	Package	Size
EP1003-G500ML	Amber Glass bottle	500 ML
EP1003-G1L	Amber Glass bottle	1 L
EP1003-G2.5L	Amber Glass bottle	2.5 L
EP1003-P2.5L	Plastic bottle	2.5 L

Chromium (Cr)	0.02	ppm max.
Cobalt (Co)	0.02	ppm max.
Copper (Cu)	0.01	ppm max.
Gallium (Ga)	0.02	ppm max.
Gold (Au)	0.05	ppm max.
Indium (In)	0.02	ppm max.
Iron (Fe)	0.05	ppm max.
Lead (Pb)	0.02	ppm max.
Lithium (Li)	0.02	ppm max.
Magnesium (Mg)	0.05	ppm max.
Manganese (Mn)	0.01	ppm max.
Molybdenum (Mo)	0.05	ppm max.
Nickel (Ni)	0.01	ppm max.
Platinum (Pt)	0.2	ppm max.
Potassium (K)	0.05	ppm max.
Silver (Ag)	0.02	ppm max.
Sodium (Na)	0.2	ppm max.
Strontium (Sr)	0.02	ppm max.
Thallium (Tl)	0.05	ppm max.
Tin (Sn)	0.05	ppm max.
Titanium (Ti)	0.05	ppm max.
Vanadium (V)	0.05	ppm max.
Zinc (Zn)	0.05	ppm max.
Zirconium (Zr)	0.2	ppm max.

Cat No.	Package	Size
EP1003-G4L	Amber Glass bottle	4 L
EP1003-P4L	Plastic bottle	4 L
EP1003-P20L	Plastic drum	20 L
EP1003-P200L	Plastic drum	200 L

## Acetone, Extropure



$\text{CH}_3\text{COOH}_3$	FW. 58.08
CAS-No.	67-64-1
Density 1 L	0.790 Kg.
Melting Point	-95.4 °C
Boiling Point	56.2 °C

## Specifications

Assay (by GC.)	99.9%	min.
Color (APHA)	10	max.
Water (by Coulometry)	0.3%	max.
Acidity ( $\mu\text{Eq./g.}$ )	0.3	max.
Alkalinity ( $\mu\text{Eq./g.}$ )	0.5	max.
Solubility in water	Passes test	
Residue on Evaporation	3	ppm max.
Chloride (Cl)	0.2	ppm max.
Phosphate ( $\text{PO}_4$ )	0.1	ppm max.
Heavy metals (as Pb)	100	ppb max.
Aluminium (Al)	50	ppb max.
Arsenic and Antimony (as As)	10	ppb max.
Barium (Ba)	20	ppb max.
Boron (B)	20	ppb max.
Cadmium (Cd)	20	ppb max.
Calcium (Ca)	50	ppb max.
Chromium (Cr)	20	ppb max.
Cobalt (Co)	20	ppb max.
Copper (Cu)	10	ppb max.
Gallium (Ga)	50	ppb max.
Germanium (Ge)	50	ppb max.

Cat No.	Package	Size
XP1003-G500ML	Amber Glass bottle	500 ML
XP1003-G1L	Amber Glass bottle	1 L
XP1003-G2.5L	Amber Glass bottle	2.5 L
XP1003-P2.5L	Plastic bottle	2.5 L

Gold (Au)	20	ppb max.
Iron (Fe)	20	ppb max.
Lead (Pb)	20	ppb max.
Lithium (Li)	50	ppb max.
Magnesium (Mg)	20	ppb max.
Manganese (Mn)	10	ppb max.
Nickel (Ni)	10	ppb max.
Potassium (K)	50	ppb max.
Silicon (Si)	50	ppb max.
Silver (Ag)	20	ppb max.
Sodium (Na)	50	ppb max.
Strontium (Sr)	20	ppb max.
Tin (Sn)	50	ppb max.
Titanium (Ti)	20	ppb max.
Zinc (Zn)	50	ppb max.
Silicone oil	Free	
DOP	Free	
Amide	Free	
Particle/ml :		
	0.5 $\mu\text{m}$ and greater	65 max.
	1.0 $\mu\text{m}$ and greater	8 max.

Cat No.	Package	Size
XP1003-P4L	Amber Glass bottle	4 L
XP1003-P4L	Plastic bottle	4 L
XP1003-P200L	Plastic drum	200 L



$\text{CH}_3\text{COOH}_3$	FW. 58.08	Melting Point	-95.4 °C
CAS-No.	67-64-1	Boiling Point	56.2 °C
Density 1 L	0.790 Kg.		

## Specifications

Assay (by GC.)	99.9%	min.
Color (APHA)	10	max.
Water (by Coulometry)	0.2%	max.
Acidity ( $\mu\text{Eq./g.}$ )	0.3	max.
Alkalinity ( $\mu\text{Eq./g.}$ )	0.5	max.
Solubility in water	Passes test	
Residue on Evaporation	3	ppm max.
Chloride (Cl)	0.2	ppm max.
Phosphate ( $\text{PO}_4$ )	0.1	ppm max.
Aluminium (Al)	0.1	ppm max.
Arsenic and Antimony (as As)	0.01	ppm max.
Boron (B)	0.1	ppm max.
Calcium (Ca)	0.1	ppm max.
Chromium (Cr)	0.1	ppm max.

Copper (Cu)	0.1	ppm max.
Gallium (Ga)	0.1	ppm max.
Gold (Au)	0.1	ppm max.
Iron (Fe)	0.1	ppm max.
Lead (Pb)	0.1	ppm max.
Magnesium (Mg)	0.1	ppm max.
Manganese (Mn)	0.1	ppm max.
Nickel (Ni)	0.1	ppm max.
Potassium (K)	0.1	ppm max.
Sodium (Na)	0.1	ppm max.
Tin (Sn)	0.1	ppm max.
Titanium (Ti)	0.1	ppm max.
Zinc (Zn)	0.1	ppm max.

Cat No.	Package	Size
SM1003-G500ML	Amber Glass bottle	500 ML
SM1003-G1L	Amber Glass bottle	1 L
SM1003-G2.5L	Amber Glass bottle	2.5 L
SM1003-P2.5L	Plastic bottle	2.5 L
SM1003-G4L	Amber Glass bottle	4 L

Cat No.	Package	Size
SM1003-P4L	Plastic bottle	4 L
SM1003-P20L	Plastic drum	20 L
SM1003-P200L	Plastic drum	200 L
SM1003-M200L	Metal drum	200 L

## Acetone, VLSI



$\text{CH}_3\text{COOH}_3$	FW. 58.08	Melting Point	-95.4 °C
CAS-No.	67-64-1	Boiling Point	56.2 °C
Density 1 L	0.790 Kg.		

## Specifications

Assay (by GC.)	99.8%	min.
Identity	Corresponds to IR spectrum	
Water (by Coulometry)	0.2%	max.
Acidity ( $\mu\text{Eq./g.}$ )	0.3	max.
Alkalinity ( $\mu\text{Eq./g.}$ )	0.5	max.
Specific resistance ( $\text{M}\Omega\cdot\text{cm}$ )	5	min.
Residue on Evaporation	3	ppm max.
Ethanol (GC.)	50	ppm max.
Methanol (GC.)	500	ppm max.
Aldehydes (as HCHO)	10	ppm max.
Substances reducing permanganate (as O)	2.5	ppm max.
Heavy metals (as Pb)	0.1	ppm max.
Aluminium (Al)	50	ppb max.
Antimony (Sb)	10	ppb max.
Arsenic (As)	10	ppb max.
Barium (Ba)	20	ppb max.
Beryllium (Be)	10	ppb max.
Bismuth (Bi)	20	ppb max.
Boron (B)	10	ppb max.
Cadmium (Cd)	10	ppb max.
Calcium (Ca)	100	ppb max.
Chromium (Cr)	10	ppb max.
Cobalt (Co)	10	ppb max.
Copper (Cu)	10	ppb max.

Gallium (Ga)	10	ppb max.
Gold (Au)	20	ppb max.
Indium (In)	10	ppb max.
Iron (Fe)	10	ppb max.
Lead (Pb)	10	ppb max.
Lithium (Li)	10	ppb max.
Magnesium (Mg)	20	ppb max.
Manganese (Mn)	10	ppb max.
Molybdenum (Mo)	10	ppb max.
Nickel (Ni)	10	ppb max.
Platinum (Pt)	50	ppb max.
Potassium (K)	20	ppb max.
Silver (Ag)	10	ppb max.
Sodium (Na)	100	ppb max.
Strontium (Sr)	10	ppb max.
Thallium (Tl)	10	ppb max.
Tin (Sn)	20	ppb max.
Titanium (Ti)	20	ppb max.
Vanadium (V)	10	ppb max.
Zinc (Zn)	20	ppb max.
Zirconium (Zr)	20	ppb max.

Particle/ml :		
	0.5 $\mu\text{m}$ and greater	30 max.
	1.0 $\mu\text{m}$ and greater	8 max.

Product passed through 1 micron final filter.

Cat No.	Package	Size
VL1003-G2.5L	Amber Glass bottle	2.5 L
VL1003-G4L	Amber Glass bottle	4 L

Cat No.	Package	Size
VL1003-P2.5L	Plastic bottle	2.5 L
VL1003-P4L	Plastic bottle	4 L





NH <sub>4</sub> OH	FW. 35.05	Melting Point	-72 °C
CAS-No.	1336-21-6	Boiling Point	32 °C
Density 1 L	0.900 Kg.		

## Specifications

Assay (by acidimetry)	28%	min.
Appearance	Passes test	
Color (APHA)	10	max.
Carbon dioxide (CO <sub>2</sub> )	20	ppm max.
Residue after Ignition	10	ppm max.
Substances reducing permanganate	Passes test	
Chloride (Cl)	0.3	ppm max.
Nitrate (NO <sub>3</sub> )	1	ppm max.
Phosphate (PO <sub>4</sub> )	2	ppm max.
Sulfate (SO <sub>4</sub> )	0.3	ppm max.
Heavy metals (as Pb)	0.2	ppm max.
Aluminium (Al)	0.05	ppm max.
Arsenic (As)	0.05	ppm max.
Barium (Ba)	0.01	ppm max.
Beryllium (Be)	0.01	ppm max.
Bismuth (Bi)	0.02	ppm max.
Boron (B)	0.01	ppm max.
Cadmium (Cd)	0.01	ppm max.
Calcium (Ca)	0.1	ppm max.
Chromium (Cr)	0.02	ppm max.
Cobalt (Co)	0.01	ppm max.

Cat No.	Package	Size
EP1404-G500ML	Amber Glass bottle	500 ML
EP1404-G1L	Amber Glass bottle	1 L

Copper (Cu)	0.02	ppm max.
Gallium (Ga)	0.01	ppm max.
Germanium (Ge)	0.05	ppm max.
Gold (Au)	0.01	ppm max.
Iron (Fe)	0.05	ppm max.
Lead (Pb)	0.01	ppm max.
Lithium (Li)	0.01	ppm max.
Magnesium (Mg)	0.02	ppm max.
Manganese (Mn)	0.005	ppm max.
Molybdenum (Mo)	0.01	ppm max.
Nickel (Ni)	0.01	ppm max.
Potassium (K)	0.1	ppm max.
Silver (Ag)	0.005	ppm max.
Sodium (Na)	0.1	ppm max.
Thallium (Tl)	0.01	ppm max.
Tin (Sn)	0.01	ppm max.
Titanium (Ti)	0.01	ppm max.
Vanadium (V)	0.01	ppm max.
Zinc (Zn)	0.02	ppm max.
Zirconium (Zr)	0.02	ppm max.

Cat No.	Package	Size
EP1404-G2.5L	Amber Glass bottle	2.5 L
EP1404-G4L	Amber Glass bottle	4 L

## Chloroform, Electropure

EP1027E



CHCl <sub>3</sub>	FW. 119.38	Melting Point	-63 °C
CAS-No.	67-66-3	Boiling Point	61 °C
Density 1 L	1.479 Kg.		

## Specifications

Assay (by GC.)	99.8%	min.
Identity	Corresponds to IR spectrum	
Color (APHA)	10	max.
Water (by Coulometry)	0.01%	max.
Acidity (mEq./g.)	0.0005	max.
Residue on Evaporation	0.001%	max.
Carbonyl Compounds (as CO)	0.005%	max.
Free Chlorine (Cl)	0.0005%	max.
Chloride (Cl)	0.0001%	max.
Acetone and Aldehyde	Passes test	
Acid and Chloride	Passes test	
Substances darkened by sulfuric acid	Passes test	
Suitability for use in dithizone tests	Passes test	
Carbon tetrachloride (GC.)	0.01%	max.
Dichloromethane (GC.)	0.01%	max.
Tetrachloroethylene (GC.)	0.01%	max.
Trichloroethylene (GC.)	0.01%	max.
Aluminium (Al)	0.5	ppm max.
Arsenic (As)	0.02	ppm max.
Barium (Ba)	0.1	ppm max.
Boron (B)	0.02	ppm max.

Cat No.	Package	Size
EP1027E-G500ML	Amber Glass Bottle	500 ML
EP1027E-G1L	Amber Glass Bottle	1 L

Cadmium (Cd)	0.05	ppm max.
Calcium (Ca)	0.5	ppm max.
Chromium (Cr)	0.02	ppm max.
Cobalt (Co)	0.02	ppm max.
Copper (Cu)	0.02	ppm max.
Gallium (Ga)	0.02	ppm max.
Germanium (Ge)	0.02	ppm max.
Gold (Au)	0.02	ppm max.
Iron (Fe)	0.1	ppm max.
Lead (Pb)	0.05	ppm max.
Lithium (Li)	0.02	ppm max.
Magnesium (Mg)	0.1	ppm max.
Manganese (Mn)	0.02	ppm max.
Nickel (Ni)	0.02	ppm max.
Potassium (K)	0.1	ppm max.
Silver (Ag)	0.02	ppm max.
Sodium (Na)	0.5	ppm max.
Strontium (Sr)	0.05	ppm max.
Tin (Sn)	0.1	ppm max.
Zinc (Zn)	0.1	ppm max.

Stabilized with about 1% ethanol.

Cat No.	Package	Size
EP1027E-G2.5L	Amber Glass Bottle	2.5 L
EP1027E-G4L	Amber Glass Bottle	4 L



$C_6H_{12}$	FW. 84.16	Melting Point	-6 °C
CAS-No.	110-82-7	Boiling Point	81 °C
Density 1 L	0.779 Kg.		

## Specifications

Assay (by GC.)	99.8%	min.
Appearance	Clear	
Color (APHA)	10	max.
Water (by Coulometry)	0.01%	max.
Acidity (mEq./g.)	0.0003	max.
Residue on Evaporation	0.001%	max.
Cyclohexene (GC.)	0.05%	max.
Ethanol (GC.)	0.01%	max.
Chloride (Cl)	0.2	ppm max.
Phosphate (PO <sub>4</sub> )	0.5	ppm max.
Aluminium (Al)	50	ppb max.
Arsenic (As)	20	ppb max.
Barium (Ba)	10	ppb max.
Boron (B)	10	ppb max.
Cadmium (Cd)	20	ppb max.
Calcium (Ca)	50	ppb max.
Chromium (Cr)	10	ppb max.
Cobalt (Co)	10	ppb max.

Copper (Cu)	10	ppb max.
Gallium (Ga)	20	ppb max.
Germanium (Ge)	20	ppb max.
Gold (Au)	20	ppb max.
Iron (Fe)	50	ppb max.
Lead (Pb)	20	ppb max.
Lithium (Li)	20	ppb max.
Magnesium (Mg)	20	ppb max.
Manganese (Mn)	20	ppb max.
Nickel (Ni)	20	ppb max.
Potassium (K)	50	ppb max.
Silver (Ag)	20	ppb max.
Sodium (Na)	50	ppb max.
Strontium (Sr)	20	ppb max.
Tin (Sn)	20	ppb max.
Zinc (Zn)	50	ppb max.
Silicone oil	Free	

Cat No.	Package	Size
XP1033-M200L	Metal drum	200 L

## Dichloromethane, Electropure

EP1040A



$CH_2Cl_2$	FW. 84.93	Melting Point	-95 °C
CAS-No.	75-09-02	Boiling Point	40 °C
Density 1 L	1.330 Kg.		

## Specifications

Assay (by GC.)	99.9%	min.
Appearance	Passes test	
Color (APHA)	10	max.
Water (by Coulometry)	0.02%	max.
Acidity (mEq./g.)	0.0003	max.
Residue on Evaporation	0.0005%	max.
Free Chlorine (Cl)	0.0002%	max.
Aluminium (Al)	0.5	ppm max.
Arsenic (As)	0.02	ppm max.
Barium (Ba)	0.1	ppm max.
Boron (B)	0.02	ppm max.
Cadmium (Cd)	0.05	ppm max.
Calcium (Ca)	0.5	ppm max.
Chromium (Cr)	0.02	ppm max.
Cobalt (Co)	0.02	ppm max.
Copper (Cu)	0.02	ppm max.

Gallium (Ga)	0.02	ppm max.
Germanium (Ge)	0.02	ppm max.
Gold (Au)	0.02	ppm max.
Iron (Fe)	0.1	ppm max.
Lead (Pb)	0.05	ppm max.
Lithium (Li)	0.02	ppm max.
Magnesium (Mg)	0.1	ppm max.
Manganese (Mn)	0.02	ppm max.
Nickel (Ni)	0.02	ppm max.
Potassium (K)	0.1	ppm max.
Silver (Ag)	0.02	ppm max.
Sodium (Na)	0.5	ppm max.
Strontium (Sr)	0.05	ppm max.
Tin (Sn)	0.1	ppm max.
Zinc (Zn)	0.1	ppm max.

Stabilized with about 50 ppm amylene.

Cat No.	Package	Size
EP1040A-G500ML	Amber Glass bottle	500 ML
EP1040A-G1L	Amber Glass bottle	1 L
EP1040A-G2.5L	Amber Glass bottle	2.5 L

Cat No.	Package	Size
EP1040A-G4L	Amber Glass bottle	4 L
EP1040A-M20L	Metal drum	20 L
EP1040A-M200L	Metal drum	200 L



$\text{CH}_2\text{Cl}_2$	FW. 84.93	Melting Point	-95 °C
CAS-No.	75-09-2	Boiling Point	40 °C
Density 1 L	1.330 Kg.		

## Specifications

Assay (by GC.)	99.9%	min.
Appearance	Clear	
Color (APHA)	10	max.
Water (by Coulometry)	0.02%	max.
Acidity (mEq./g.)	0.0003	max.
Residue on Evaporation	0.0005%	max.
Free Chlorine (Cl)	0.0002%	max.
Aluminium (Al)	0.5	ppm max.
Arsenic (As)	0.02	ppm max.
Barium (Ba)	0.1	ppm max.
Boron (B)	0.02	ppm max.
Cadmium (Cd)	0.05	ppm max.
Calcium (Ca)	0.5	ppm max.
Chromium (Cr)	0.02	ppm max.
Cobalt (Co)	0.02	ppm max.
Copper (Cu)	0.02	ppm max.
Gallium (Ga)	0.02	ppm max.

Germanium (Ge)	0.02	ppm max.
Gold (Au)	0.02	ppm max.
Iron (Fe)	0.1	ppm max.
Lead (Pb)	0.05	ppm max.
Lithium (Li)	0.02	ppm max.
Magnesium (Mg)	0.1	ppm max.
Manganese (Mn)	0.02	ppm max.
Nickel (Ni)	0.02	ppm max.
Potassium (K)	0.1	ppm max.
Silver (Ag)	0.02	ppm max.
Sodium (Na)	0.5	ppm max.
Strontium (Sr)	0.05	ppm max.
Tin (Sn)	0.1	ppm max.
Zinc (Zn)	0.1	ppm max.
Silicone oil	Free	ppm max.
DOP	Free	ppm max.
Amide	Free	ppm max.

Stabilized with about 50 ppm amylene.

Cat No.	Package	Size
XP1040A-G500ML	Amber Glass bottle	500 ML
XP1040A-G1L	Amber Glass bottle	1 L
XP1040A-G2.5L	Amber Glass bottle	2.5 L

Cat No.	Package	Size
XP1040A-G4L	Amber Glass bottle	4 L
XP1040A-M200L	Metal drum	200 L

## Diethyl Ether, Electropure



$\text{C}_2\text{H}_5\text{O}$	FW. 74.12	Melting Point	-116.3 °C
CAS-No.	67-56-1	Boiling Point	34.6 °C
Density 1 L	0.710 Kg.		

## Specifications

Assay (by GC.)	99.5%	min.
Color (APHA)	10	max.
Water (by Coulometry)	0.1%	max.
Acidity (mEq./g.)	0.0005	max.
Residue on Evaporation	5	ppm max.
Heavy metals (as Pb)	200	ppb max.
Aluminium (Al)	50	ppb max.
Arsenic and Antimony (as As)	10	ppb max.
Barium (Ba)	20	ppb max.
Boron (B)	10	ppb max.
Cadmium (Cd)	20	ppb max.
Calcium (Ca)	50	ppb max.
Chromium (Cr)	20	ppb max.
Cobalt (Co)	20	ppb max.
Copper (Cu)	10	ppb max.
Gallium (Ga)	30	ppb max.

Germanium (Ge)	30	ppb max.
Gold (Au)	20	ppb max.
Iron (Fe)	50	ppb max.
Lead (Pb)	20	ppb max.
Lithium (Li)	50	ppb max.
Magnesium (Mg)	20	ppb max.
Manganese (Mn)	20	ppb max.
Nickel (Ni)	10	ppb max.
Potassium (K)	100	ppb max.
Silver (Ag)	50	ppb max.
Sodium (Na)	100	ppb max.
Strontium (Sr)	20	ppb max.
Tin (Sn)	100	ppb max.
Titanium (Ti)	20	ppb max.
Zinc (Zn)	50	ppb max.

Stabilized with about 2% ethanol.

Cat No.	Package	Size
EP1047E-G500ML	Amber Glass bottle	500 ML
EP1047E-G1L	Amber Glass bottle	1 L
EP1047E-G2.5L	Amber Glass bottle	2.5 L

Cat No.	Package	Size
EP1047E-G4L	Amber Glass bottle	4 L
EP1047E-M20L	Metal drum	20 L
EP1047E-M200L	Metal drum	200 L

## Hexanes, SDF Low Chloride

**XP1101**


$C_6H_{14}$  FW. 86.18  
 CAS-No. 110-54-3  
 Density 1 L 0.660 Kg.

Melting Point -94.3°C  
 Boiling Point 69 °C

### Specifications

Assay (by GC. : Total C <sub>6</sub> Isomers)	99.5%	min.
Water (by Coulometry)	0.02%	max.
Acidity (mEq./g.)	0.0003%	max.
Residue on Evaporation	0.0005%	max.
Chloride (Cl)	0.02	ppm max.

Sulfur Compounds (S)	0.001%	max.
Thiophene	Passes test	
Silicone oil	Free	
DOP	Free	
Amide	Free	

Cat No.	Package	Size
XP1101-G500ML	Amber Glass bottle	500 ML
XP1101-G1L	Amber Glass bottle	1 L
XP1101-G2.5L	Amber Glass bottle	2.5 L

Cat No.	Package	Size
XP1101-G4L	Amber Glass bottle	4 L
XP1101-M200L	Metal drum	200 L

## Hexanes, SDF

**XP1100**


$C_6H_{14}$  FW. 86.18  
 CAS-No. 110-54-3  
 Density 1 L 0.660 Kg.

Melting Point -94.3°C  
 Boiling Point 69 °C

### Specifications

Assay (by GC. : Total C <sub>6</sub> Isomers)	99.5%	min.
Water (by Coulometry)	0.02%	max.
Acidity (mEq./g.)	0.0003	max.
Residue on Evaporation	0.0005%	max.
Sulfur Compounds (S)	0.001%	max.

Thiophene	Passes test	
Silicone oil	Free	
DOP	Free	
Amide	Free	

Total isomers : n-Hexane, Methylpentane, Methylcyclopentane and Dimethylbutane.

Cat No.	Package	Size
XP1100-G500ML	Amber Glass bottle	500 ML
XP1100-G1L	Amber Glass bottle	1 L
XP1100-G2.5L	Amber Glass bottle	2.5 L

Cat No.	Package	Size
XP1100-G4L	Amber Glass bottle	4 L
XP1100-M200L	Metal drum	200 L

## Hydrochloric Acid 3%, Semig

**SM1301**


HCl FW. 36.46  
 CAS-No. 7647-01-0  
 Density 1 L 1.02 Kg.

### Specifications

Assay (by acidimetry)	3%	min.
Appearance	Passes test	
Color (APHA)	10	max.
Residue after Ignition	3	ppm max.
Ammonium (NH <sub>4</sub> )	0.5	ppm max.
Free Chlorine (Cl)	0.5	ppm max.
Bromide (Br)	5	ppm max.
Phosphate (PO <sub>4</sub> )	0.05	ppm max.
Sulfate (SO <sub>4</sub> )	0.5	ppm max.
Sulfite (SO <sub>3</sub> )	0.5	ppm max.
Extractable Organic Substance	5	ppm max.
Heavy metals (as Pb)	0.1	ppm max.
Aluminium (Al)	0.2	ppm max.
Antimony (Sb)	0.005	ppm max.
Arsenic (As)	0.005	ppm max.

Boron (B)	0.1	ppm max.
Calcium (Ca)	0.2	ppm max.
Chromium (Cr)	0.1	ppm max.
Copper (Cu)	0.05	ppm max.
Gold (Au)	0.2	ppm max.
Iron (Fe)	0.1	ppm max.
Lead (Pb)	0.005	ppm max.
Magnesium (Mg)	0.3	ppm max.
Manganese (Mn)	0.2	ppm max.
Nickel (Ni)	0.03	ppm max.
Potassium (K)	0.3	ppm max.
Sodium (Na)	0.3	ppm max.
Tin (Sn)	0.1	ppm max.
Titanium (Ti)	0.1	ppm max.
Zinc (Zn)	0.01	ppm max.

Cat No.	Package	Size
SM1301-G500ML	Amber Glass bottle	500 ML
SM1301-G1L	Amber Glass bottle	1 L
SM1301-G2.5L	Amber Glass bottle	2.5 L
SM1301-P2.5L	Plastic bottle	2.5 L

Cat No.	Package	Size
SM1301-G4L	Amber Glass bottle	4 L
SM1301-P4L	Plastic bottle	4 L
SM1301-P20L	Plastic drum	20 L
SM1301-P200L	Plastic drum	200 L



HCl	FW. 36.46	Melting Point	-30 °C
CAS-No.	7647-01-0	Boiling Point	51 °C
Density 1 L	1.19 Kg.		

### Specifications

Assay (by acidimetry)	36.5 - 38.0%	
Appearance	Passes test	
Color (APHA)	10	max.
Residue after Ignition	5	ppm max.
Free Chlorine (Cl)	0.5	ppm max.
Ammonium (NH <sub>4</sub> )	2	ppm max.
Bromide (Br)	10	ppm max.
Phosphate (PO <sub>4</sub> )	0.2	ppm max.
Sulfate (SO <sub>4</sub> )	0.5	ppm max.
Sulfite (SO <sub>3</sub> )	1	ppm max.
Aluminium (Al)	0.05	ppm max.
Antimony (Sb)	0.01	ppm max.
Arsenic (As)	0.01	ppm max.
Barium (Ba)	0.05	ppm max.
Beryllium (Be)	0.01	ppm max.
Bismuth (Bi)	0.05	ppm max.
Boron (B)	0.05	ppm max.
Cadmium (Cd)	0.02	ppm max.
Calcium (Ca)	0.5	ppm max.
Chromium (Cr)	0.05	ppm max.
Cobalt (Co)	0.01	ppm max.
Copper (Cu)	0.05	ppm max.

Gallium (Ga)	0.02	ppm max.
Gold (Au)	0.05	ppm max.
Indium (In)	0.02	ppm max.
Iron (Fe)	0.2	ppm max.
Lead (Pb)	0.02	ppm max.
Lithium (Li)	0.02	ppm max.
Magnesium (Mg)	0.1	ppm max.
Manganese (Mn)	0.02	ppm max.
Molybdenum (Mo)	0.05	ppm max.
Nickel (Ni)	0.02	ppm max.
Platinum (Pt)	0.1	ppm max.
Potassium (K)	0.1	ppm max.
Silver (Ag)	0.02	ppm max.
Sodium (Na)	0.3	ppm max.
Strontium (Sr)	0.05	ppm max.
Thallium (Tl)	0.01	ppm max.
Tin (Sn)	0.05	ppm max.
Titanium (Ti)	0.1	ppm max.
Vanadium (V)	0.05	ppm max.
Zinc (Zn)	0.1	ppm max.
Zirconium (Zr)	0.05	ppm max.

Cat No.	Package	Size
EP1107-G500ML	Amber Glass bottle	500 ML
EP1107-G1L	Amber Glass bottle	1 L
EP1107-G2.5L	Amber Glass bottle	2.5 L
EP1107-P2.5L	Plastic bottle	2.5 L

Cat No.	Package	Size
EP1107-G4L	Amber Glass bottle	4 L
EP1107-P4L	Plastic bottle	4 L
EP1107-P20L	Plastic drum	20 L
EP1107-P200L	Plastic drum	200 L

# Hydrochloric Acid 37%, Semig



HCl	FW. 36.46	Melting Point	-30 °C
CAS-No.	7647-01-0	Boiling Point	51 °C
Density 1 L	1.19 Kg.		

### Specifications

Assay (by acidimetry)	36.5-38.0%	
Appearance	Passes test	
Color (APHA)	10	max.
Residue after Ignition	3	ppm max.
Ammonium (NH <sub>4</sub> )	1	ppm max.
Free Chlorine (Cl)	1	ppm max.
Bromide (Br)	10	min.
Phosphate (PO <sub>4</sub> )	0.05	ppm max.
Sulfate (SO <sub>4</sub> )	0.5	ppm max.
Sulfite (SO <sub>3</sub> )	0.8	ppm max.
Extractable Organic Substance	5	ppm max.
Heavy metals (as Pb)	0.1	ppm max.
Aluminium (Al)	0.3	ppm max.
Antimony (Sb)	0.005	ppm max.
Arsenic (As)	0.005	ppm max.

Boron (B)	0.1	ppm max.
Calcium (Ca)	0.3	ppm max.
Chromium (Cr)	0.1	ppm max.
Copper (Cu)	0.05	ppm max.
Gold (Au)	0.3	ppm max.
Iron (Fe)	0.2	ppm max.
Lead (Pb)	0.1	ppm max.
Magnesium (Mg)	0.3	ppm max.
Manganese (Mn)	0.3	ppm max.
Nickel (Ni)	0.03	ppm max.
Potassium (K)	0.3	ppm max.
Sodium (Na)	0.3	ppm max.
Tin (Sn)	0.3	ppm max.
Titanium (Ti)	0.1	ppm max.
Zinc (Zn)	0.1	ppm max.

Cat No.	Package	Size
SM1107-G500ML	Amber Glass bottle	500 ML
SM1107-G1L	Amber Glass bottle	1 L
SM1107-G2.5L	Amber Glass bottle	2.5 L
SM1107-P2.5L	Plastic bottle	2.5 L

Cat No.	Package	Size
SM1107-G4L	Amber Glass bottle	4 L
SM1107-P4L	Plastic bottle	4 L
SM1107-P20L	Plastic drum	20 L
SM1107-P200L	Plastic drum	200 L



HCl	FW. 36.46	Melting Point	-30 °C
CAS-No.	7647-01-0	Boiling Point	51 °C
Density 1 L	1.19 Kg.		

## Specifications

Assay (by acidimetry)	36.5 - 38.0%
Appearance	Passes test
Color (APHA)	10 max.
Residue after Ignition	2 ppm max.
Ammonium (NH <sub>4</sub> )	1 ppm max.
Free Chlorine (Cl)	0.5 ppm max.
Bromide (Br)	10 ppm max.
Phosphate (PO <sub>4</sub> )	0.05 ppm max.
Sulfate (SO <sub>4</sub> )	0.5 ppm max.
Sulfite (SO <sub>3</sub> )	0.5 ppm max.
Aluminium (Al)	20 ppb max.
Antimony (Sb)	1 ppb max.
Arsenic (As)	1 ppb max.
Barium (Ba)	5 ppb max.
Beryllium (Be)	1 ppb max.
Bismuth (Bi)	5 ppb max.
Boron (B)	10 ppb max.
Cadmium (Cd)	1 ppb max.
Calcium (Ca)	50 ppb max.
Chromium (Cr)	1 ppb max.
Cobalt (Co)	1 ppb max.
Copper (Cu)	1 ppb max.
Gallium (Ga)	1 ppb max.
Germanium (Ge)	5 ppb max.

Gold (Au)	1	ppb max.
Indium (In)	1	ppb max.
Iron (Fe)	50	ppb max.
Lead (Pb)	5	ppb max.
Lithium (Li)	1	ppb max.
Magnesium (Mg)	20	ppb max.
Manganese (Mn)	5	ppb max.
Molybdenum (Mo)	1	ppb max.
Nickel (Ni)	1	ppb max.
Platinum (Pt)	1	ppb max.
Potassium (K)	20	ppb max.
Silver (Ag)	5	ppb max.
Sodium (Na)	50	ppb max.
Strontium (Sr)	1	ppb max.
Thallium (Tl)	1	ppb max.
Tin (Sn)	5	ppb max.
Titanium (Ti)	10	ppb max.
Vanadium (V)	10	ppb max.
Zinc (Zn)	20	ppb max.
Zirconium (Zr)	1	ppb max.
Particle/ml		
0.5 µm and greater	250	max.
1.0 µm and greater	10	max.

Cat No.	Package	Size
VL1107 -G2.5L	Amber Glass bottle	2.5 L
VL1107 -P2.5L	Plastic bottle	2.5 L

Cat No.	Package	Size
VL1107 -G4L	Amber Glass bottle	4 L
VL1107 -P4L	Plastic bottle	4 L

# Hydrochloric Acid 6%, Semig



HCl	FW. 36.46
CAS-No.	7647-01-0
Density 1 L	1.03 Kg.

## Specifications

Assay (by acidimetry)	6%	min.
Appearance	Passes test	
Color (APHA)	10	max.
Residue after Ignition	3	ppm max.
Ammonium (NH <sub>4</sub> )	0.5	ppm max.
Free Chlorine (Cl)	0.5	ppm max.
Bromide (Br)	5	ppm max.
Phosphate (PO <sub>4</sub> )	0.05	ppm max.
Sulfate (SO <sub>4</sub> )	0.5	ppm max.
Sulfite (SO <sub>3</sub> )	0.5	ppm max.
Extractable Organic Substance	5	ppm max.
Heavy metals (as Pb)	0.1	ppm max.
Aluminium (Al)	0.2	ppm max.
Antimony (Sb)	0.005	ppm max.
Arsenic (As)	0.005	ppm max.

Boron (B)	0.1	ppm max.
Calcium (Ca)	0.2	ppm max.
Chromium (Cr)	0.1	ppm max.
Copper (Cu)	0.05	ppm max.
Gold (Au)	0.2	ppm max.
Iron (Fe)	0.1	ppm max.
Lead (Pb)	0.005	ppm max.
Magnesium (Mg)	0.3	ppm max.
Manganese (Mn)	0.2	ppm max.
Nickel (Ni)	0.03	ppm max.
Potassium (K)	0.3	ppm max.
Sodium (Na)	0.3	ppm max.
Tin (Sn)	0.1	ppm max.
Titanium (Ti)	0.1	ppm max.
Zinc (Zn)	0.01	ppm max.

Cat No.	Package	Size
SM1415-G500ML	Amber Glass bottle	ppm max.
SM1415-G1L	Amber Glass bottle	ppm max.
SM1415-G2.5L	Amber Glass bottle	ppm max.
SM1415-P2.5L	Plastic bottle	ppm max.

Cat No.	Package	Size
SM1415-G4L	Amber Glass bottle	4 L
SM1415-P4L	Plastic bottle	4 L
SM1415-P20L	Plastic drum	20 L
SM1415-P200L	Plastic drum	200 L



HF	FW. 20.01	Melting Point	-36 °C
CAS-No.	7664-39-3	Boiling Point	106 °C
Density 1 L	1.15 Kg.		

### Specifications

Assay	48.5 - 49.5%
Color (APHA)	10 max.
Fluosilicic acid(H <sub>2</sub> SiF <sub>6</sub> )	50 ppm max.
Residue after Ignition	5 ppm max.
Chloride (Cl)	5 ppm max.
Nitrate (NO <sub>3</sub> )	3 ppm max.
Phosphate (PO <sub>4</sub> )	0.5 ppm max.
Sulfate and Sulfite (as SO <sub>4</sub> )	1 ppm max.
Heavy metals (as Pb)	100 ppb max.
Aluminium (Al)	50 ppb max.
Arsenic and Antimony (as As)	10 ppb max.
Barium (Ba)	10 ppb max.
Beryllium (Be)	10 ppb max.
Bismuth (Bi)	20 ppb max.
Boron (B)	10 ppb max.
Cadmium (Cd)	10 ppb max.
Calcium (Ca)	100 ppb max.
Chromium (Cr)	10 ppb max.
Cobalt (Co)	10 ppb max.
Copper (Cu)	10 ppb max.
Gallium (Ga)	10 ppb max.
Germanium (Ge)	20 ppb max.
Gold (Au)	10 ppb max.

Iron (Fe)	100	ppb max.
Lead (Pb)	10	ppb max.
Lithium (Li)	10	ppb max.
Magnesium (Mg)	100	ppb max.
Manganese (Mn)	10	ppb max.
Molybdenum (Mo)	10	ppb max.
Nickel (Ni)	10	ppb max.
Niobium (Nb)	10	ppb max.
Potassium (K)	20	ppb max.
Silicon (Si)	1000	ppb max.
Silver (Ag)	10	ppb max.
Sodium (Na)	50	ppb max.
Strontium (Sr)	10	ppb max.
Tantalum (Ta)	10	ppb max.
Thallium (Tl)	10	ppb max.
Tin (Sn)	20	ppb max.
Titanium (Ti)	50	ppb max.
Vanadium (V)	10	ppb max.
Zinc (Zn)	20	ppb max.
Zirconium (Zr)	10	ppb max.
Particle/ml	0.5 µm and greater	100 max.

Cat No.	Package	Size
EP1337-P2.5L	Plastic bottle	2.5 L

Cat No.	Package	Size
EP1337-P4L	Plastic bottle bottle	4 L

# Methanol, Electropure



CH <sub>3</sub> OH	FW. 32.04	Melting Point	-98°C
CAS-No.	67-56-1	Boiling Point	64.5 °C
Density 1 L	0.790 Kg.		

### Specifications

Assay (by GC.)	99.9%	min.
Color (APHA)	10	max.
Water (by Coulometry)	0.05%	max.
Acidity (µEq./g.)	0.3	max.
Alkalinity (µEq./g.)	0.5	max.
Residue on Evaporation	5	ppm max.
Solubility in Water	Passes test	
Chloride (Cl)	0.2	ppm max.
Phosphate (PO <sub>4</sub> )	0.1	ppm max.
Heavy metals (as Pb)	100	ppb max.
Aluminium (Al)	50	ppb max.
Arsenic and Antimony (as As)	10	ppb max.
Barium (Ba)	20	ppb max.
Boron (B)	20	ppb max.
Cadmium (Cd)	20	ppb max.
Calcium (Ca)	50	ppb max.
Chromium (Cr)	10	ppb max.
Cobalt (Co)	20	ppb max.

Copper (Cu)	10	ppb max.
Gallium (Ga)	50	ppb max.
Germanium (Ge)	50	ppb max.
Gold (Au)	20	ppb max.
Iron (Fe)	20	ppb max.
Lead (Pb)	20	ppb max.
Lithium (Li)	50	ppb max.
Magnesium (Mg)	20	ppb max.
Manganese (Mn)	10	ppb max.
Nickel (Ni)	10	ppb max.
Potassium (K)	50	ppb max.
Silicon (Si)	50	ppb max.
Silver (Ag)	20	ppb max.
Sodium (Na)	50	ppb max.
Strontium (Sr)	20	ppb max.
Tin (Sn)	50	ppb max.
Titanium (Ti)	20	ppb max.
Zinc (Zn)	50	ppb max.

Cat No.	Package	Size
EP1115-G500ML	Amber Glass bottle	500 ML
EP1115-G1L	Amber Glass bottle	1 L
EP1115-G2.5L	Amber Glass bottle	2.5 L
EP1115-P2.5L	Plastic bottle	2.5 L

Cat No.	Package	Size
EP1115-G4L	Amber Glass bottle	4 L
EP1115-P4L	Plastic bottle	4 L
EP1115-P20L	Plastic drum	20 L
EP1115-P200L	Plastic drum	200 L



CH<sub>3</sub>OH FW. 32.04  
 CAS-No. 67-56-1  
 Density 1 L 0.790 Kg.

Melting Point -98 °C  
 Boiling Point 64.5 °C

## Specifications

Assay (by GC.)	99.9%	min.
Color (APHA)	10	max.
Water (by Coulometry)	0.05%	max.
Acidity (μEq./g.)	0.3	max.
Alkalinity (μEq./g.)	0.5	max.
Solubility in water	Passes test	
Residue on Evaporation	5	ppm max.
Chloride (Cl)	0.2	ppm max.
Phosphate (PO <sub>4</sub> )	0.1	ppm max.
Heavy metals (as Pb)	100	ppb max.
Aluminium (Al)	50	ppb max.
Arsenic and Antimony (as As)	10	ppb max.
Barium (Ba)	20	ppb max.
Boron (B)	20	ppb max.
Cadmium (Cd)	20	ppb max.
Calcium (Ca)	50	ppb max.
Chromium (Cr)	20	ppb max.
Cobalt (Co)	20	ppb max.
Copper (Cu)	10	ppb max.
Gallium (Ga)	50	ppb max.

Germanium (Ge)	50	ppb max.
Gold (Au)	20	ppb max.
Iron (Fe)	20	ppb max.
Lead (Pb)	20	ppb max.
Lithium (Li)	50	ppb max.
Magnesium (Mg)	20	ppb max.
Manganese (Mn)	10	ppb max.
Nickel (Ni)	10	ppb max.
Potassium (K)	50	ppb max.
Silicon (Si)	50	ppb max.
Silver (Ag)	20	ppb max.
Sodium (Na)	50	ppb max.
Strontium (Sr)	20	ppb max.
Tin (Sn)	50	ppb max.
Titanium (Ti)	20	ppb max.
Zinc (Zn)	50	ppb max.
Silicone oil	Free	
DOP	Free	
Amide	Free	

Cat No.	Package	Size
XP1115-G500ML	Amber Glass bottle	500 ML
XP1115-G1L	Amber Glass bottle	1 L
XP1115-G2.5L	Amber Glass bottle	2.5 L
XP1115-P2.5L	Plastic bottle	2.5 L

Cat No.	Package	Size
XP1115-G4L	Amber Glass bottle	4 L
XP1115-P4L	Plastic bottle	4 L
XP1115-P200L	Plastic drum	200 L

## Methanol, Semig



CH<sub>3</sub>OH FW. 32.04  
 CAS-No. 67-56-1  
 Density 1 L 0.790 Kg.

Melting Point -98 °C  
 Boiling Point 64.5 °C

## Specifications

Assay (by GC.)	99.9%	min.
Color (APHA)	10	max.
Water (by Coulometry)	0.05%	max.
Acidity (μEq./g.)	0.3	max.
Alkalinity (μEq./g.)	0.1	max.
Carbonyl Compounds	0.003%	max.
Solubility in water	Passes test	
Residue on Evaporation	5	ppm max.
Chloride (Cl)	0.2	ppm max.
Phosphate (PO <sub>4</sub> )	0.5	ppm max.
Heavy metals (as Pb)	0.5	ppm max.
Aluminium (Al)	0.1	ppm max.
Arsenic and Antimony (as As)	0.01	ppm max.
Boron (B)	0.1	ppm max.
Calcium (Ca)	0.1	ppm max.

Chromium (Cr)	0.1	ppm max.
Copper (Cu)	0.1	ppm max.
Gallium (Ga)	0.1	ppm max.
Gold (Au)	0.1	ppm max.
Iron (Fe)	0.1	ppm max.
Lead (Pb)	0.1	ppm max.
Magnesium (Mg)	0.1	ppm max.
Manganese (Mn)	0.1	ppm max.
Nickel (Ni)	0.1	ppm max.
Potassium (K)	0.1	ppm max.
Sodium (Na)	0.1	ppm max.
Tin (Sn)	0.1	ppm max.
Titanium (Ti)	0.1	ppm max.
Zinc (Zn)	0.1	ppm max.

Cat No.	Package	Size
SM1115-G500ML	Amber Glass bottle	500 ML
SM1115-G1L	Amber Glass bottle	1 L
SM1115-G2.5L	Amber Glass bottle	2.5 L
SM1115-P2.5L	Plastic bottle	2.5 L
SM1115-G4L	Amber Glass bottle	4 L

Cat No.	Package	Size
SM1115-P4L	Plastic bottle	4 L
SM1115-P20L	Plastic drum	20 L
SM1115-P200L	Plastic drum	200 L
SM1115-M200L	Metal drum	200 L





CH <sub>3</sub> OH	FW. 32.04	Melting Point	-98 °C
CAS-No.	67-56-1	Boiling Point	64.5 °C
Density 1 L	0.790 Kg.		

## Specifications

Assay (by GC.)	99.9%	min.
Color (APHA)	10	max.
Water (by Coulometry)	0.05%	max.
Acidity (μEq./g.)	0.3	max.
Alkalinity (μEq./g.)	0.5	max.
Solubility in Water	Passes test	
Residue on Evaporation	3	ppm max.
Chloride (Cl)	0.1	ppm max.
Phosphate (PO <sub>4</sub> )	0.1	ppm max.
Heavy metals (as Pb)	0.1	ppm max.
Aluminium (Al)	20	ppb max.
Arsenic and Antimony (as As)	10	ppb max.
Barium (Ba)	20	ppb max.
Boron (B)	20	ppb max.
Cadmium (Cd)	20	ppb max.
Calcium (Ca)	50	ppb max.
Chromium (Cr)	20	ppb max.
Cobalt (Co)	20	ppb max.
Copper (Cu)	10	ppb max.
Gallium (Ga)	20	ppb max.

Germanium (Ge)	20	ppb max.
Gold (Au)	10	ppb max.
Iron (Fe)	20	ppb max.
Lead (Pb)	20	ppb max.
Lithium (Li)	20	ppb max.
Magnesium (Mg)	20	ppb max.
Manganese (Mn)	10	ppb max.
Nickel (Ni)	10	ppb max.
Potassium (K)	20	ppb max.
Silicon (Si)	50	ppb max.
Silver (Ag)	20	ppb max.
Sodium (Na)	50	ppb max.
Strontium (Sr)	20	ppb max.
Tin (Sn)	20	ppb max.
Titanium (Ti)	20	ppb max.
Zinc (Zn)	50	ppb max.
Zirconium (Zr)	20	ppb max.
Particle/ml :		
0.5 μm and greater	30	max.
1.0 μm and greater	8	max.

Cat No.	Package	Size
VL1115-G2.5L	Amber Glass bottle	2.5 L
VL1115-P2.5L	Plastic bottle	2.5 L

Cat No.	Package	Size
VL1115-G4L	Amber Glass bottle	4 L
VL1115-P4L	Plastic bottle	4 L

## Methyl ethyl ketone, Electropure



C <sub>2</sub> H <sub>5</sub> COCH <sub>3</sub>	FW. 72.11	Melting Point	-86 °C
CAS-No.	78-93-3	Boiling Point	79.6 °C
Density 1 L	0.805 Kg.		

## Specifications

Assay (by GC.)	99.5%	min.
Water (by Coulometry)	0.05%	max.
Specific resistance (MΩ.cm)	10	min.
Free acid (as CH <sub>3</sub> COOH)	20	ppm max.
Residue on Evaporation	5	ppm max.
Heavy metals (as Pb)	0.2	ppm max.
Aluminium (Al)	0.2	ppm max.
Antimony (Sb)	0.01	ppm max.
Arsenic (As)	0.01	ppm max.
Barium (Ba)	0.1	ppm max.
Beryllium (Be)	0.02	ppm max.
Bismuth (Bi)	0.1	ppm max.
Boron (B)	0.01	ppm max.
Cadmium (Cd)	0.05	ppm max.
Calcium (Ca)	0.5	ppm max.
Chromium (Cr)	0.02	ppm max.
Cobalt (Co)	0.02	ppm max.
Copper (Cu)	0.02	ppm max.
Gallium (Ga)	0.02	ppm max.
Gold (Au)	0.1	ppm max.

Indium (In)	0.02	ppm max.
Iron (Fe)	0.1	ppm max.
Lead (Pb)	0.05	ppm max.
Lithium (Li)	0.02	ppm max.
Magnesium (Mg)	0.1	ppm max.
Manganese (Mn)	0.02	ppm max.
Molybdenum (Mo)	0.05	ppm max.
Nickel (Ni)	0.02	ppm max.
Platinum (Pt)	0.2	ppm max.
Potassium (K)	0.1	ppm max.
Silver (Ag)	0.02	ppm max.
Sodium (Na)	0.5	ppm max.
Strontium (Sr)	0.02	ppm max.
Thallium (Tl)	0.05	ppm max.
Tin (Sn)	0.1	ppm max.
Titanium (Ti)	0.1	ppm max.
Vanadium (V)	0.05	ppm max.
Zinc (Zn)	0.1	ppm max.
Zirconium (Zr)	0.2	ppm max.

Cat No.	Package	Size
EP1122-G500ML	Amber Glass bottle	500 ML
EP1122-G1L	Amber Glass bottle	1 L
EP1122-G2.5L	Amber Glass bottle	2.5 L

Cat No.	Package	Size
EP1122-G4L	Amber Glass bottle	4 L
EP1122-M20L	Metal drum	20 L
EP1122-M200L	Metal drum	200 L



$C_2H_5COCH_3$  FW. 72.11  
 CAS-No. 78-93-3  
 Density 1 L 0.805 Kg.

Melting Point -86 °C  
 Boiling Point 79.6 °C

## Specifications

Assay (by GC.)	99.5%	min.
Identity (IR)	Passes test	
Water (by Coulometry)	0.05%	max.
Acidity ( $\mu$ Eq./g.)	0.5	max.
Alkalinity ( $\mu$ Eq./g.)	0.5	max.
Alcohol, ether and benzene miscibility	Complete	
Water Soluble Matter	Passes test	
Residue on Evaporation	5	ppm max.
Aldehyde (Formaldehyde)	20	ppm max.
Substances reducing permanganate (as O)	2	ppm max.
Heavy metals (as Pb)	1	ppm max.
Aluminium (Al)	100	ppb max.
Barium (Ba)	50	ppb max.
Boron (B)	20	ppb max.
Cadmium (Cd)	50	ppb max.

Calcium (Ca)	100	ppb max.
Chromium (Cr)	20	ppb max.
Cobalt (Co)	20	ppb max.
Copper (Cu)	20	ppb max.
Iron (Fe)	100	ppb max.
Lead (Pb)	100	ppb max.
Magnesium (Mg)	100	ppb max.
Manganese (Mn)	20	ppb max.
Nickel (Ni)	20	ppb max.
Tin (Sn)	100	ppb max.
Zinc (Zn)	100	ppb max.
Silicone oil	Free	
DOP	Free	
Amide	Free	

Cat No.	Package	Size
XP1122-G500ML	Amber Glass bottle	500 ML
XP1122-G1L	Amber Glass bottle	1 L
XP1122-G2.5L	Amber Glass bottle	2.5 L

Cat No.	Package	Size
XP1122-G4L	Amber Glass bottle	4 L
XP1122-M200L	Metal drum	200 L

## n-Butyl acetate, Electropure



$CH_3COO(CH_2)_3CH_3$  FW. 116.16  
 CAS-No. 123-86-4  
 Density 1 L 0.880 Kg.

Melting Point -76 °C  
 Boiling Point 126 °C

## Specifications

Assay (by GC.)	99.5%	min.
Identity	Corresponds to IR spectrum	
Water (by Coulometry)	0.05%	max.
Acidity ( $\mu$ Eq./g.)	0.5	max.
Specific resistance ( $M\Omega$ .cm)	5	min.
Residue on Evaporation	10	ppm max.
n-Butanol (GC.)	0.8%	max.
n-Butyl formate (GC.)	0.5%	max.
n-Butyl propionate (GC.)	0.5%	max.
Heavy metals (as Pb)	0.2	ppm max.
Aluminium (Al)	0.2	ppm max.
Antimony (Sb)	0.01	ppm max.
Arsenic (As)	0.01	ppm max.
Barium (Ba)	0.1	ppm max.
Beryllium (Be)	0.02	ppm max.
Bismuth (Bi)	0.1	ppm max.
Boron (B)	0.01	ppm max.
Cadmium (Cd)	0.05	ppm max.
Calcium (Ca)	0.5	ppm max.
Chromium (Cr)	0.02	ppm max.
Cobalt (Co)	0.02	ppm max.
Copper (Cu)	0.02	ppm max.

Gallium (Ga)	0.02	ppm max.
Gold (Au)	0.1	ppm max.
Indium (In)	0.02	ppm max.
Iron (Fe)	0.1	ppm max.
Lead (Pb)	0.05	ppm max.
Lithium (Li)	0.02	ppm max.
Magnesium (Mg)	0.1	ppm max.
Manganese (Mn)	0.02	ppm max.
Molybdenum (Mo)	0.05	ppm max.
Nickel (Ni)	0.02	ppm max.
Platinum (Pt)	0.2	ppm max.
Potassium (K)	0.1	ppm max.
Silver (Ag)	0.02	ppm max.
Sodium (Na)	0.5	ppm max.
Strontium (Sr)	0.02	ppm max.
Thallium (Tl)	0.05	ppm max.
Tin (Sn)	0.1	ppm max.
Titanium (Ti)	0.1	ppm max.
Vanadium (V)	0.05	ppm max.
Zinc (Zn)	0.1	ppm max.
Zirconium (Zr)	0.2	ppm max.

Cat No.	Package	Size
EP1025-G500ML	Amber Glass bottle	500 ML
EP1025-G1L	Amber Glass bottle	1 L
EP1025-G2.5L	Amber Glass bottle	2.5 L

Cat No.	Package	Size
EP1025-G4L	Amber Glass bottle	4 L
EP1025-M20L	Metal drum	20 L
EP1025-M200L	Metal drum	200 L



CH<sub>3</sub>COO(CH<sub>2</sub>)<sub>3</sub>CH<sub>3</sub> FW. 116.16  
 CAS-No. 123-86-4  
 Density 1 L 0.880 Kg.

Melting Point -76 °C  
 Boiling Point 126 °C

Specifications

Assay (by GC.)	99.5%	min.
Identity	Corresponds to IR spectrum	
Color (APHA)	10	max.
Water (by Coulometry)	0.05%	max.
Acidity (µEq./g.)	0.5	max.
Specific resistance (MΩ.cm)	5	min.
Residue on Evaporation	10	ppm max.
n-Butanol (GC.)	0.5%	max.
n-Butyl formate (GC.)	0.2%	max.
n-Butyl propionate (GC.)	0.2%	max.
Heavy metals (as Pb)	0.1	ppm max.
Aluminium (Al)	50	ppb max.
Antimony (Sb)	10	ppb max.
Arsenic (As)	10	ppb max.
Barium (Ba)	20	ppb max.
Beryllium (Be)	10	ppb max.
Bismuth (Bi)	20	ppb max.
Boron (B)	10	ppb max.
Cadmium (Cd)	10	ppb max.
Calcium (Ca)	100	ppb max.
Chromium (Cr)	10	ppb max.
Cobalt (Co)	10	ppb max.
Copper (Cu)	10	ppb max.
Gallium (Ga)	10	ppb max.

Gold (Au)	20	ppb max.
Indium (In)	10	ppb max.
Iron (Fe)	20	ppb max.
Lead (Pb)	10	ppb max.
Lithium (Li)	10	ppb max.
Magnesium (Mg)	20	ppb max.
Manganese (Mn)	10	ppb max.
Molybdenum (Mo)	10	ppb max.
Nickel (Ni)	10	ppb max.
Platinum (Pt)	50	ppb max.
Potassium (K)	20	ppb max.
Silver (Ag)	10	ppb max.
Sodium (Na)	100	ppb max.
Strontium (Sr)	10	ppb max.
Thallium (Tl)	10	ppb max.
Tin (Sn)	20	ppb max.
Titanium (Ti)	20	ppb max.
Vanadium (V)	10	ppb max.
Zinc (Zn)	20	ppb max.
Zirconium (Zr)	20	ppb max.
Particle/ml :	8	
	0.5 µm and greater	30 max.
	1.0 µm and greater	8 max.

Product passed through 1 micron final filter.

Cat No.	Package	Size
VL1025-G2.5L	Amber Glass bottle	2.5 L

Cat No.	Package	Size
VL1025-G4L	Amber Glass bottle	4 L

Nitric Acid 65%, Low Mercury



HNO<sub>3</sub> FW. 63.01  
 CAS-No. 7697-37-2  
 Density 1 L 1.39 Kg.

Melting Point -29.1 °C  
 Boiling Point 119.6 °C

Specifications

Assay (by acidimetry)	65.0%	min.
Mercury (Hg)	0.000003%	max.
Appearance	Passes test	
Color (APHA)	10	max.
Residue after Ignition	2	ppm max.
Chloride (Cl)	0.08	ppm max.
Phosphate (PO <sub>4</sub> )	0.2	ppm max.
Sulfate (SO <sub>4</sub> )	0.1	ppm max.
Heavy metals (as Pb)	0.1	ppm max.
Aluminium (Al)	0.01	ppm max.
Antimony (Sb)	0.005	ppm max.
Arsenic (As)	0.005	ppm max.
Barium (Ba)	0.005	ppm max.
Beryllium (Be)	0.001	ppm max.
Bismuth (Bi)	0.005	ppm max.
Boron (B)	0.005	ppm max.
Cadmium (Cd)	0.001	ppm max.
Calcium (Ca)	0.05	ppm max.
Chromium (Cr)	0.005	ppm max.
Cobalt (Co)	0.001	ppm max.
Copper (Cu)	0.001	ppm max.
Gallium (Ga)	0.001	ppm max.

Germanium (Ge)	0.005	ppm max.
Gold (Au)	0.005	ppm max.
Indium (In)	0.001	ppm max.
Iron (Fe)	0.08	ppm max.
Lead (Pb)	0.005	ppm max.
Lithium (Li)	0.001	ppm max.
Magnesium (Mg)	0.01	ppm max.
Manganese (Mn)	0.001	ppm max.
Molybdenum (Mo)	0.001	ppm max.
Nickel (Ni)	0.005	ppm max.
Platinum (Pt)	0.001	ppm max.
Potassium (K)	0.005	ppm max.
Silver (Ag)	0.001	ppm max.
Sodium (Na)	0.05	ppm max.
Strontium (Sr)	0.001	ppm max.
Tantalum (Ta)	0.002	ppm max.
Thallium (Tl)	0.001	ppm max.
Tin (Sn)	0.002	ppm max.
Titanium (Ti)	0.001	ppm max.
Vanadium (V)	0.001	ppm max.
Zinc (Zn)	0.01	ppm max.
Zirconium (Zr)	0.001	ppm max.

Cat No.	Package	Size
EP1134-G500ML	Amber Glass bottle	500 ML
EP1134-G1L	Amber Glass bottle	1 L
EP1134-G2.5L	Amber Glass bottle	2.5 L
EP1134-P2.5L	Plastic bottle	2.5 L

Cat No.	Package	Size
EP1134-G4L	Amber Glass bottle	4 L
EP1134-P4L	Plastic bottle	4 L
EP1134-P20L	Plastic drum	20 L
EP1134-P200L	Plastic drum	200 L



HNO <sub>3</sub>	FW. 63.01	Melting Point	-29.1 °C
CAS-No.	7697-37-2	Boiling Point	119.6 °C
Density 1 L	1.39 Kg.		

### Specifications

Assay (by acidimetry)	65.0%	min.
Color (APHA)	10	max.
Chloride (Cl)	0.08	ppm max.
Phosphate (PO <sub>4</sub> )	0.2	ppm max.
Sulfate (SO <sub>4</sub> )	0.5	ppm max.
Aluminium (Al)	0.2	ppm max.
Arsenic and Antimony (as As)	0.005	ppm max.
Boron (B)	0.1	ppm max.
Calcium (Ca)	0.2	ppm max.
Chromium (Cr)	0.1	ppm max.
Copper (Cu)	0.05	ppm max.

Gold (Au)	0.3	ppm max.
Iron (Fe)	0.2	ppm max.
Lead (Pb)	0.1	ppm max.
Magnesium (Mg)	0.3	ppm max.
Manganese (Mn)	0.2	ppm max.
Nickel (Ni)	0.05	ppm max.
Potassium (K)	0.3	ppm max.
Sodium (Na)	0.3	ppm max.
Tin (Sn)	0.3	ppm max.
Titanium (Ti)	0.3	ppm max.
Zinc (Zn)	0.3	ppm max.

Cat No.	Package	Size
SM1133-G500ML	Amber Glass bottle	500 ML
SM1133-G1L	Amber Glass bottle	1 L
SM1133-G2.5L	Amber Glass bottle	2.5 L
SM1133-P2.5L	Plastic bottle	2.5 L

Cat No.	Package	Size
SM1133-G4L	Amber Glass bottle	4 L
SM1133-P4L	Plastic bottle	4 L
SM1133-P20L	Plastic drum	20 L
SM1133-P200L	Plastic drum	200 L

### Nitric Acid 70%, Electropure

EP1137



HNO <sub>3</sub>	FW. 63.01	Melting Point	-41 °C
CAS-No.	7697-37-2	Boiling Point	119.9 °C
Density 1 L	1.41 Kg.		

### Specifications

Assay (by acidimetry)	69.0 – 70.0%	min.
Appearance	Passes test	
Color (APHA)	10	max.
Residue after Ignition	2	max.
Chloride (Cl)	0.1	ppm max.
Phosphate (PO <sub>4</sub> )	0.2	ppm max.
Sulfate (SO <sub>4</sub> )	0.2	ppm max.
Heavy metals (as Pb)	0.1	ppm max.
Aluminium (Al)	0.05	ppm max.
Arsenic and Antimony (as As)	0.005	ppm max.
Barium (Ba)	0.05	ppm max.
Beryllium (Be)	0.02	ppm max.
Bismuth (Bi)	0.05	ppm max.
Boron (B)	0.05	ppm max.
Cadmium (Cd)	0.05	ppm max.
Calcium (Ca)	0.1	ppm max.
Chromium (Cr)	0.02	ppm max.
Cobalt (Co)	0.02	ppm max.
Copper (Cu)	0.01	ppm max.
Gallium (Ga)	0.02	ppm max.
Germanium (Ge)	0.1	ppm max.

Gold (Au)	0.05	ppm max.
Indium (In)	0.02	ppm max.
Iron (Fe)	0.2	ppm max.
Lead (Pb)	0.05	ppm max.
Lithium (Li)	0.02	ppm max.
Magnesium (Mg)	0.05	ppm max.
Manganese (Mn)	0.02	ppm max.
Molybdenum (Mo)	0.05	ppm max.
Nickel (Ni)	0.02	ppm max.
Platinum (Pt)	0.2	ppm max.
Potassium (K)	0.1	ppm max.
Silver (Ag)	0.02	ppm max.
Sodium (Na)	0.2	ppm max.
Strontium (Sr)	0.05	ppm max.
Thallium (Tl)	0.05	ppm max.
Tin (Sn)	0.05	ppm max.
Titanium (Ti)	0.05	ppm max.
Vanadium (V)	0.05	ppm max.
Zinc (Zn)	0.05	ppm max.
Zirconium (Zr)	0.05	ppm max.

Cat No.	Package	Size
EP1137 -G500ML	Amber Glass bottle	500 ML
EP1137 -G1L	Amber Glass bottle	1 L
EP1137 -G2.5L	Amber Glass bottle	2.5 L
EP1137 -P2.5L	Plastic bottle	2.5 L

Cat No.	Package	Size
EP1137 -G4L	Amber Glass bottle	4 L
EP1137 -P4L	Plastic bottle	4 L
EP1137 -P20L	Plastic drum	20 L
EP1137 -P200L	Plastic drum	200 L



HNO <sub>3</sub>	FW. 63.01	Melting Point	-41 °C
CAS-No.	7697-37-2	Boiling Point	119.9 °C
Density 1 L	1.41 Kg.		

## Specifications

Assay (by acidimetry)	69.0 – 70.0%	
Color (APHA)	10	max.
Chloride (Cl)	0.08	ppm max.
Phosphate (PO <sub>4</sub> )	0.2	ppm max.
Sulfate (SO <sub>4</sub> )	0.5	ppm max.
Aluminium (Al)	0.2	ppm max.
Arsenic and Antimony (as As)	0.005	ppm max.
Boron (B)	0.1	ppm max.
Calcium (Ca)	0.2	ppm max.
Chromium (Cr)	0.1	ppm max.
Copper (Cu)	0.05	ppm max.

Gold (Au)	0.3	ppm max.
Iron (Fe)	0.2	ppm max.
Lead (Pb)	0.1	ppm max.
Magnesium (Mg)	0.3	ppm max.
Manganese (Mn)	0.2	ppm max.
Nickel (Ni)	0.05	ppm max.
Potassium (K)	0.3	ppm max.
Sodium (Na)	0.3	ppm max.
Tin (Sn)	0.3	ppm max.
Titanium (Ti)	0.3	ppm max.
Zinc (Zn)	0.3	ppm max.

Cat No.	Package	Size
SM1137-G500ML	Amber Glass bottle	500 ML
SM1137-G1L	Amber Glass bottle	1 L
SM1137-G2.5L	Amber Glass bottle	2.5 L
SM1137-P2.5L	Plastic bottle	2.5 L

Cat No.	Package	Size
SM1137-G4L	Amber Glass bottle	4 L
SM1137-P4L	Plastic bottle	4 L
SM1137-P20L	Plastic drum	20 L
SM1137-P200L	Plastic drum	200 L

# Nitric Acid 70%, Semig Plus



HNO <sub>3</sub>	FW. 63.01	Melting Point	-41 °C
CAS-No.	7697-37-2	Boiling Point	119.9 °C
Density 1 L	1.41 Kg.		

## Specifications

Assay (by acidimetry)	69.0 – 70.0%	
Appearance	Passes test	
Color (APHA)	10	max.
Residue after Ignition	2	ppm max.
Chloride (Cl)	0.8	ppm max.
Phosphate (PO <sub>4</sub> )	0.2	ppm max.
Sulfate (SO <sub>4</sub> )	0.5	ppm max.
Heavy metals (as Pb)	0.1	ppm max.
Aluminium (Al)	0.2	ppm max.
Arsenic (As)	0.005	ppm max.
Antimony (Sb)	0.005	ppm max.
Boron (B)	0.01	ppm max.
Calcium (Ca)	0.2	ppm max.

Chromium (Cr)	0.03	ppm max.
Copper (Cu)	0.02	ppm max.
Gold (Au)	0.02	ppm max.
Iron (Fe)	0.1	ppm max.
Lead (Pb)	0.1	ppm max.
Magnesium (Mg)	0.02	ppm max.
Manganese (Mn)	0.01	ppm max.
Nickel (Ni)	0.02	ppm max.
Potassium (K)	0.05	ppm max.
Sodium (Na)	0.2	ppm max.
Tin (Sn)	0.02	ppm max.
Titanium (Ti)	0.01	ppm max.
Zinc (Zn)	0.03	ppm max.

Cat No.	Package	Size
SM1136-G500ML	Amber Glass bottle	500 ML
SM1136-G1L	Amber Glass bottle	1 L
SM1136-G2.5L	Amber Glass bottle	2.5 L
SM1136-P2.5L	Plastic bottle	2.5 L

Cat No.	Package	Size
SM1136-G4L	Amber Glass bottle	4 L
SM1136-P4L	Plastic bottle	4 L
SM1136-P20L	Plastic drum	20 L
SM1136-P200L	Plastic drum	200 L



HNO <sub>3</sub>	FW. 63.01	Melting Point	-41 °C
CAS-No.	7697-37-2	Boiling Point	119.9 °C
Density 1 L	1.41 Kg.		

## Specifications

Assay (by acidimetry)	69.0 – 70.0%	
Appearance	Passes test	
Color (APHA)	7	max.
Residue after Ignition	1	ppm max.
Chloride (Cl)	0.08	ppm max.
Phosphate (PO <sub>4</sub> )	0.1	ppm max.
Sulfate (SO <sub>4</sub> )	0.2	ppm max.
Silicate (as Si)	0.1	ppm max.
Aluminium (Al)	20	ppb max.
Antimony (Sb)	1	ppb max.
Arsenic (As)	1	ppb max.
Barium (Ba)	5	ppb max.
Beryllium (Be)	1	ppb max.
Bismuth (Bi)	5	ppb max.
Boron (B)	5	ppb max.
Cadmium (Cd)	1	ppb max.
Calcium (Ca)	50	ppb max.
Chromium (Cr)	10	ppb max.
Cobalt (Co)	1	ppb max.
Copper (Cu)	5	ppb max.
Gallium (Ga)	1	ppb max.
Germanium (Ge)	5	ppb max.
Gold (Au)	1	ppb max.

Indium (In)	1	ppb max.
Iron (Fe)	50	ppb max.
Lead (Pb)	5	ppb max.
Lithium (Li)	1	ppb max.
Magnesium (Mg)	10	ppb max.
Manganese (Mn)	5	ppb max.
Molybdenum (Mo)	1	ppb max.
Nickel (Ni)	5	ppb max.
Platinum (Pt)	1	ppb max.
Potassium (K)	5	ppb max.
Silver (Ag)	5	ppb max.
Sodium (Na)	50	ppb max.
Strontium (Sr)	1	ppb max.
Tantalum (Ta)	1	ppb max.
Thallium (Tl)	1	ppb max.
Tin (Sn)	1	ppb max.
Titanium (Ti)	5	ppb max.
Vanadium (V)	5	ppb max.
Zinc (Zn)	10	ppm max.
Zirconium (Zr)	1	ppb max.
Particle/ml :	0.5 µm and greater	64 max.

Cat No.	Package	Size
VL1137-G500ML	Amber Glass bottle	500 ML
VL1137-G1L	Amber Glass bottle	1 L

Cat No.	Package	Size
VL1137-G2.5L	Amber Glass bottle	2.5 L
VL1137-G4L	Amber Glass bottle	4 L

## Nitric Acid 95% Fuming, Semig

SM1139



HNO <sub>3</sub>	FW. 63.01	Melting Point	-49.5°C
CAS-No.	7697-37-2	Boiling Point	87.1 °C
Density 1 L	1.49 Kg.		

## Specifications

Assay (by acidimetry)	95%	min.
Residue after Ignition	0.002%	max.
Chloride (Cl)	0.5	ppm max.
Sulfate (SO <sub>4</sub> )	2	ppm max.
Aluminium (Al)	0.05	ppm max.
Arsenic (As)	0.02	ppm max.
Barium (Ba)	0.02	ppm max.
Beryllium (Be)	0.02	ppm max.
Bismuth (Bi)	0.05	ppm max.
Calcium (Ca)	0.5	ppm max.
Cadmium (Cd)	0.02	ppm max.
Chromium (Cr)	0.02	ppm max.
Cobalt (Co)	0.02	ppm max.
Copper (Cu)	0.02	ppm max.
Germanium (Ge)	0.02	ppm max.

Iron (Fe)	1	ppm max.
Lead (Pb)	0.03	ppm max.
Magnesium (Mg)	0.05	ppm max.
Manganese (Mn)	0.02	ppm max.
Molybdenum (Mo)	0.02	ppm max.
Nickel (Ni)	0.05	ppm max.
Potassium (K)	0.5	ppm max.
Silver (Ag)	0.05	ppm max.
Sodium (Na)	0.5	ppm max.
Strontium (Sr)	0.02	ppm max.
Titanium (Ti)	0.05	ppm max.
Thallium (Tl)	0.05	ppm max.
Vanadium (V)	0.02	ppm max.
Zinc (Zn)	0.1	ppm max.
Zirconium (Zr)	0.05	ppm max.

Cat No.	Package	Size
SM1139-G1L	Amber Glass bottle	1 L



$C_5H_9NO$	FW. 99.13	Melting Point	-24 °C
CAS-No.	872-50-4	Boiling Point	202 °C
Density 1 L	1.030 Kg.		

### Specifications

Assay (by GC.)	99.8%	min.
Color (APHA)	50	max.
Water (by Coulometry)	0.05%	max.
Acidity (mEq./g.)	0.0005	max.
Residue on Evaporation	0.001%	max.
Free amine (as $CH_3NH_2$ )	0.01%	max.
Bromide (Br)	0.01	ppm max.
Chloride (Cl)	0.05	ppm max.
Fluoride (F)	0.01	ppm max.
Nitrate ( $NO_3$ )	0.03	ppm max.
Nitrite ( $NO_2$ )	0.03	ppm max.
Sulfate ( $SO_4$ )	0.03	ppm max.
Phosphate ( $PO_4$ )	0.01	ppm max.
pH value	8.5 - 10	
Aluminium (Al)	20	ppb max.
Barium (Ba)	10	ppb max.
Boron (B)	10	ppb max.
Cadmium (Cd)	10	ppb max.

Calcium (Ca)	100	ppb max.
Chromium (Cr)	20	ppb max.
Cobalt (Co)	10	ppb max.
Copper (Cu)	10	ppb max.
Iron (Fe)	50	ppb max.
Lead (Pb)	20	ppb max.
Magnesium (Mg)	50	ppb max.
Manganese (Mn)	10	ppb max.
Nickel (Ni)	10	ppb max.
Tin (Sn)	20	ppb max.
Zinc (Zn)	20	ppb max.
Silicone oil	Free	
DOP	Free	
Amide	Free	
Particle/ml :		
0.5 $\mu m$ and greater	60	max.
1.0 $\mu m$ and greater	15	max.

Cat No.	Package	Size
XP1278-G500ML	Amber Glass bottle	500 ML
XP1278-G1L	Amber Glass bottle	1 L
XP1278-G2.5L	Amber Glass bottle	2.5 L

Cat No.	Package	Size
XP1278-G4L	Amber Glass bottle	4 L
XP1278-M200L	Metal drum	200 L

# Acetone, Electropure



$(CH_3)_2CHOH$	FW. 60.10	Melting Point	-89.5 °C
CAS-No.	67-63-0	Boiling Point	82.4 °C
Density 1 L	0.786 Kg.		

### Specifications

Assay (by GC.)	99.9%	min.
Identity	Corresponds to IR spectrum	
Color (APHA)	10	max.
Water (by Coulometry)	0.05%	max.
Acidity ( $\mu Eq./g.$ )	0.2	max.
Alkalinity ( $\mu Eq./g.$ )	0.1	max.
Specific resistance ( $M\Omega.cm$ )	10	min.
Residue on Evaporation	5	ppm max.
Aldehyde and Ketones (as propionic aldehyde)	100	ppm max.
Chloride (Cl)	0.2	ppm max.
Phosphate ( $PO_4$ )	0.5	ppm max.
Solubility in Water	Passes test	
Heavy metals (as Pb)	0.2	ppm max.
Aluminium (Al)	0.1	ppm max.
Antimony (Sb)	0.01	ppm max.
Arsenic (As)	0.01	ppm max.
Barium (Ba)	0.05	ppm max.
Beryllium (Be)	0.02	ppm max.
Bismuth (Bi)	0.1	ppm max.
Boron (B)	0.01	ppm max.
Cadmium (Cd)	0.02	ppm max.
Calcium (Ca)	0.1	ppm max.
Chromium (Cr)	0.02	ppm max.

Cobalt (Co)	0.02	ppm max.
Copper (Cu)	0.01	ppm max.
Gallium (Ga)	0.02	ppm max.
Gold (Au)	0.05	ppm max.
Indium (In)	0.02	ppm max.
Iron (Fe)	0.05	ppm max.
Lead (Pb)	0.05	ppm max.
Lithium (Li)	0.02	ppm max.
Magnesium (Mg)	0.05	ppm max.
Manganese (Mn)	0.02	ppm max.
Molybdenum (Mo)	0.05	ppm max.
Nickel (Ni)	0.01	ppm max.
Platinum (Pt)	0.2	ppm max.
Potassium (K)	0.1	ppm max.
Silver (Ag)	0.02	ppm max.
Sodium (Na)	0.2	ppm max.
Strontium (Sr)	0.02	ppm max.
Thallium (Tl)	0.05	ppm max.
Tin (Sn)	0.1	ppm max.
Titanium (Ti)	0.05	ppm max.
Vanadium (V)	0.05	ppm max.
Zinc (Zn)	0.05	ppm max.
Zirconium (Zr)	0.2	ppm max.

Cat No.	Package	Size
EP1162-G500ML	Amber Glass bottle	500 ML
EP1162-G1L	Amber Glass bottle	1 L
EP1162-G2.5L	Amber Glass bottle	2.5 L
EP1162-P2.5L	Plastic bottle	2.5 L

Cat No.	Package	Size
EP1162-G4L	Amber Glass bottle	4 L
EP1162-P4L	Plastic bottle	4 L
EP1162-P20L	Plastic drum	20 L
EP1162-P200L	Plastic drum	200 L



$(\text{CH}_3)_2\text{CHOH}$	FW. 60.10	Melting Point	-89.5 °C
CAS-No.	67-63-0	Boiling Point	82.4 °C
Density 1 L	0.786 Kg.		

## Specifications

Assay (by GC.)	99.9%	min.
Color (APHA)	10	max.
Water (by Coulometry)	0.05%	max.
Acidity ( $\mu\text{Eq./g.}$ )	0.2	max.
Alkalinity ( $\mu\text{Eq./g.}$ )	0.1	max.
Solubility in water	Passes test	
Residue on Evaporation	3	ppm max.
All anions (Br, Cl, F, $\text{NO}_2$ , $\text{NO}_3$ , $\text{SO}_4$ , $\text{PO}_4$ )	0.2	ppm max.
Heavy metals (as Pb)	200	ppb max.
Aluminium (Al)	50	ppb max.
Arsenic and Antimony (as As)	10	ppb max.
Barium (Ba)	20	ppb max.
Boron (B)	10	ppb max.
Cadmium (Cd)	20	ppb max.
Calcium (Ca)	50	ppb max.
Chromium (Cr)	20	ppb max.
Cobalt (Co)	20	ppb max.
Copper (Cu)	10	ppb max.
Gallium (Ga)	30	ppb max.
Germanium (Ge)	30	ppb max.
Gold (Au)	20	ppb max.

Cat No.	Package	Size
XP1163-G500ML	Amber Glass bottle	500 ML
XP1163-G1L	Amber Glass bottle	1 L
XP1163-G2.5L	Amber Glass bottle	2.5 L
XP1163-P2.5L	Plastic bottle	2.5 L

Iron (Fe)	50	ppb max.
Lead (Pb)	20	ppb max.
Lithium (Li)	50	ppb max.
Magnesium (Mg)	20	ppb max.
Manganese (Mn)	20	ppb max.
Nickel (Ni)	10	ppb max.
Potassium (K)	100	ppb max.
Silicon (Si)	50	ppb max.
Silver (Ag)	20	ppb max.
Sodium (Na)	100	ppb max.
Strontium (Sr)	20	ppb max.
Tin (Sn)	100	ppb max.
Titanium (Ti)	20	ppb max.
Zinc (Zn)	50	ppb max.
Silicone oil	Free	
DOP	Free	
Amide	Free	
pH	6-7	
Particle/ml :		
	0.5 $\mu\text{m}$ and greater	50 max.
	1.0 $\mu\text{m}$ and greater	8 max.

Cat No.	Package	Size
XP1163-G4L	Amber Glass bottle	4 L
XP1163-P4L	Plastic bottle	4 L
XP1163-P200L	Plastic drum	200 L

## Propan-2-ol, Extropure

## XP1162



$(\text{CH}_3)_2\text{CHOH}$	FW. 60.10	Melting Point	-89.5 °C
CAS-No.	67-63-0	Boiling Point	82.4 °C
Density 1 L	0.786 Kg.		

## Specifications

Assay (by GC.)	99.9%	min.
Color (APHA)	10	max.
Water (by Coulometry)	0.05%	max.
Acidity ( $\mu\text{Eq./g.}$ )	0.2	max.
Alkalinity ( $\mu\text{Eq./g.}$ )	0.1	max.
Solubility in water	Passes test	
Residue on Evaporation	3	ppm max.
Chloride (Cl)	0.2	ppm max.
Phosphate ( $\text{PO}_4$ )	0.5	ppm max.
Heavy metals (as Pb)	200	ppb max.
Aluminium (Al)	50	ppb max.
Arsenic and Antimony (as As)	10	ppb max.
Barium (Ba)	20	ppb max.
Boron (B)	10	ppb max.
Cadmium (Cd)	20	ppb max.
Calcium (Ca)	50	ppb max.
Chromium (Cr)	20	ppb max.
Cobalt (Co)	20	ppb max.
Copper (Cu)	10	ppb max.
Gallium (Ga)	30	ppb max.
Germanium (Ge)	30	ppb max.

Cat No.	Package	Size
XP1162-P2.5L	Plastic bottle	2.5 L
XP1162-P4L	Plastic bottle	4 L

Gold (Au)	20	ppb max.
Iron (Fe)	50	ppb max.
Lead (Pb)	20	ppb max.
Lithium (Li)	50	ppb max.
Magnesium (Mg)	20	ppb max.
Manganese (Mn)	20	ppb max.
Nickel (Ni)	10	ppb max.
Potassium (K)	100	ppb max.
Silicon (Si)	50	ppb max.
Silver (Ag)	20	ppb max.
Sodium (Na)	100	ppb max.
Strontium (Sr)	20	ppb max.
Tin (Sn)	100	ppb max.
Titanium (Ti)	20	ppb max.
Zinc (Zn)	50	ppb max.
Silicone oil	Free	
DOP	Free	
Amide	Free	
Particle/ml :		
	0.5 $\mu\text{m}$ and greater	50 max.
	1.0 $\mu\text{m}$ and greater	8 max.

Cat No.	Package	Size
XP1162-P200L	Plastic drum	200 L





(CH<sub>3</sub>)<sub>2</sub>CHOH      FW. 60.10  
 CAS-No.              67-63-0  
 Density 1 L            0.786 Kg.

Melting Point        -89.5 °C  
 Boiling Point         82.4 °C

## Specifications

Assay (by GC.)	99.9%	min.
Color (APHA)	10	max.
Water (by Coulometry)	0.05%	max.
Acidity (μEq./g.)	0.2	max.
Alkalinity (μEq./g.)	0.1	max.
Solubility in water	Passes test	
Residue on Evaporation	3	ppm max.
Bromide (Br)	0.01	ppm max.
Chloride (Cl)	0.05	ppm max.
Fluoride (F)	0.01	ppm max.
Nitrate (NO <sub>3</sub> )	0.03	ppm max.
Nitrite (NO <sub>2</sub> )	0.03	ppm max.
Sulfate (SO <sub>4</sub> )	0.03	ppm max.
Phosphate (PO <sub>4</sub> )	0.01	ppm max.
pH Value	6 - 9	
Heavy metals (as Pb)	100	ppb max.
Aluminium (Al)	20	ppb max.
Arsenic and Antimony (as As)	10	ppb max.
Barium (Ba)	10	ppb max.
Beryllium (Be)	10	ppb max.
Bismuth (Bi)	10	ppb max.
Boron (B)	5	ppb max.
Cadmium (Cd)	5	ppb max.
Calcium (Ca)	10	ppb max.
Chromium (Cr)	5	ppb max.
Cobalt (Co)	5	ppb max.
Copper (Cu)	5	ppb max.
Gallium (Ga)	10	ppb max.

Cat No.	Package	Size
XP1277-G500ML	Amber Glass bottle	500 ML
XP1277-G1L	Amber Glass bottle	1 L
XP1277-P2.5L	Plastic bottle	2.5 L

Gold (Au)	10	ppb max.
Indium (In)	10	ppb max.
Iron (Fe)	10	ppb max.
Lead (Pb)	10	ppb max.
Lithium (Li)	5	ppb max.
Magnesium (Mg)	5	ppb max.
Manganese (Mn)	5	ppb max.
Molybdenum (Mo)	10	ppb max.
Nickel (Ni)	5	ppb max.
Platinum (Pt)	20	ppb max.
Potassium (K)	10	ppb max.
Silicon (Si)	50	ppb max.
Silver (Ag)	5	ppb max.
Sodium (Na)	100	ppb max.
Strontium (Sr)	5	ppb max.
Thallium (Tl)	10	ppb max.
Tin (Sn)	10	ppb max.
Titanium (Ti)	10	ppb max.
Vanadium (V)	10	ppb max.
Zinc (Zn)	5	ppb max.
Zirconium (Zr)	10	ppb max.
Silicone oil	Free	
DOP	Free	
Amide	Free	
Particle/ml :		
	0.5 μm and greater	50 max.
	1.0 μm and greater	8 max.

Cat No.	Package	Size
XP1277-G4L	Amber Glass bottle	4 L
XP1277-P4L	Plastic bottle	4 L
XP1277-P200L	Plastic drum	200 L

# Propan-2-ol, Extropure-MS



(CH<sub>3</sub>)<sub>2</sub>CHOH      FW. 60.10  
 CAS-No.              67-63-0  
 Density 1 L            0.786 Kg.

Melting Point        -89.5 °C  
 Boiling Point         82.4 °C

## Specifications

Assay (by GC.)	99.9%	min.
Color (APHA)	10	max.
Water (by Coulometry)	0.05%	max.
Acidity (μEq./g.)	0.2	max.
Alkalinity (μEq./g.)	0.1	max.
Solubility in water	Passes test	
Residue on Evaporation	3	ppm max.
Chloride (Cl)	0.2	ppm max.
Phosphate (PO <sub>4</sub> )	0.5	ppm max.
Heavy metals (as Pb)	200	ppm max.
Aluminium (Al)	50	ppb max.
Arsenic and Antimony (as As)	10	ppb max.
Barium (Ba)	20	ppb max.
Boron (B)	10	ppb max.
Cadmium (Cd)	20	ppb max.
Calcium (Ca)	50	ppb max.
Chromium (Cr)	20	ppb max.
Cobalt (Co)	20	ppb max.
Copper (Cu)	10	ppb max.
Gallium (Ga)	30	ppb max.
Germanium (Ge)	30	ppb max.
Gold (Au)	20	ppb max.

Cat No.	Package	Size
XP1292-P2.5L	Plastic bottle	2 L

Iron (Fe)	50	ppb max.
Lead (Pb)	20	ppb max.
Lithium (Li)	50	ppb max.
Magnesium (Mg)	20	ppb max.
Manganese (Mn)	20	ppb max.
Nickel (Ni)	10	ppb max.
Potassium (K)	100	ppb max.
Silicon (Si)	50	ppb max.
Silver (Ag)	20	ppb max.
Sodium (Na)	100	ppb max.
Strontium (Sr)	20	ppb max.
Tin (Sn)	100	ppb max.
Titanium (Ti)	20	ppb max.
Zinc (Zn)	50	ppb max.
Hydrocarbons Content (Between C10 - C40)	Not detectable	
Silicone oil	Not detectable	
DOP	Not detectable	
Amide	Not detectable	
Particle/ml :		
	0.5 μm and greater	50 max.
	1.0 μm and greater	8 max.

Cat No.	Package	Size
XP1292-P4L	Plastic bottle	4 L



$(\text{CH}_3)_2\text{CHOH}$	FW. 60.10	Melting Point	-89.5 °C
CAS-No.	67-63-0	Boiling Point	82.4 °C
Density 1 L	0.786 Kg.		

## Specifications

Assay (by GC.)	99.9%	min.
Color (APHA)	10	max.
Water (by Coulometry)	0.05%	max.
Acidity ( $\mu\text{Eq./g.}$ )	0.2	max.
Alkalinity ( $\mu\text{Eq./g.}$ )	0.1	max.
Solubility in water	Passes test	
Residue on Evaporation	5	ppm max.
Chloride (Cl)	0.2	ppm max.
Phosphate ( $\text{PO}_4$ )	0.5	ppm max.
Aluminium (Al)	0.1	ppm max.
Arsenic and Antimony (as As)	0.01	ppm max.
Boron (B)	0.1	ppm max.
Calcium (Ca)	0.1	ppm max.

Chromium (Cr)	0.1	ppm max.
Copper (Cu)	0.01	ppm max.
Gold (Au)	0.1	ppm max.
Iron (Fe)	0.1	ppm max.
Lead (Pb)	0.1	ppm max.
Magnesium (Mg)	0.1	ppm max.
Manganese (Mn)	0.1	ppm max.
Nickel (Ni)	0.01	ppm max.
Potassium (K)	0.1	ppm max.
Sodium (Na)	0.1	ppm max.
Tin (Sn)	0.1	ppm max.
Titanium (Ti)	0.1	ppm max.
Zinc (Zn)	0.1	ppm max.

Cat No.	Package	Size
SM1162-G500ML	Amber Glass bottle	500 ML
SM1162-G1L	Amber Glass bottle	1 L
SM1162-G2.5L	Amber Glass bottle	2.5 L
SM1162-P2.5L	Plastic bottle	2.5 L
SM1162-G4L	Amber Glass bottle	4 L

Cat No.	Package	Size
SM1162-P4L	Plastic	4 L
SM1162-P20L	Plastic	20 L
SM1162-P200L	Plastic	200 L
SM1162-M200L	Metal	200 L

## Propan-2-ol, Semig Plus



$(\text{CH}_3)_2\text{CHOH}$	FW. 60.10	Melting Point	-89.5 °C
CAS-No.	67-63-0	Boiling Point	82.4 °C
Density 1 L	0.786 Kg.		

## Specifications

Assay (by GC.)	99.9%	min.
Appearance	Colorless	
Color (APHA)	10	max.
Water (by Coulometry)	0.05%	max.
Acidity (as $\text{CH}_3\text{COOH}$ )	0.001%	max.
Specific resistance ( $\text{M}\Omega\cdot\text{cm}$ )	10	max.
Residue on Evaporation	5	max.
Chloride (Cl)	0.2	ppm max.
Phosphate ( $\text{PO}_4$ )	0.5	ppm max.
Aluminium (Al)	0.05	ppm max.
Arsenic (As)	0.01	ppm max.
Antimony (Sb)	0.01	ppm max.
Barium (Ba)	0.05	ppm max.
Boron (B)	0.01	ppm max.
Cadmium (Cd)	0.05	ppm max.
Calcium (Ca)	0.05	ppm max.

Chromium (Cr)	0.02	ppm max.
Copper (Cu)	0.001	ppm max.
Gold (Au)	0.05	ppm max.
Iron (Fe)	0.03	ppm max.
Lead (Pb)	0.005	ppm max.
Lithium (Li)	0.02	ppm max.
Magnesium (Mg)	0.02	ppm max.
Manganese (Mn)	0.01	ppm max.
Nickel (Ni)	0.01	ppm max.
Potassium (K)	0.05	ppm max.
Silver (Ag)	0.05	ppm max.
Sodium (Na)	0.05	ppm max.
Strontium (Sr)	0.01	ppm max.
Tin (Sn)	0.05	ppm max.
Titanium (Ti)	0.01	ppm max.
Zinc (Zn)	0.02	ppm max.

Cat No.	Package	Size
SM1163-G500ML	Amber Glass bottle	500 ML
SM1163-G1L	Amber Glass bottle	1 L
SM1163-G2.5L	Amber Glass bottle	2.5 L
SM1163-P2.5L	Plastic bottle	2.5 L
SM1163-G4L	Amber Glass bottle	4 L

Cat No.	Package	Size
SM1163-P4L	Plastic bottle	4 L
SM1163-P20L	Plastic drum	20 L
SM1163-P200L	Plastic drum	200 L
SM1163-M200L	Metal drum	200 L



(CH<sub>3</sub>)<sub>2</sub>CHOH      FW. 60.10      Melting Point      -89.5 °C  
 CAS-No.      67-63-0      Boiling Point      82.4 °C  
 Density 1 L      0.786 Kg.

**Specifications**

Assay (by GC.)	99.9%	min.
Identity	Corresponds to IR spectrum	
Color (APHA)	10	max.
Water (by Coulometry)	0.05%	max.
Acidity (µEq./g.)	0.2	max.
Alkalinity (µEq./g.)	0.1	max.
Specific resistance (MΩ.cm)	10	min.
Residue on Evaporation	3	ppm max.
Aldehyde and Ketones (as propionic aldehyde)	50	ppm max.
Substances reducing permanganate (as O)	2.5	ppm max.
Chloride (Cl)	0.1	ppm max.
Phosphate (PO <sub>4</sub> )	0.1	ppm max.
Sulfate (SO <sub>4</sub> )	1.0	ppm max.
Heavy metals (as Pb)	0.1	ppm max.
Aluminium (Al)	20	ppb max.
Antimony (Sb)	10	ppb max.
Arsenic (As)	10	ppb max.
Barium (Ba)	10	ppb max.
Beryllium (Be)	10	ppb max.
Bismuth (Bi)	10	ppb max.
Boron (B)	5	ppb max.
Cadmium (Cd)	5	ppb max.
Calcium (Ca)	10	ppb max.
Chromium (Cr)	5	ppb max.
Cobalt (Co)	5	ppb max.

Copper (Cu)	5	ppb max.
Gallium (Ga)	10	ppb max.
Gold (Au)	10	ppb max.
Indium (In)	10	ppb max.
Iron (Fe)	10	ppb max.
Lead (Pb)	10	ppb max.
Lithium (Li)	5	ppb max.
Magnesium (Mg)	5	ppb max.
Manganese (Mn)	5	ppb max.
Molybdenum (Mo)	10	ppb max.
Nickel (Ni)	5	ppb max.
Platinum (Pt)	20	ppb max.
Potassium (K)	10	ppb max.
Silver (Ag)	5	ppb max.
Sodium (Na)	100	ppb max.
Strontium (Sr)	5	ppb max.
Thallium (Tl)	10	ppb max.
Tin (Sn)	10	ppb max.
Titanium (Ti)	10	ppb max.
Vanadium (V)	10	ppb max.
Zinc (Zn)	5	ppb max.
Zirconium (Zr)	10	ppb max.
Particle/ml :		
0.5 µm and greater	30	max.
1.0 µm and greater	8	max.

Product passed through 1 micron final filter.

Cat No.	Package	Size
VL1162-G2.5L	Amber Glass bottle	2.5 L
VL1162-P2.5L	Plastic bottle	2.5 L

Cat No.	Package	Size
VL1162-G4L	Amber Glass bottle	4 L
VL1162-P4L	Plastic bottle	4 L

**Sulfuric Acid 20%, Semig**



H<sub>2</sub>SO<sub>4</sub>      FW. 98.08      Melting Point      -13.5 °C  
 CAS-No.      7664-93-9      Boiling Point      104.6 °C  
 Density 1 L      1.14 Kg.

**Specifications**

Assay (by acidimetry)	19.0 – 21.0%	
Color (APHA)	10	max.
Residue after Ignition	5	ppm max.
Substances reducing permanganate (as SO <sub>2</sub> )	2	ppm max.
Ammonium (NH <sub>4</sub> )	0.5	ppm max.
Chloride (Cl)	0.1	ppm max.
Nitrate (NO <sub>3</sub> )	0.2	min.
Phosphate (PO <sub>4</sub> )	0.5	ppm max.
Aluminium (Al)	0.2	ppm max.
Arsenic and Antimony (as As)	0.005	ppm max.
Boron (B)	0.02	ppm max.
Calcium (Ca)	0.3	ppm max.
Chromium (Cr)	0.2	ppm max.

Copper (Cu)	0.1	ppm max.
Gold (Au)	0.3	ppm max.
Iron (Fe)	0.2	ppm max.
Lead (Pb)	0.3	ppm max.
Magnesium (Mg)	0.3	ppm max.
Manganese (Mn)	0.2	ppm max.
Nickel (Ni)	0.1	ppm max.
Potassium (K)	0.3	ppm max.
Sodium (Na)	0.3	ppm max.
Tin (Sn)	0.2	ppm max.
Titanium (Ti)	0.3	ppm max.
Zinc (Zn)	0.2	ppm max.

Cat No.	Package	Size
SM1280-G500ML	Amber Glass bottle	500 ML
SM1280-G1L	Amber Glass bottle	1 L
SM1280-G2.5L	Amber Glass bottle	2.5 L
SM1280-P2.5L	Plastic bottle	2.5 L

Cat No.	Package	Size
SM1280-G4L	Amber Glass bottle	4 L
SM1280-P4L	Plastic bottle	4 L
SM1280-P30KG	Plastic drum	30 KG
SM1280-P320KG	Plastic drum	320 KG



$H_2SO_4$	FW. 98.08	Melting Point	-68.2 °C
CAS-No.	7664-93-9	Boiling Point	113.4 °C
Density 1 L	1.30 Kg.		

## Specifications

Assay (by acidimetry)	39.0 - 41.0%	
Color (APHA)	10	max.
Residue after Ignition	3	ppm max.
Substances reducing permanganate (as $SO_2$ )	2	ppm max.
Ammonium ( $NH_4$ )	2	ppm max.
Chloride (Cl)	0.1	ppm max.
Nitrate ( $NO_3$ )	0.2	ppm max.
Phosphate ( $PO_4$ )	0.5	ppm max.
Aluminium (Al)	0.05	ppm max.
Arsenic and Antimony (as As)	0.01	ppm max.
Barium (Ba)	0.05	ppm max.
Beryllium (Be)	0.02	ppm max.
Bismuth (Bi)	0.1	ppm max.
Boron (B)	0.05	ppm max.
Cadmium (Cd)	0.05	ppm max.
Calcium (Ca)	0.2	ppm max.
Chromium (Cr)	0.02	ppm max.
Cobalt (Co)	0.02	ppm max.
Copper (Cu)	0.01	ppm max.
Gallium (Ga)	0.02	ppm max.

Germanium (Ge)	0.1	ppm max.
Gold (Au)	0.1	ppm max.
Indium (In)	0.02	ppm max.
Iron (Fe)	0.1	ppm max.
Lead (Pb)	0.05	ppm max.
Lithium (Li)	0.02	ppm max.
Magnesium (Mg)	0.1	ppm max.
Manganese (Mn)	0.02	ppm max.
Molybdenum (Mo)	0.05	ppm max.
Nickel (Ni)	0.02	ppm max.
Potassium (K)	0.1	ppm max.
Silver (Ag)	0.02	ppm max.
Sodium (Na)	50	ppm max.
Strontium (Sr)	0.05	ppm max.
Thallium (Tl)	0.05	ppm max.
Tin (Sn)	0.05	ppm max.
Titanium (Ti)	0.1	ppm max.
Vanadium (V)	0.05	ppm max.
Zinc (Zn)	0.1	ppm max.
Zirconium (Zr)	0.1	ppm max.

Cat No.	Package	Size
EP1183-G500ML	Amber Glass bottle	500 ML
EP1183-G1L	Amber Glass bottle	1 L
EP1183-G2.5L	Amber Glass bottle	2.5 L
EP1183-P2.5L	Plastic bottle	2.5 L

Cat No.	Package	Size
EP1183-G4L	Amber Glass bottle	4 L
EP1183-P4L	Plastic bottle	4 L
EP1183-P30KG	Plastic drum	30 KG
EP1183-P320KG	Plastic drum	320 KG

## Sulfuric Acid 50%, Semig

SM1184



$H_2SO_4$	FW. 98.08	Melting Point	-36.5 °C
CAS-No.	7664-93-9	Boiling Point	123.3 °C
Density 1 L	1.40 Kg.		

## Specifications

Assay (by acidimetry)	49.0 - 51.0%	
Color (APHA)	10	max.
Residue after Ignition	5	ppm max.
Substances reducing permanganate (as $SO_2$ )	2	ppm max.
Ammonium ( $NH_4$ )	0.5	ppm max.
Chloride (Cl)	0.1	ppm max.
Nitrate ( $NO_3$ )	0.5	ppm max.
Phosphate ( $PO_4$ )	0.5	ppm max.
Aluminium (Al)	0.2	ppm max.
Arsenic and Antimony (as As)	0.005	ppm max.
Boron (B)	0.02	ppm max.
Calcium (Ca)	0.3	ppm max.
Chromium (Cr)	0.2	ppm max.

Copper (Cu)	0.1	ppm max.
Gold (Au)	0.3	ppm max.
Iron (Fe)	0.2	ppm max.
Lead (Pb)	0.3	ppm max.
Magnesium (Mg)	0.3	ppm max.
Manganese (Mn)	0.2	ppm max.
Nickel (Ni)	0.1	ppm max.
Potassium (K)	0.3	ppm max.
Sodium (Na)	0.3	ppm max.
Tin (Sn)	0.2	ppm max.
Titanium (Ti)	0.3	ppm max.
Zinc (Zn)	0.2	ppm max.

Cat No.	Package	Size
SM1184-G500ML	Amber Glass bottle	500 ML
SM1184-G1L	Amber Glass bottle	1 L
SM1184-G2.5L	Amber Glass bottle	2.5 L
SM1184-P2.5L	Plastic bottle	2.5 L

Cat No.	Package	Size
SM1184-G4L	Amber Glass bottle	4 L
SM1184-P4L	Plastic bottle	4 L
SM1184-P30KG	Plastic drum	30 KG
SM1184-P320KG	Plastic drum	320 KG



H <sub>2</sub> SO <sub>4</sub>	FW. 98.08	Melting Point	-28.7 °C
CAS-No.	7664-93-9	Boiling Point	140 °C
Density 1 L	1.49 Kg.		

## Specifications

Assay (by acidimetry)	60.0%	min.
Color (APHA)	10	max.
Residue after Ignition	3	ppm max.
Substance reducing permanganate (as SO <sub>2</sub> )	2	ppm max.
Ammonium (NH <sub>4</sub> )	2	ppm max.
Chloride (Cl)	0.1	ppm max.
Nitrate (NO <sub>3</sub> )	0.2	ppm max.
Phosphate (PO <sub>4</sub> )	0.3	ppm max.
Aluminium (Al)	0.05	ppm max.
Arsenic and Antimony (as As)	0.005	ppm max.
Barium (Ba)	0.05	ppm max.
Beryllium (Be)	0.02	ppm max.
Bismuth (Bi)	0.1	ppm max.
Boron (B)	0.01	ppm max.
Cadmium (Cd)	0.05	ppm max.
Calcium (Ca)	0.1	ppm max.
Chromium (Cr)	0.02	ppm max.
Cobalt (Co)	0.02	ppm max.
Copper (Cu)	0.01	ppm max.
Gallium (Ga)	0.02	ppm max.
Germanium (Ge)	0.1	ppb max.
Gold (Au)	0.02	ppb max.

Iron (Fe)	0.1	ppm max.
Lead (Pb)	0.05	ppm max.
Lithium (Li)	0.02	ppm max.
Magnesium (Mg)	0.05	ppm max.
Manganese (Mn)	0.01	ppm max.
Molybdenum (Mo)	0.05	ppm max.
Nickel (Ni)	0.02	ppm max.
Potassium (K)	0.1	ppm max.
Silicon (Si)	0.1	ppm max.
Silver (Ag)	0.02	ppm max.
Sodium (Na)	0.1	ppm max.
Strontium (Sr)	0.05	ppm max.
Thallium (Tl)	0.05	ppm max.
Tin (Sn)	0.05	ppm max.
Titanium (Ti)	0.05	ppm max.
Vanadium (V)	0.05	ppm max.
Zinc (Zn)	0.05	ppm max.
Zirconium (Zr)	0.1	ppm max.
Particle/ml :		
0.5 µm and greater (drums)	150	max.
1.0 µm and greater (drums)	25	max.

Cat No.	Package	Size
EP1185-G500ML	Amber Glass bottle	500 ML
EP1185-G1L	Amber Glass bottle	1 L
EP1185-G2.5L	Amber Glass bottle	2.5 L
EP1185-P2.5L	Plastic bottle	2.5 L

Cat No.	Package	Size
EP1185-G4L	Amber Glass bottle	4 L
EP1185-P4L	Plastic bottle	4 L
EP1185-P30KG	Plastic drum	30 KG
EP1185-P320KG	Plastic drum	320 KG

## Sulfuric Acid 60%, Semig

SM1185



H <sub>2</sub> SO <sub>4</sub>	FW. 98.08	Melting Point	-28.7 °C
CAS-No.	7664-93-9	Boiling Point	140 °C
Density 1 L	1.49 Kg.		

## Specifications

Assay (by acidimetry)	60.0 – 61.0%
Color (APHA)	10 max.
Residue after Ignition	5 ppm max.
Substances reducing permanganate (as SO <sub>2</sub> )	2 ppm max.
Ammonium (NH <sub>4</sub> )	0.5 ppm max.
Chloride (Cl)	0.1 ppm max.
Nitrate (NO <sub>3</sub> )	0.5 ppm max.
Phosphate (PO <sub>4</sub> )	0.5 ppm max.
Aluminium (Al)	0.2 ppm max.
Arsenic and Antimony (as As)	0.005 ppm max.
Boron (B)	0.02 ppm max.
Calcium (Ca)	0.3 ppm max.
Chromium (Cr)	0.2 ppm max.

Copper (Cu)	0.1	ppm max.
Gold (Au)	0.3	ppm max.
Iron (Fe)	0.2	ppm max.
Lead (Pb)	0.3	ppm max.
Magnesium (Mg)	0.3	ppm max.
Manganese (Mn)	0.2	ppm max.
Nickel (Ni)	0.1	ppm max.
Potassium (K)	0.3	ppm max.
Sodium (Na)	0.3	ppm max.
Tin (Sn)	0.2	ppm max.
Titanium (Ti)	0.3	ppm max.
Zinc (Zn)	0.2	ppm max.

Cat No.	Package	Size
SM1185-G500ML	Amber Glass bottle	500 ML
SM1185-G1L	Amber Glass bottle	1 L
SM1185-G2.5L	Amber Glass bottle	2.5 L
SM1185-P2.5L	Plastic bottle	2.5 L

Cat No.	Package	Size
SM1185-G4L	Amber Glass bottle	4 L
SM1185-P4L	Plastic bottle	4 L
SM1185-P30KG	Plastic drum	30 KG
SM1185-P320KG	Plastic drum	320 KG



H <sub>2</sub> SO <sub>4</sub>	FW. 98.08	Melting Point	2.5 °C
CAS-No.	7664-93-9	Boiling Point	210 °C
Density 1 L	1.74 Kg.		

## Specifications

Assay (by acidimetry)	81-82%	
Color (APHA)	10	max.
Residue after Ignition	3	ppm max.
Substances reducing permanganate (as SO <sub>2</sub> )	1	ppm max.
Ammonium (NH <sub>4</sub> )	0.5	ppm max.
Chloride (Cl)	0.1	ppb max.
Nitrate (NO <sub>3</sub> )	0.2	ppb max.
Phosphate (PO <sub>4</sub> )	0.2	ppb max.
Aluminium (Al)	50	ppb max.
Arsenic and Antimony (as As)	5	ppb max.
Barium (Ba)	50	ppb max.
Beryllium (Be)	20	ppb max.
Bismuth (Bi)	50	ppb max.
Boron (B)	20	ppb max.
Cadmium (Cd)	10	ppb max.
Calcium (Ca)	200	ppb max.
Chromium (Cr)	20	ppb max.
Copper (Cu)	20	ppb max.
Chromium (Cr)	10	ppb max.
Gallium (Ga)	20	ppb max.
Germanium (Ge)	100	ppb max.

Gold (Au)	100	ppb max.
Indium (In)	20	ppb max.
Iron (Fe)	100	ppb max.
Lead (Pb)	10	ppb max.
Lithium (Li)	20	ppb max.
Magnesium (Mg)	50	ppb max.
Manganese (Mn)	20	ppb max.
Molybdenum (Mo)	50	ppb max.
Nickel (Ni)	20	ppb max.
Platinum (Pt)	100	ppb max.
Potassium (K)	100	ppb max.
Silver (Ag)	20	ppb max.
Sodium (Na)	200	ppb max.
Strontium (Sr)	10	ppb max.
Thallium (Tl)	50	ppb max.
Tin (Sn)	100	ppb max.
Titanium (Ti)	100	ppb max.
Vanadium (V)	50	ppb max.
Zinc (Zn)	20	ppb max.
Zirconium (Zr)	100	ppb max.

Product passed through 1 micron final filter.

Cat No.	Package	Size
VL1151-G2.5L	Amber Glass bottle	2.5 L
VL1151-G4L	Amber Glass bottle	4 L
VL1151-P2.5L	Plastic bottle	2.5 L

Cat No.	Package	Size
VL1151-P4L	Plastic bottle	4 L
VL1151-P320KG	Plastic drum	320 KG

## Sulfuric Acid 89%, Electro Extra

## EX1189



H <sub>2</sub> SO <sub>4</sub>	FW. 98.08	Melting Point	-1.5 °C
CAS-No.	7664-93-9	Boiling Point	256 °C
Density 1 L	1.81 Kg.		

## Specifications

Assay (by acidimetry)	89.0 - 91.0%	
Color (APHA)	3	max.
Residue after Ignition	3	ppm max.
Chloride (Cl)	0.05	ppm max.
Nitrate (NO <sub>3</sub> )	0.1	ppm max.
Phosphate (PO <sub>4</sub> )	0.1	ppm max.
Aluminium (Al)	0.02	ppm max.
Arsenic and Antimony (as As)	0.005	ppm max.
Barium (Ba)	0.01	ppm max.
Beryllium (Be)	0.01	ppm max.
Bismuth (Bi)	0.01	ppm max.
Boron (B)	0.01	ppm max.
Cadmium (Cd)	0.01	ppm max.
Calcium (Ca)	0.2	ppm max.
Chromium (Cr)	0.02	ppm max.
Cobalt (Co)	0.01	ppm max.
Copper (Cu)	0.01	ppm max.
Gallium (Ga)	0.01	ppm max.
Germanium (Ge)	0.05	ppm max.
Gold (Au)	0.05	ppm max.

Indium (In)	0.01	ppm max.
Iron (Fe)	0.1	ppm max.
Lead (Pb)	0.01	ppm max.
Lithium (Li)	0.01	ppm max.
Magnesium (Mg)	0.05	ppm max.
Manganese (Mn)	0.01	ppm max.
Molybdenum (Mo)	0.05	ppm max.
Nickel (Ni)	0.01	ppm max.
Platinum (Pt)	0.01	ppm max.
Potassium (K)	0.1	ppm max.
Silver (Ag)	0.01	ppm max.
Sodium (Na)	0.5	ppm max.
Strontium (Sr)	0.01	ppm max.
Thallium (Tl)	0.01	ppm max.
Tin (Sn)	0.01	ppm max.
Titanium (Ti)	0.1	ppm max.
Vanadium (V)	0.05	ppm max.
Zinc (Zn)	0.1	ppm max.
Zirconium (Zr)	0.05	ppm max.

Cat No.	Package	Size
EX1189-G500ML	Amber Glass bottle	500 ML
EX1189-G1L	Glass bottle	1 L
EX1189-G2.5L	Glass bottle	2.5 L
EX1189-P2.5L	Plastic bottle	2.5 L

Cat No.	Package	Size
EX1189-G4L	Amber Glass bottle	4 L
EX1189-P4L	Plastic bottle	4 L
EX1189-P30KG	Plastic drum	30 KG
EX1189-P320KG	Plastic drum	320 KG



$H_2SO_4$	FW. 98.08	Melting Point	-1.5 °C
CAS-No.	7664-93-9	Boiling Point	256 °C
Density 1 L	1.81 Kg.		

## Specifications

Assay (by acidimetry)	89.0 - 91.0%	
Color (APHA)	10	max.
Residue after Ignition	3	ppm max.
Chloride (Cl)	0.1	ppm max.
Nitrate (NO <sub>3</sub> )	0.2	ppm max.
Phosphate (PO <sub>4</sub> )	0.5	ppm max.
Aluminium (Al)	0.2	ppm max.
Arsenic (As)	0.005	ppm max.
Boron (B)	0.02	ppm max.
Calcium (Ca)	0.3	ppm max.
Chromium (Cr)	0.2	ppm max.
Copper (Cu)	0.1	ppm max.

Gold (Au)	0.3	ppm max.
Iron (Fe)	0.1	ppm max.
Lead (Pb)	0.1	ppm max.
Magnesium (Mg)	0.3	ppm max.
Manganese (Mn)	0.2	ppm max.
Nickel (Ni)	0.1	ppm max.
Potassium (K)	0.3	ppm max.
Sodium (Na)	0.3	ppm max.
Tin (Sn)	0.2	ppm max.
Titanium (Ti)	0.3	ppm max.
Zinc (Zn)	0.2	ppm max.

Cat No.	Package	Size
SM1189-G500ML	Amber Glass bottle	500 ML
SM1189-G1L	Amber Glass bottle	1 L
SM1189-G2.5L	Amber Glass bottle	2.5 L
SM1189-P2.5L	Plastic bottle	2.5 L

Cat No.	Package	Size
SM1189-G4L	Amber Glass bottle	4 L
SM1189-P4L	Plastic bottle	4 L
SM1189-P30KG	Plastic drum	30 KG
SM1189-P320KG	Plastic drum	320 KG

## Sulfuric Acid 96%, Electropure

EP1191



$H_2SO_4$	FW. 98.08	Melting Point	-11.1 °C
CAS-No.	7664-93-9	Boiling Point	310 °C
Density 1 L	1.84 Kg.		

## Specifications

Assay (by acidimetry)	95.0 - 97.0%	
Color (APHA)	10	max.
Residue after Ignition	3	ppm max.
Substances reducing permanganate (as SO <sub>2</sub> )	2	ppm max.
Ammonium (NH <sub>4</sub> )	1	ppm max.
Chloride (Cl)	0.1	ppm max.
Nitrate (NO <sub>3</sub> )	0.2	ppm max.
Phosphate (PO <sub>4</sub> )	0.5	ppm max.
Aluminium (Al)	0.05	ppm max.
Arsenic and Antimony (as As)	0.005	ppm max.
Barium (Ba)	0.05	ppm max.
Beryllium (Be)	0.02	ppm max.
Bismuth (Bi)	0.1	ppm max.
Boron (B)	0.02	ppm max.
Cadmium (Cd)	0.01	ppm max.
Calcium (Ca)	0.2	ppm max.
Chromium (Cr)	0.02	ppm max.
Cobalt (Co)	0.02	ppm max.
Copper (Cu)	0.01	ppm max.
Gallium (Ga)	0.02	ppm max.
Germanium (Ge)	0.1	ppm max.

Gold (Au)	0.1	ppm max.
Indium (In)	0.02	ppm max.
Iron (Fe)	0.1	ppm max.
Lead (Pb)	0.01	ppm max.
Lithium (Li)	0.02	ppm max.
Magnesium (Mg)	0.1	ppm max.
Manganese (Mn)	0.02	ppm max.
Mercury (Hg)	0.005	ppm max.
Molybdenum (Mo)	0.05	ppm max.
Nickel (Ni)	0.02	ppm max.
Platinum (Pt)	0.2	ppm max.
Potassium (K)	0.1	ppm max.
Silver (Ag)	0.02	ppm max.
Sodium (Na)	0.2	ppm max.
Strontium (Sr)	0.05	ppm max.
Thallium (Tl)	0.05	ppm max.
Tin (Sn)	0.1	ppm max.
Titanium (Ti)	0.1	ppm max.
Vanadium (V)	0.05	ppm max.
Zinc (Zn)	0.02	ppm max.
Zirconium (Zr)	0.1	ppm max.

Cat No.	Package	Size
EP1191-G500ML	Amber Glass bottle	500 ML
EP1191-G1L	Amber Glass bottle	1 L
EP1191-G2.5L	Amber Glass bottle	2.5 L
EP1191-P2.5L	Plastic bottle	2.5 L

Cat No.	Package	Size
EP1191-G4L	Amber Glass bottle	4 L
EP1191-P4L	Plastic bottle	4 L
EP1191-P30KG	Plastic drum	30 KG
EP1191-P320KG	Plastic drum	320 KG



$H_2SO_4$	FW. 98.08	Melting Point	-11.1 °C
CAS-No.	7664-93-9	Boiling Point	310 °C
Density 1 L	1.84 Kg.		

## Specifications

Assay (by acidimetry)	95.0 - 97.0%
Color (APHA)	10 max.
Chloride (Cl)	0.1 ppm max.
Nitrate (NO <sub>3</sub> )	0.2 ppm max.
Phosphate (PO <sub>4</sub> )	0.5 ppm max.
Aluminium (Al)	0.2 ppm max.
Arsenic and Antimony (as As)	0.005 ppm max.
Boron (B)	0.02 ppm max.
Calcium (Ca)	0.3 ppm max.
Chromium (Cr)	0.2 ppm max.
Copper (Cu)	0.1 ppm max.

Gold (Au)	0.3	ppm max.
Iron (Fe)	0.2	ppm max.
Lead (Pb)	0.3	ppm max.
Magnesium (Mg)	0.3	ppm max.
Manganese (Mn)	0.2	ppm max.
Nickel (Ni)	0.1	ppm max.
Potassium (K)	0.3	ppm max.
Sodium (Na)	0.3	ppm max.
Tin (Sn)	0.2	ppm max.
Titanium (Ti)	0.3	ppm max.
Zinc (Zn)	0.2	ppm max.

Cat No.	Package	Size
SM1191-G500ML	Amber Glass bottle	500 ML
SM1191-G1L	Amber Glass bottle	1 L
SM1191-G2.5L	Amber Glass bottle	2.5 L
SM1191-P2.5L	Plastic bottle	2.5 L

Cat No.	Package	Size
SM1191-G4L	Amber Glass bottle	4 L
SM1191-P4L	Plastic bottle	4 L
SM1191-P30KG	Plastic drum	30 KG
SM1191-P320KG	Plastic drum	320 KG

## Sulfuric Acid 96%, VLSI

VL1191



$H_2SO_4$	FW. 98.08	Melting Point	-11.1 °C
CAS-No.	7664-93-9	Boiling Point	310 °C
Density 1 L	1.84 Kg.		

## Specifications

Assay (by acidimetry)	96.0 - 97.0%
Color (APHA)	10 max.
Residue after Ignition	3 ppm max.
Substances reducing permanganate (as SO <sub>2</sub> )	1 ppm max.
Ammonium (NH <sub>4</sub> )	0.5 ppm max.
Chloride (Cl)	0.1 ppm max.
Nitrate (NO <sub>3</sub> )	0.2 ppm max.
Phosphate (PO <sub>4</sub> )	0.2 ppm max.
Aluminium (Al)	20 ppb max.
Arsenic and Antimony (as As)	5 ppb max.
Barium (Ba)	20 ppb max.
Beryllium (Be)	5 ppb max.
Bismuth (Bi)	20 ppb max.
Boron (B)	10 ppb max.
Cadmium (Cd)	5 ppb max.
Calcium (Ca)	100 ppb max.
Chromium (Cr)	10 ppb max.
Cobalt (Co)	5 ppb max.
Copper (Cu)	5 ppb max.
Gallium (Ga)	5 ppb max.
Germanium (Ge)	50 ppb max.

Gold (Au)	20	ppb max.
Color (In)	5	ppb max.
Iron (Fe)	50	ppb max.
Lead (Pb)	5	ppb max.
Lithium (Li)	5	ppb max.
Magnesium (Mg)	50	ppb max.
Manganese (Mn)	5	ppb max.
Molybdenum (Mo)	5	ppb max.
Nickel (Ni)	5	ppb max.
Platinum (Pt)	10	ppb max.
Potassium (K)	100	ppb max.
Silver (Ag)	10	ppb max.
Sodium (Na)	100	ppb max.
Strontium (Sr)	5	ppb max.
Thallium (Tl)	5	ppb max.
Tin (Sn)	10	ppb max.
Titanium (Ti)	50	ppb max.
Vanadium (V)	50	ppb max.
Zinc (Zn)	20	ppb max.
Zirconium (Zr)	5	ppb max.

Product passed through 1 micron final filter.

Cat No.	Package	Size
VL1191-G2.5L	Amber Glass bottle	2.5 L
VL1191-P2.5L	Plastic bottle	2.5 L

Cat No.	Package	Size
VL1191-G4L	Amber Glass bottle	4 L
VL1191-P4L	Plastic bottle	4 L





H <sub>2</sub> SO <sub>4</sub>	FW. 98.08	Melting Point	-20 °C
CAS-No.	7664-93-9	Boiling Point	330 °C
Density 1 L	1.84 Kg.		

## Specifications

Assay (by acidimetry)	97.5 – 98.5%
Color (APHA)	10 max.
Residue after Ignition	3 ppm max.
Substances reducing permanganate (as SO <sub>2</sub> )	2 ppm max.
Ammonium (NH <sub>4</sub> )	2 ppm max.
Chloride (Cl)	0.1 ppm max.
Nitrate (NO <sub>3</sub> )	0.2 ppm max.
Phosphate (PO <sub>4</sub> )	0.5 ppm max.
Aluminium (Al)	0.05 ppm max.
Arsenic and Antimony (as As)	0.01 ppm max.
Barium (Ba)	0.05 ppm max.
Beryllium (Be)	0.02 ppm max.
Bismuth (Bi)	0.1 ppm max.
Boron (B)	0.05 ppm max.
Cadmium (Cd)	0.05 ppm max.
Calcium (Ca)	0.2 ppm max.
Chromium (Cr)	0.02 ppm max.
Cobalt (Co)	0.02 ppm max.
Copper (Cu)	0.01 ppm max.
Gallium (Ga)	0.02 ppm max.
Germanium (Ge)	0.1 ppm max.

Gold (Au)	0.1	ppm max.
Indium (In)	0.02	ppm max.
Iron (Fe)	0.1	ppm max.
Lead (Pb)	0.05	ppm max.
Lithium (Li)	0.02	ppm max.
Magnesium (Mg)	0.1	ppm max.
Manganese (Mn)	0.02	ppm max.
Molybdenum (Mo)	0.05	ppm max.
Nickel (Ni)	0.02	ppm max.
Platinum (Pt)	0.2	ppm max.
Potassium (K)	0.1	ppm max.
Silver (Ag)	0.02	ppm max.
Sodium (Na)	0.2	ppm max.
Strontium (Sr)	0.05	ppm max.
Thallium (Tl)	0.05	ppm max.
Tin (Sn)	0.1	ppm max.
Titanium (Ti)	0.1	ppm max.
Vanadium (V)	0.05	ppm max.
Zinc (Zn)	0.1	ppm max.
Zirconium (Zr)	0.1	ppm max.

Cat No.	Package	Size
EP1193-G500ML	Amber Glass bottle	1 L
EP1193-G1L	Amber Glass bottle	1 L
EP1193-G2.5L	Amber Glass bottle	2.5 L
EP1193-P2.5L	Plastic bottle	2.5 L

Cat No.	Package	Size
EP1193-G4L	Amber Glass bottle	4 L
EP1193-P4L	Plastic bottle	4 L
EP1193-P30KG	Plastic drum	30 KG
EP1193-P320KG	Plastic drum	320 KG

## Sulfuric Acid 98%, Semig

SM1193



H <sub>2</sub> SO <sub>4</sub>	FW. 98.08	Melting Point	-20 °C
CAS-No.	7664-93-9	Boiling Point	330 °C
Density 1 L	1.84 Kg.		

## Specifications

Assay (by acidimetry)	97.5 – 98.5%
Color (APHA)	10 max.
Chloride (Cl)	0.1 ppm max.
Nitrate (NO <sub>3</sub> )	0.2 ppm max.
Phosphate (PO <sub>4</sub> )	0.5 ppm max.
Aluminium (Al)	0.2 ppm max.
Arsenic and Antimony (as As)	0.005 ppm max.
Boron (B)	0.02 ppm max.
Calcium (Ca)	0.3 ppm max.
Chromium (Cr)	0.2 ppm max.
Copper (Cu)	0.1 ppm max.

Gold (Au)	0.3	ppm max.
Iron (Fe)	0.2	ppm max.
Lead (Pb)	0.3	ppm max.
Magnesium (Mg)	0.3	ppm max.
Manganese (Mn)	0.2	ppm max.
Nickel (Ni)	0.1	ppm max.
Potassium (K)	0.3	ppm max.
Sodium (Na)	0.3	ppm max.
Tin (Sn)	0.2	ppm max.
Titanium (Ti)	0.3	ppm max.
Zinc (Zn)	0.2	ppm max.

Cat No.	Package	Size
SM1193-G500ML	Amber Glass bottle	500 ML
SM1193-G1L	Amber Glass bottle	1 L
SM1193-G2.5L	Amber Glass bottle	2.5 L
SM1193-P2.5L	Plastic bottle	2.5 L

Cat No.	Package	Size
SM1193-G4L	Amber Glass bottle	4 L
SM1193-P4L	Plastic bottle	4 L
SM1193-P30KG	Plastic drum	30 KG
SM1193-P320KG	Plastic drum	320 KG



$C_6H_5CH_3$  FW. 92.14  
 CAS-No. 108-88-3  
 Density 1 L 0.870 Kg.

Melting Point -95 °C  
 Boiling Point 110.6 °C

## Specifications

Assay (by GC.)	99.8%	min.
Color (APHA)	10	max.
Water (by Coulometry)	0.03%	max.
Acidity ( $\mu$ Eq./g.)	0.2	max.
Residue on Evaporation	5	ppm max.
Substances darkened by sulfuric acid	Passes test	
Sulfur Compounds (as S)	0.003%	max.
Chloride (Cl)	3	ppm max.
Phosphate ( $PO_4$ )	1	ppm max.
Heavy metals (as Pb)	1	ppb max.
Aluminium (Al)	1	ppb max.
Arsenic and Antimony (as As)	0.01	ppm max.
Barium (Ba)	1	ppm max.
Boron (B)	0.2	ppm max.
Cadmium (Cd)	1	ppm max.
Calcium (Ca)	1	ppm max.
Chromium (Cr)	0.5	ppm max.

Cobalt (Co)	0.1	ppm max.
Copper (Cu)	0.1	ppm max.
Gallium (Ga)	0.5	ppm max.
Germanium (Ge)	1	ppm max.
Gold (Au)	0.5	ppm max.
Iron (Fe)	0.1	ppm max.
Lithium (Li)	1	ppm max.
Magnesium (Mg)	1	ppm max.
Manganese (Mn)	1	ppm max.
Nickel (Ni)	0.1	ppm max.
Potassium (K)	1	ppm max.
Silicon (Si)	1	ppm max.
Silver (Ag)	0.5	ppm max.
Sodium (Na)	1	ppm max.
Strontium (Sr)	1	ppm max.
Tin (Sn)	1	ppm max.
Zinc (Zn)	1	ppm max.

Cat No.	Package	Size
SM1207-G500ML	Amber Glass bottle	500 ML
SM1207-G1L	Amber Glass bottle	1 L
SM1207-G2.5L	Amber Glass bottle	2.5 L

Cat No.	Package	Size
SM1207-G4L	Amber Glass bottle	4 L
SM1207-M200L	Metal drum	200 L

## Xylene, Semig



$C_6H_4(CH_3)_2$  FW. 106.17  
 CAS-No. 1330-20-7

Density 1 L 0.860 Kg.  
 Boiling Point 137-143 °C

## Specifications

Assay (by GC.)	99.0%	min.
Water (by Coulometry)	0.02%	max.
Acidity ( $\mu$ Eq./g.)	0.3	max.
Residue on Evaporation	5	ppm max.
Chloride (Cl)	3	ppm max.
Phosphate ( $PO_4$ )	1	ppm max.
Aluminium (Al)	0.1	ppm max.
Arsenic and Antimony (as As)	0.01	ppm max.
Boron (B)	0.1	ppm max.
Calcium (Ca)	0.1	ppm max.
Chromium (Cr)	0.1	ppm max.














Copper (Cu)	0.1	ppm max.
Gold (Au)	0.1	ppm max.
Iron (Fe)	0.1	ppm max.
Lead (Pb)	0.1	ppm max.
Magnesium (Mg)	0.1	ppm max.
Manganese (Mn)	0.1	ppm max.
Nickel (Ni)	0.1	ppm max.
Potassium (K)	0.1	ppm max.
Sodium (Na)	0.1	ppm max.
Tin (Sn)	0.1	ppm max.
Zinc (Zn)	0.1	ppm max.











Cat No.	Package	Size
SM1213-G500ML	Amber Glass bottle	500 ML
SM1213-G1L	Amber Glass bottle	1 L
SM1213-G2.5L	Amber Glass bottle	2.5 L

Cat No.	Package	Size
SM1213-G4L	Amber Glass bottle	4 L
SM1213-M200L	Metal drum	200 L

## Hazardous Transportation and Handling Concerns

Hazardous materials are classified by the tariff system. It is important for international shipment of hazardous materials. It is shown in IMDG code (International Maritime Organization of the UN). Transportation of dangerous Substances as following according to Recommendation on the Transport of Dangerous Goods, Model Regulation, Sixteenth revised edition, United Nations.

No.	CLASS	Division	Pictogram
1	Explosive substances or articles	1.1) Substance and article which have a mass explosion hazard	
		1.2) Substances and articles which have a projection hazard but not a mass explosion hazard	
		1.3) Substance and article which have a fire hazard and either a minor 6 post hazard or a minor projection hazard or both, but not a mass explosion hazard	
		1.4) Substance and article which present no significant hazard	
		1.5) Very insensitive substances which have a mass explosion hazard	
		2.1) Extremely insensitive articles which do not have a mass explosion hazard a mass explosion hazard	
2	Gases	2.1) Flammable gases	 
		2.2) Non-flammable, non-toxic gases	 
		2.3) Toxic gases	
3	Flammable liquids		 

No.	CLASS	Division	Pictogram
4	Flammable solids; substances liable to spontaneous combustion; substances which, on contact with water, emit flammable gases	4.1) Flammable solid, self-reactive substances, solid desensitized explosives and polymerizing substances	
		4.2) Substances liable to spontaneous combustion	
		4.3) Substances which, in contact with water, emit flammable gases	
5	Oxidizing substances and organic peroxides	5.1) Oxidizing substances	
		5.2) Organic peroxides	
6	Toxic and infectious substances	6.1) Toxic substances	
		6.2) Infectious substances	
7	Radioactive material		
8	Corrosive substances		
9	Miscellaneous dangerous substances and articles, including environmentally hazardous substances		



# The GHS Hazard Grouping



## The Physical Hazard


GHS signs	Description	Product Samples
 <b>Flammable</b>	<ul style="list-style-type: none"> <li>• Self-Reactive Substances</li> <li>• Pyrophorics (Liquids, Solids)</li> <li>• Self-Heating Substances</li> <li>• Organic Peroxides</li> <li>• Desensitized Explosives</li> <li>• Flammables (Gases, Aerosols, Liquids and Solids)</li> <li>• Substances which no contact with Water Emit</li> <li>• Flammable Gases</li> </ul>	<ul style="list-style-type: none"> <li>• Acetic Acid Glacial</li> <li>• Acetone</li> <li>• Acetonitrile</li> <li>• Butan-1-ol</li> <li>• n-Butyl Acetate</li> <li>• 1-Chlorobutane</li> <li>• Cyclohexane</li> <li>• 1,2-Dichloroethane</li> <li>• Diethyl Ether</li> <li>• Dimethylformamide</li> <li>• 1,4-Dioxan</li> <li>• Ethanol</li> <li>• Ethyl Acetate</li> <li>• n-Heptane</li> <li>• n-Hexane</li> <li>• Hexanes</li> <li>• Methanol</li> <li>• Methyl-t-Butyl Ether</li> <li>• Methyl Ethyl Ketone</li> <li>• n-Pentane</li> <li>• Petroleum Ether 40-60</li> <li>• Petroleum Ether 60-80</li> <li>• Propan-1-ol</li> <li>• Propan-2-ol</li> <li>• Tetrahyfuran</li> <li>• Toluene</li> <li>• 2,2,4-Trimethylpentane</li> </ul>
 <b>Oxidizing</b>	<ul style="list-style-type: none"> <li>• Oxidizing (Gases, Liquids, Solids)</li> </ul>	-
 <b>Corrosive</b>	<ul style="list-style-type: none"> <li>• Substances Corrosive to Metal</li> </ul>	<ul style="list-style-type: none"> <li>• Acetic Acid Glacial</li> </ul>
 <b>Explosive</b>	<ul style="list-style-type: none"> <li>• Explosives</li> <li>• Self-Reactive Substances</li> <li>• Organic Peroxides</li> </ul>	-
 <b>Compressed gas</b>	<ul style="list-style-type: none"> <li>• Gases Under Pressure</li> </ul>	-



## The Health Hazard

GHS signs	Description	Product Samples
 <p><b>Human Health</b></p>	<ul style="list-style-type: none"> <li>• Germ Cell Mutagenicity</li> <li>• Carcinogenicity</li> <li>• Toxic to Reproduction</li> <li>• Aspiration Toxicity</li> <li>• Specific Target Organ/Systemic Toxicity - Single Exposure</li> <li>• Specific Target Organ/Systemic Toxicity - Repeated Exposure</li> </ul>	<ul style="list-style-type: none"> <li>• Chloroform</li> <li>• Cyclohexane</li> <li>• 1,2-Dichloroethane</li> <li>• Dichloromethane</li> <li>• Dimethylacetamide</li> <li>• Dimethylformamide</li> <li>• 1,4-Dioxan</li> <li>• n-Heptane</li> <li>• n-Hexane</li> <li>• Hexanes</li> <li>• Methanol</li> <li>• n-Methyl-2-Pyrrolidone</li> <li>• n-Pentane</li> <li>• Petroleum Ether 40-60</li> <li>• Petroleum Ether 60-80</li> <li>• Tetrahydrofuran</li> <li>• Toluene</li> <li>• Trichloroethylene</li> <li>• 2,2,4-Trimethylpentane</li> </ul>
 <p><b>Hazardous</b></p>	<ul style="list-style-type: none"> <li>• Acute Toxicity (Low)</li> <li>• Eye Irritation</li> <li>• Respiratory or Skin Sensitization</li> </ul>	<ul style="list-style-type: none"> <li>• Acetone</li> <li>• Acetonitrile</li> <li>• Butan-1-ol</li> <li>• n-Butyl Acetate</li> <li>• Cyclohexane</li> <li>• Dichloromethane</li> <li>• Diethyl Ether</li> <li>• Dimethylacetamide</li> <li>• Dimethylformamide</li> <li>• 1,4-Dioxan</li> <li>• Ethanol</li> <li>• Ethyl Acetate</li> <li>• n-Heptane</li> <li>• n-Hexane</li> <li>• Hexanes</li> <li>• Methyl Ethyl Ketone</li> <li>• n-Methyl-2-Pyrrolidone</li> <li>• Methyl-t-Butyl Ether</li> <li>• Propan-1-ol</li> <li>• Propan-2-ol</li> <li>• n-Pentane</li> <li>• Petroleum Ether 40-60</li> <li>• Petroleum Ether 60-80</li> <li>• Tetrahydrofuran</li> <li>• Toluene</li> <li>• Trichloroethylene</li> <li>• 2,2,4-Trimethylpentane</li> </ul>
 <p><b>Corrosive</b></p>	<ul style="list-style-type: none"> <li>• Skin Corrosive/Irritation</li> <li>• Serious Eye Damage/Eye Irritation</li> </ul>	<ul style="list-style-type: none"> <li>• Acetic Acid Glacial</li> <li>• Butan-1-ol</li> <li>• Propan-1-ol</li> </ul>
 <p><b>Toxic</b></p>	<ul style="list-style-type: none"> <li>• Acute Toxicity (High)</li> </ul>	<ul style="list-style-type: none"> <li>• Chloroform</li> <li>• 1,2-Dichloroethane</li> <li>• Methanol</li> </ul>

## The Environmental Hazard

GHS signs	Description	Product Samples
 <p><b>Environmental Hazard</b></p>	<ul style="list-style-type: none"> <li>• Hazardous to the Aquatic Environment</li> <li>• Hazardous to the Ozone Layer</li> </ul>	<ul style="list-style-type: none"> <li>• Cyclohexane</li> <li>• n-Heptane</li> <li>• n-Hexane</li> <li>• Hexanes</li> <li>• n-Pentane</li> <li>• Petroleum Ether 40-60</li> <li>• Petroleum Ether 60-80</li> <li>• 2,2,4-Trimethylpentane</li> </ul>





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