

**ChemPure* Brand
Chemicals**

Cust-Product Code: CP-D1494P
Lot #: 2022072159

...Pure Quality

CERTIFICATE OF ANALYSIS

PRODUCT NAME: **Hydrochloric Acid**
High Purity

F.W.: 36.4600

CHEMICAL FORMULA: HCl

CAS No: 7647-01-0

Density: 1.1800

ANALYTICAL RESULTS		
ITEM	SPECIFICATIONS	ANALYSIS
Assay (HCl)	36.5-38.0%	37.1%
Assay (HCl) Be'	22.7 deg Be' min.	>22.7° Be'
Appearance	Clear, colorless fuming liquid	Passes Test
Appearance (EP)	To pass test	Passes Test
Ammonium (NH ₄)	0.0003% max.	<0.0003%
Bromide or Iodide	To pass test	Passes Test
Color (APHA)	10 max.	<10
Clarity of Solution	Free from suspended matter/sediment	Passes Test
Free Bromine or Chlorine	To pass test (0.0001% max.)	Passes Test (<0.0001%)
Free Chlorine (Cl ₂)	1.0 ppm Max	<0.5 ppm
Heavy Metals (as Pb)	0.0001% max.	<0.00002%
Hydrazine	0.1 ppm Max	<0.001 ppm
Identification NF	To pass test	Passes Test
Identification FCC	To pass test	Passes Test
Nonvolatile residue	0.5% Max	<0.00001%
Organic Compounds - Total non-fluorine containing	5 mg/kg Max	<0.001 mg/kg
Organic Compounds - Benzene	0.05 mg/kg Max	<0.001 mg/kg
Organic Compounds - Total fluorinated organic	0.0025% Max	<0.0000001%
Oxidizing substances (as Cl ₂)	0.003% Max	<0.00001%
Reducing Substances	To pass test	Passes Test
Residue After Ignition	0.0005% max.	<0.0005%
Phosphate (PO ₄)	50 ppb Max	<50 ppb
Specific Gravity at 60°F	Record only (approx. 1.17-1.20)	1.19
Sulfate (SO ₄)	0.0001% max.	<0.00001%
Sulfite (SO ₃)	0.0001% max.	<0.00001%
Aluminum (Al)	300 ppb Max	<100 ppb
Antimony (Sb)	4 ppb Max	<4 ppb
Arsenic (As)	4 ppb max.	<1 ppb

Important. It is certified that the above is a true copy of the actual lot analysis. To the best of our knowledge, the information contained herein is accurate and reliable as of the date of publication. However, nothing herein shall constitute any express or implied warranty of merchantability or fitness for a particular purpose. The minimum shelf life is based on current knowledge and holds only for proper storage conditions in the original containers. We herewith confirm that the delivery is effected according to the technical conditions agreed. Particular properties of the products or the suitability for a particular area of application is not assured. It is the customer's responsibility to inspect and test the products in order to satisfy itself as to the suitability for the customer's particular purpose. This information is not intended to be all inclusive as to the manner and conditions of use, handling, storage, disposal, and other factors that may involve other or additional legal, environmental, safety or performance considerations, and CHEMPURE BRAND CHEMICALS assumes no liability whatsoever for the use of or reliance upon this information. Our technical personnel will be happy to respond to questions. Safe handling and use of the product remains the responsibility of the customer. No suggestions for use are intended as, and nothing herein shall be construed as, recommendations to infringe any existing patents or to violate any Federal, State, Local or foreign laws. This document was produced electronically and is valid without a signature. ChemPure Quality Management.

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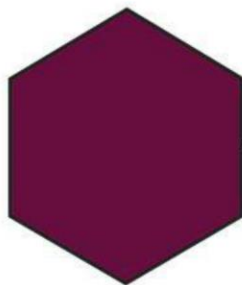
ANALYTICAL RESULTS		
ITEM	SPECIFICATIONS	ANALYSIS
Barium (Ba)	100 ppb Max	<20 ppb
Beryllium (Be)	50 ppb Max	<10 ppb
Bismuth (Bi)	50 ppb Max	<20 ppb
Boron (B)	50 ppb Max	<20 ppb
Bromide (Br)	50 ppm Max	<50 ppm
Calcium (Ca)	300 ppb Max	<100 ppb
Cadmium (Cd)	100 ppb Max	<5 ppb
Chromium (Cr)	100 ppb Max	<50 ppb
Cobalt (Co)	50 ppb Max	<5 ppb
Copper (Cu)	50 ppb Max	<5 ppb
Gallium (Ga)	100 ppb Max	<20 ppb
Germanium (Ge)	100 ppb Max	<20 ppb
Gold (Au)	100 ppb Max	<20 ppb
Iron (Fe)	200 ppb Max	<50 ppb
Lead (Pb)	100 ppb Max	<25 ppb
Iridium (Ir)	2 ppm Max	<2 ppm
Lithium (Li)	100 ppb Max	<50 ppb
Magnesium (Mg)	200 ppb Max	<50 ppb
Manganese (Mn)	100 ppb Max	<5 ppb
Mercury (Hg)	1 ppb Max	<1 ppb
Molybdenum (Mo)	50 ppb Max	<10 ppb
Nickel (Ni)	50 ppb Max	<10 ppb
Palladium (Pd)	2 ppm Max	<2 ppm
Platinum (Pt)	2 ppm Max	<2 ppm
Silver (Ag)	50 ppb Max	<50 ppb
Potassium (K)	300 ppb Max	<100 ppb
Silicon (Si)	300 ppb Max	<100 ppb
Sodium (Na)	300 ppb Max	<100 ppb

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ITEM	SPECIFICATIONS	ANALYSIS
Strontium (Sr)	100 ppb Max	<20 ppb
Rhodium (Rh)	2 ppm Max	<2 ppm
Ruthenium (Ru)	2 ppm Max	<2 ppm
Tantalum (Ta)	50 ppb Max	<10 ppb
Thallium (Tl)	50 ppb Max	<20 ppb
Tin (Sn)	300 ppb Max	<50 ppb
Titanium (Ti)	300 ppb Max	<10 ppb
Vanadium (V)	50 ppb Max	<10 ppb
Zinc (Zn)	100 ppb Max	<50 ppb
Zirconium (Zr)	50 ppb Max	<10 ppb
Manufacture Date	Record Actual	07/15/2022
Expiration Date	Two years from manufacture date	07/14/2024
REMARKS		

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Eddy Santiago
Quality Assurance Manager

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