ChemPure* Brand Chemicals

Product Code: CP-M1494S
Lot #: **2017061526**

Certificate Of Analysis

...Pure Quality

Chemical Name: **Hydrochloric Acid,** High Purity, Trace Metals Grade

F.W.: **36.4600**
CAS: **7647-01-0**

Chemical Formula: HCl

Density: **1.1800 kg/L**

Analytical Results		
Item	**Specifications**	**Analysis**
Chromium (Cr)	100 ppb Max	<50 ppb
Clarity of Solution	Free from suspended matter/sediment	Passes Test
Cobalt (Co)	50 ppb Max	<5 ppb
Color (APHA)	10 max.	<10
Copper (Cu)	50 ppb Max	<5 ppb
Free Bromine or Chlorine	To pass test (0.0001% max.)	Passes Test (<0.0001%)
Free Chlorine (Cl2)	1.0 ppm Max	<0.5 ppm
Gallium (Ga)	100 ppb Max	<20 ppb
Germanium (Ge)	100 ppb Max	<20 ppb
Gold (Au)	100 ppb Max	<20 ppb
Heavy Metals (as Pb)	0.0001% max.	<0.000001%
Identification FCC	To pass test	Passes Test
Identification NF	To pass test	Passes Test
Aluminum (Al)	300 ppb Max	<100 ppb
Ammonium (NH4)	0.0003% max.	<0.0003%
Iridium (Ir)	2 ppm Max	<2 ppm
Iron (Fe)	200 ppb Max	<50 ppb
Lead (Pb)	100 ppb Max	<25 ppb
Lithium (Li)	100 ppb Max	<50 ppb
Magnesium (Mg)	200 ppb Max	<50 ppb
Antimony (Sb)	4 ppb Max	<4 ppb
Manganese (Mn)	100 ppb Max	<5 ppb
Manufacture Date	Record Actual	06/08/2017
Appearance	Clear, colorless fuming liquid	Passes Test
Mercury (Hg)	1 ppb Max	<1 ppb
Appearance (EP)	To pass test	Passes Test
Molybdenum (Mo)	50 ppb Max	<10 ppb
Nickel (Ni)	50 ppb Max	<10 ppb

Remarks:

It is certified that the above copy is a true copy of the actual lot analysis.

Kevin Hansen
Quality Assurance Manager

ChemPure* Brand Chemicals

Product Code: CP-M1494S
Lot #: **2017061526**

Certificate Of Analysis

...Pure Quality

Chemical Name: **Hydrochloric Acid,** High Purity, Trace Metals Grade

F.W.: **36.4600**
CAS: **7647-01-0**

Chemical Formula: HCl

Density: **1.1800 kg/L**

Analytical Results		
Item	**Specifications**	**Analysis**
Nonvolatile residue	0.5% Max	<0.5%
Arsenic (As)	4 ppb max.	<1 ppb
Oxidizing substances (as Cl2)	0.003% Max	<0.00001%
Palladium (Pd)	2 ppm Max	<2 ppm
Phosphate (PO4)	50 ppb Max	<50 ppb
Platinum (Pt)	2 ppm Max	<2 ppm
Potassium (K)	300 ppb Max	<100 ppb
Reducing Substances	To pass test	Passes Test
Residue After Ignition	0.0005% max.	<0.0005%
Rhodium (Rh)	2 ppm Max	<2 ppm
Ruthenium (Ru)	2 ppm Max	<2 ppm
Silicon (Si)	300 ppb Max	<100 ppb
Silver (Ag)	50 ppb Max	<50 ppb
Sodium (Na)	300 ppb Max	<100 ppb
Specific Gravity at 60°F	Record only (approx. 1.17-1.20)	1.19
Strontium (Sr)	100 ppb Max	<20 ppb
Sulfate (SO4)	0.0001% max.	<0.00001%
Sulfite (SO3)	0.0001% max.	<0.00001%
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
Hydrazine	0.1 ppm Max	<0.001 ppm
Organic Compounds - Total non-fluorine containing organic compounds	5 mg/kg Max	<0.001 mg/kg

Remarks:

It is certified that the above copy is a true copy of the actual lot analysis.

Kevin Hansen
Quality Assurance Manager

ChemPure* Brand Chemicals

Product Code: CP-M1494S
Lot #: **2017061526**

Certificate Of Analysis

...Pure Quality

Chemical Name: **Hydrochloric Acid,** High Purity, Trace Metals Grade

F.W.: **36.4600**
CAS: **7647-01-0**

Chemical Formula: HCl

Density: **1.1800 kg/L**

Analytical Results		
Item	**Specifications**	**Analysis**
Organic Compounds - Benzene	0.05 mg/kg Max	<0.001 mg/kg
Organic Compounds - Total fluorinated organic compounds	0.0025% Max	<0.0000001%
Assay (HCl)	36.5-38.0%	37.3%
Assay (HCl) Be'	22.7 deg Be' min.	>22.7°Be
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
Bromide or Iodide	To pass test	Passes Test
Cadmium (Cd)	100 ppb Max	<5 ppb
Calcium (Ca)	300 ppb Max	<100 ppb

Manufactured Date: 06/08/2017
Restest Date: 06/07/2020

Remarks:

It is certified that the above copy is a true copy of the actual lot analysis.

Kevin Hansen
Quality Assurance Manager