



**ChemPure* Brand
Chemicals**

Cust-Product Code: CP-D1494P
Lot #: 2023082438

...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% | 37.3% |
| 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 |
| Clarity of Solution | Free from suspended matter/sediment | Passes Test |
| Color (APHA) | 10 max. | <10 |
| 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 |
| Nonvolatile residue | 0.5% Max | <0.00001% |
| Identification FCC | To pass test | Passes Test |
| 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.

Printed: 9/28/2023

SUPPORT@CHEMPUREBRAND.COM - WWW.CHEMPUREBRAND.COM

ChemPure Brand Chemicals • P: 440.725.2802 • F: 734.405.6623 • 39103 Warren Rd., Westland, MI 48185



**ChemPure* Brand
Chemicals**

Cust-Product Code: CP-D1494P
Lot #: 2023082438

...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

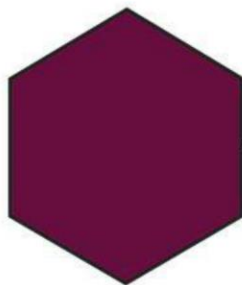
| ANALYTICAL RESULTS | | |
|--------------------|----------------|----------|
| ITEM | SPECIFICATIONS | ANALYSIS |
| Barium (Ba) | 100 ppb Max | <20 ppb |
| Beryllium (Be) | 50 ppb Max | <10 ppb |
| Bismuth (Bi) | 50 ppb Max | <20 ppb |
| Boron (B) | 50 ppb Max | <20 ppb |
| Bromide (Br) | 50 ppm Max | <50 ppm |
| Cadmium (Cd) | 100 ppb Max | <5 ppb |
| Calcium (Ca) | 300 ppb Max | <100 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 | <5 ppb |
| 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 |
| 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 |
| Potassium (K) | 300 ppb Max | <100 ppb |
| Silver (Ag) | 50 ppb Max | <50 ppb |
| Sodium (Na) | 300 ppb Max | <100 ppb |
| Silicon (Si) | 300 ppb Max | <100 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.

Printed: 9/28/2023

SUPPORT@CHEMPUREBRAND.COM - WWW.CHEMPUREBRAND.COM

ChemPure Brand Chemicals • P: 440.725.2802 • F: 734.405.6623 • 39103 Warren Rd., Westland, MI 48185



**ChemPure* Brand
Chemicals**

Cust-Product Code: CP-D1494P
Lot #: 2023082438

...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 |
| 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 | 08/21/2023 |
| Expiration Date | Two years from manufacture date | 08/20/2025 |
| REMARKS | | |
| | | |
| | | |
| | | |

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

Eddy Santiago
Quality Assurance Manager

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.

Printed: 9/28/2023

SUPPORT@CHEMPUREBRAND.COM - WWW.CHEMPUREBRAND.COM

ChemPure Brand Chemicals • P: 440.725.2802 • F: 734.405.6623 • 39103 Warren Rd., Westland, MI 48185