

# Certificate of Analysis

## Acid Blank, 5% (v/v) Hydrochloric Acid

**Lot Number:** 4402D61

**Product Number:** PHACID5

**Manufacture Date:** FEB 05, 2024

**Expiration Date:** JAN 2027

This product is intended for use in ICP, AA, or ICP-MS analyses for sample preparation, standard dilution, and as a reference blank. This product may also be suitable for other applications.

| Name              | CAS#      | Grade           |
|-------------------|-----------|-----------------|
| Water             | 7732-18-5 | ACS/ASTM/USP/EP |
| Hydrochloric Acid | 7647-01-0 | Trace Metals    |

| Test            | Specification         | Result        | NIST SRM# |
|-----------------|-----------------------|---------------|-----------|
| Aluminum (Al)   | Actual Value Reported | < 0.0009 ppm  | 3101      |
| Antimony (Sb)   | Actual Value Reported | 0.0033 ppm    | 3102      |
| Appearance      | Colorless liquid      | Passed        |           |
| Arsenic (As)    | Actual Value Reported | 0.0359 ppm    | 3103      |
| Barium (Ba)     | Actual Value Reported | 0.0002 ppm    | 3104      |
| Beryllium (Be)  | Actual Value Reported | 0.0334 ppm    | 3105      |
| Bismuth (Bi)    | Actual Value Reported | 0.0020 ppm    | 3106      |
| Boron (B)       | Actual Value Reported | < 0.00005 ppm | 3107      |
| Cadmium (Cd)    | Actual Value Reported | 0.0005 ppm    | 3108      |
| Calcium (Ca)    | Actual Value Reported | < 0.004 ppm   | 3109      |
| Cerium (Ce)     | Actual Value Reported | < 0.00003 ppm | 3110      |
| Cesium (Cs)     | Actual Value Reported | 0.0111 ppm    | 3111      |
| Chromium (Cr)   | Actual Value Reported | 0.5268 ppm    | 3112      |
| Cobalt (Co)     | Actual Value Reported | < 0.00002 ppm | 3113      |
| Copper (Cu)     | Actual Value Reported | N             | 3114      |
| Dysprosium (Dy) | Actual Value Reported | 0.0046 ppm    | 3115      |
| Erbium (Er)     | Actual Value Reported | < 0.00007 ppm | 3116      |
| Europium (Eu)   | Actual Value Reported | < 0.00008 ppm | 3117      |
| Gadolinium (Gd) | Actual Value Reported | < 0.0002 ppm  | 3118      |
| Gallium (Ga)    | Actual Value Reported | < 0.0006 ppm  | 3119      |
| Germanium (Ge)  | Actual Value Reported | 0.0097 ppm    | 3120      |
| Gold (Au)       | Actual Value Reported | N             | 3121      |
| Hafnium (Hf)    | Actual Value Reported | < 0.001 ppm   | 3122      |
| Holmium (Ho)    | Actual Value Reported | < 0.0001 ppm  | 3123      |
| Indium (In)     | Actual Value Reported | 0.0008 ppm    | 3124      |
| Iridium (Ir)    | Actual Value Reported | 0.0003 ppm    |           |
| Iron (Fe)       | Actual Value Reported | N             | 3126      |
| Lanthanum (La)  | Actual Value Reported | < 0.00004 ppm | 3127      |
| Lead (Pb)       | Actual Value Reported | 0.0791 ppm    | 3128      |
| Lithium (Li)    | Actual Value Reported | N             | 3129      |
| Lutetium (Lu)   | Actual Value Reported | < 0.0003 ppm  | 3130      |

|                   |                       |               |      |
|-------------------|-----------------------|---------------|------|
| Magnesium (Mg)    | Actual Value Reported | < 0.0007 ppm  | 3131 |
| Manganese (Mn)    | Actual Value Reported | 0.0119 ppm    | 3132 |
| Mercury (Hg)      | Actual Value Reported | < 0.03 ppm    | 3133 |
| Molybdenum (Mo)   | Actual Value Reported | 0.0154 ppm    | 3134 |
| Neodymium (Nd)    | Actual Value Reported | < 0.0002 ppm  | 3135 |
| Nickel (Ni)       | Actual Value Reported | 0.0429 ppm    | 3136 |
| Niobium (Nb)      | Actual Value Reported | 0.0011 ppm    | 3137 |
| Osmium (Os)       | Actual Value Reported | < 0.003 ppm   |      |
| Palladium (Pd)    | Actual Value Reported | 0.1085 ppm    | 3138 |
| Phosphorus (P)    | Actual Value Reported | I             | 3139 |
| Platinum (Pt)     | Actual Value Reported | 0.0025 ppm    | 3140 |
| Potassium (K)     | Actual Value Reported | I             | 3141 |
| Praseodymium (Pr) | Actual Value Reported | < 0.00003 ppm | 3142 |
| Rhenium (Re)      | Actual Value Reported | 0.0001 ppm    | 3143 |
| Rhodium (Rh)      | Actual Value Reported | 0.0002 ppm    | 3144 |
| Rubidium (Rb)     | Actual Value Reported | 0.0015 ppm    | 3145 |
| Ruthenium (Ru)    | Actual Value Reported | < 0.00007 ppm |      |
| Samarium (Sm)     | Actual Value Reported | < 0.002 ppm   | 3147 |
| Scandium (Sc)     | Actual Value Reported | 0.0017 ppm    | 3148 |
| Selenium (Se)     | Actual Value Reported | I             | 3149 |
| Silicon (Si)      | Actual Value Reported | I             | 3150 |
| Silver (Ag)       | Actual Value Reported | 0.0512 ppm    | 3151 |
| Sodium (Na)       | Actual Value Reported | I             | 3152 |
| Strontium (Sr)    | Actual Value Reported | 0.0007 ppm    | 3153 |
| Sulfur (S)        | Actual Value Reported | I             | 3154 |
| Tantalum (Ta)     | Actual Value Reported | 0.0663 ppm    | 3155 |
| Tellurium (Te)    | Actual Value Reported | I             | 3156 |
| Terbium (Tb)      | Actual Value Reported | < 0.00003 ppm | 3157 |
| Thallium (Tl)     | Actual Value Reported | N             | 3158 |
| Thorium (Th)      | Actual Value Reported | < 0.0002 ppm  | 3159 |
| Thulium (Tm)      | Actual Value Reported | < 0.00002 ppm | 3160 |
| Tin (Sn)          | Actual Value Reported | 0.0022 ppm    | 3161 |
| Titanium (Ti)     | Actual Value Reported | 0.5036 ppm    | 3162 |
| Tungsten (W)      | Actual Value Reported | 0.0178 ppm    | 3163 |
| Uranium (U)       | Actual Value Reported | < 0.00007 ppm | 3164 |
| Vanadium (V)      | Actual Value Reported | < 0.00004 ppm | 3165 |
| Ytterbium (Yb)    | Actual Value Reported | < 0.001 ppm   | 3166 |
| Yttrium (Y)       | Actual Value Reported | 0.2073 ppm    | 3167 |
| Zinc (Zn)         | Actual Value Reported | < 0.0003 ppm  | 3168 |
| Zirconium (Zr)    | Actual Value Reported | < 0.002 ppm   | 3169 |

This standard is guaranteed to be stable and accurate provided the product is kept tightly capped and stored under normal laboratory conditions. Balances are calibrated using NIST traceable weights whose verification of maintenance and recalibration is documented per in-house Standard Operating Procedures. Class A glassware is also calibrated and routinely rechecked per in-house Standard Operating Procedures. Trace metal analyzed acids and Trace Metals Analyzed Water are used in the manufacture of this product. Triple cleaned containers are used in the manufacture of this product.

| Part Number | Size / Package Type | Shelf Life (Unopened Container) |
|-------------|---------------------|---------------------------------|
| PHACID5-500 | 500 mL natural poly | 36 months                       |

**Recommended Storage:** 15°C - 30°C (59°F - 86°F)



Paul Brandon (02/05/2024)

Production Manager

This document is designed to comply with ISO Guide 31 "Reference Materials -- Contents of Certificates and Labels."

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