

## CERTIFICATE OF ANALYSIS

**Product** : **HYDROCHLORIC ACID ANALPURE®**  
**Code** : SAc0031  
**Batch number** : 2037  
**Expiry date** : 19<sup>th</sup> September 2022

**Colour** : < 7            APHA  
**Bromide (Br)** : < 10        ppm  
**Free chlorine (Cl<sub>2</sub>)** : < 0.5       ppm  
**Total Sulphur (S)** : < 0.3       ppm  
**Total Phosphorus (P)** : < 0.01       ppm  
**Assay** : 35                %

Trace impurities (ppb):

| Analyte    | Maximum concentration | Actual value | Analyte      | Maximum concentration | Actual value |
|------------|-----------------------|--------------|--------------|-----------------------|--------------|
| Aluminium  | 1                     | < 0.5        | Neodymium    | 0.1                   | < 0.1        |
| Antimony   | 0.5                   | < 0.1        | Nickel       | 0.5                   | < 0.1        |
| Arsenic    | 0.5                   | < 0.1        | Niobium      | 0.1                   | < 0.1        |
| Barium     | 0.1                   | < 0.1        | Palladium    | Information only      | < 0.5        |
| Beryllium  | 0.1                   | < 0.1        | Platinum     | Information only      | < 0.5        |
| Bismuth    | 0.1                   | < 0.1        | Potassium    | 1                     | < 0.1        |
| Boron      | 1                     | < 0.5        | Praseodymium | 0.1                   | < 0.1        |
| Cadmium    | 0.1                   | < 0.1        | Rhenium      | 0.1                   | < 0.1        |
| Calcium    | 1                     | < 1          | Rhodium      | 0.1                   | < 0.1        |
| Cerium     | 0.1                   | < 0.1        | Rubidium     | 0.1                   | < 0.1        |
| Cesium     | 0.1                   | < 0.1        | Ruthenium    | 0.1                   | < 0.1        |
| Chromium   | 0.5                   | < 0.1        | Samarium     | 0.1                   | < 0.1        |
| Cobalt     | 0.1                   | < 0.1        | Scandium     | 0.1                   | < 0.1        |
| Copper     | 0.5                   | < 0.2        | Selenium     | 1                     | < 0.2        |
| Dysprosium | 0.1                   | < 0.1        | Silver       | 1                     | < 0.1        |
| Erbium     | 0.1                   | < 0.1        | Sodium       | 1                     | < 0.5        |
| Europium   | 0.1                   | < 0.1        | Strontium    | 0.1                   | < 0.1        |
| Gadolinium | 0.1                   | < 0.1        | Tantalum     | Information only      | < 1          |
| Gallium    | 0.1                   | < 0.1        | Tellurium    | 0.1                   | < 0.1        |
| Gold       | 0.5                   | < 0.1        | Terbium      | 0.1                   | < 0.1        |
| Hafnium    | 0.1                   | < 0.1        | Thallium     | 0.1                   | < 0.1        |
| Holmium    | 0.1                   | < 0.1        | Thorium      | 0.1                   | < 0.1        |
| Indium     | 0.1                   | < 0.1        | Thulium      | 0.1                   | < 0.1        |
| Iron       | 1                     | < 0.5        | Tin          | 0.5                   | < 0.1        |
| Lanthanum  | 0.1                   | < 0.1        | Titanium     | 0.5                   | < 0.1        |
| Lead       | 0.1                   | < 0.1        | Tungsten     | 0.1                   | < 0.1        |
| Lithium    | 0.1                   | < 0.1        | Uranium      | 0.1                   | < 0.1        |
| Lutetium   | 0.1                   | < 0.1        | Vanadium     | 0.5                   | < 0.1        |
| Magnesium  | 0.5                   | < 0.5        | Ytterbium    | 0.1                   | < 0.1        |
| Manganese  | 0.1                   | < 0.1        | Yttrium      | 0.1                   | < 0.1        |
| Mercury    | 0.1                   | < 0.02       | Zinc         | 1                     | < 0.5        |
| Molybdenum | 0.1                   | < 0.1        | Zirconium    | 0.1                   | < 0.1        |