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**AMINATURE**  
AMINO ACID, DELIVERY FROM NATURE

## Certificate of Analysis

**Product**

**N-Acetyl-L-Cysteine ( Fermented)**

**Country of Origin**

**Ningbo, China**

| Analysis Item                              | Specification                                                    | Method        | Result                   |
|--------------------------------------------|------------------------------------------------------------------|---------------|--------------------------|
| Characters, Appearance                     | White or almost white, crystalline powder or colourless crystals | -             | White crystalline powder |
| Characters, Solubility                     | Freely soluble in water, very slightly soluble in alcohol        | -             | conform                  |
| Identification                             | Infrared absorption                                              | USP 39 <197K> | conform                  |
| Assay                                      | NLT 98.5% and NMT 101.0%                                         | USP 39 <541>  | 100.08%                  |
| Residue on Ignition (Sulfated Ash)         | NMT 0.2%                                                         | USP 39 <281>  | 0.08%                    |
| Chloride                                   | NMT 0.04%                                                        | AJI 97        | < 0.04%                  |
| Sulfate                                    | NMT 0.03%                                                        | AJI 97        | < 0.03%                  |
| Ammonium                                   | NMT 0.02%                                                        | AJI 97        | < 0.02%                  |
| Iron                                       | NMT 20 ppm                                                       | AJI 97        | < 20 ppm                 |
| Lead                                       | NMT 1 ppm                                                        | USP 39 <233>  | < 1 ppm                  |
| Arsenic                                    | NMT 0.5 ppm                                                      | USP 39 <233>  | < 0.5 ppm                |
| Cadmium                                    | NMT 0.5 ppm                                                      | USP 39 <233>  | < 0.5 ppm                |
| Mercury                                    | NMT 0.1 ppm                                                      | USP 39 <261>  | < 0.1 ppm                |
| Zinc                                       | NMT 10 ppm                                                       | EP 8 <2.2.23> | < 10 ppm                 |
| Heavy Metals                               | NMT 10 ppm                                                       | USP 39 <231>  | < 10 ppm                 |
| Individual Impurities (Ninhydrin Positive) | NMT 0.5%                                                         | USP 39 <621>  | < 0.5%                   |
| Total Impurities (Ninhydrin Positive)      | NMT 2.0%                                                         | USP 39 <621>  | < 2.0%                   |
| Optical Rotation                           | +21.3° to +27.0° (t = 20°C)                                      | USP 39 <781S> | +25.28°                  |
| pH                                         | 2.0 ~ 2.8                                                        | USP 39 <791>  | 2.22                     |
| Loss on Drying                             | NMT 0.5%                                                         | USP 39 <731>  | 0.08%                    |
| Total viable count                         | NMT 1000 cfu/g                                                   | USP 39 <2021> | < 1000 cfu/g             |
| Yeast & mould                              | NMT 100 cfu/g                                                    | USP 39 <2021> | < 100 cfu/g              |
| Enterobacteriaceae                         | Negative/10g                                                     | USP 39 <2021> | Negative                 |
| Salmonella sp.                             | Negative/10g                                                     | USP 39 <2022> | Negative                 |
| Coliforms bacteria                         | Negative/g                                                       | USP 39 <2022> | Negative                 |
| Escherichia coli                           | Negative/g                                                       | USP 39 <2022> | Negative                 |
| Staphylococcus aureus                      | Negative/g                                                       | USP 39 <2022> | Negative                 |
| Bacillus sp.                               | Negative/g                                                       | USP 39 <2022> | Negative                 |
| Clostridium sp.                            | Negative/g                                                       | USP 39 <2022> | Negative                 |

Store in dry conditions and fresh place in sealed or closed container that is to be protected from water, sunlight and heat.  
Avoid direct contact with floor and any source of combustion.  
Shelf life: Recommend usage within 3 years from date of production



QA

Stephan Zhou