



## Certificate of Analysis

### L-Tryptophan USP

**Catalog Number:** TP1004  
**Lot Number:** 0828702  
**CAS Number:** 73-22-3  
**Synonym(s):** (S)-2-Amino-3-(3-indolyl)propionic acid, L- $\alpha$ -Amino-3-indolepropionic acid  
**Molecular Formula:**  $C_{11}H_{12}N_2O$   
**Molecular Weight:** 204.23  
**Storage:** 15°C – 30°C  
**Date of Manufacture:** April 14, 2017  
**Retest Date:** April 13, 2019

| Test                        | Specification                   | Result      |
|-----------------------------|---------------------------------|-------------|
| Appearance                  | White to yellowish-white powder | Conforms    |
| Assay                       | 98.5 – 101.5%                   | 99.55%      |
| Identification (IR)         | Conform to standard             | Conforms    |
| Specific Rotation @25°C     | -29.4° to -32.8°                | -31.3°      |
| pH                          | 5.5 – 7.0                       | 5.6.        |
| Moisture (LOD)              | ≤ 0.3%                          | 0.15%       |
| Residue on Ignition         | ≤ 0.1%                          | 0.06%       |
| Chloride                    | ≤ 0.05%                         | < 0.02%     |
| Sulfate                     | ≤ 0.03%                         | < 0.02%     |
| Heavy Metals                | ≤ 15ppm                         | <10ppm      |
| Arsenic                     | ≤ 1.0ppm                        | < 1.0ppm    |
| Cadmium                     | ≤ 1.0ppm                        | < 1.0ppm    |
| Iron                        | ≤ 30ppm                         | < 10ppm     |
| Lead                        | ≤ 1.0ppm                        | < 1.0ppm    |
| Mercury                     | ≤ 1.0ppm                        | < 1.0ppm    |
| Organic Volatile Impurities | To meet requirements            | Conforms    |
| Total Plate Count           | ≤ 1000cfu/g                     | < 1000cfu/g |
| Yeast & Mold                | ≤ 100cfu/g                      | < 100cfu/g  |
| Coliforms                   | ≤ 10cfu/g                       | < 10cfu/g   |
| <i>E. coli</i>              | Negative                        | Negative    |
| <i>Salmonella</i>           | Negative                        | Negative    |
| <i>S. aureus</i>            | Negative                        | Negative    |
| Bulk Density                | ≥ 0.20g/ml                      | 0.24g/mL    |
| Tap Density                 | ≥ 0.30g/mL                      | 0.33g/mL    |

Approved by:

Date: August 29, 2017



# Gojira Fine Chemicals, LLC

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