



LIFTMODE  
47 W. Polk St. STE 100-241  
Chicago, IL 60605

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www.liftmode.com

## CERTIFICATE OF ANALYSIS

### L-Tryptophan

(2-Amino-3-(1H-indol-3-yl)propanoic Acid)

Material Lot #: 150603      Manufacture Date: 05/27/2015  
Country of Origin: China      Expiration Date: 05/26/2017

| Analysis     | Claim  | Result |
|--------------|--------|--------|
| L-Tryptophan | ≥99.0% | 100.1% |

| Test                   | Specification             | Result     |
|------------------------|---------------------------|------------|
| Appearance             | White to yellowish powder | Complies   |
| Specific Rotation      | -29.4°-32.8°              | 30.6°      |
| Residue on Ignition    | ≤0.1%                     | 0.03%      |
| Loss on Drying         | ≤0.3%                     | 0.14%      |
| Chloride               | ≤0.05%                    | Complies   |
| Sulfate                | ≤0.03%                    | Complies   |
| Iron                   | ≤0.003%                   | Complies   |
| pH                     | 5.5-7.0                   | 5.8        |
| Heavy Metals           | ≤15 ppm                   | Complies   |
| Lead                   | ≤1 ppm                    | Complies   |
| Arsenic                | ≤1 ppm                    | Complies   |
| Cadmium                | ≤1 ppm                    | Complies   |
| Mercury                | ≤1 ppm                    | Complies   |
| Total Plate Count      | ≤1000 cfu/g               | <100 cfu/g |
| E. Coli                | Negative                  | Complies   |
| Salmonella             | Negative                  | Complies   |
| Staphylococcus aureus  | Negative                  | Complies   |
| Coliform               | ≤100 cfu/g                | <100 cfu/g |
| Yeast and mold         | ≤200 cfu/g                | <100 cfu/g |
| Assay (on a dry basis) | ≥98.5-101.5%              | 100.1%     |

L-Tryptophan should be stored at or below room temperature in a tightly sealed durable container.  
L-Tryptophan should be protected from excess heat, direct sunlight, excess humidity and moisture.  
L-Tryptophan has a stable shelf life of 3 years from the date of manufacture when properly stored.



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### L-Tryptophan

(2-Amino-3-(1H-indol-3-yl)propanoic Acid)

Laboratory Number: 6925

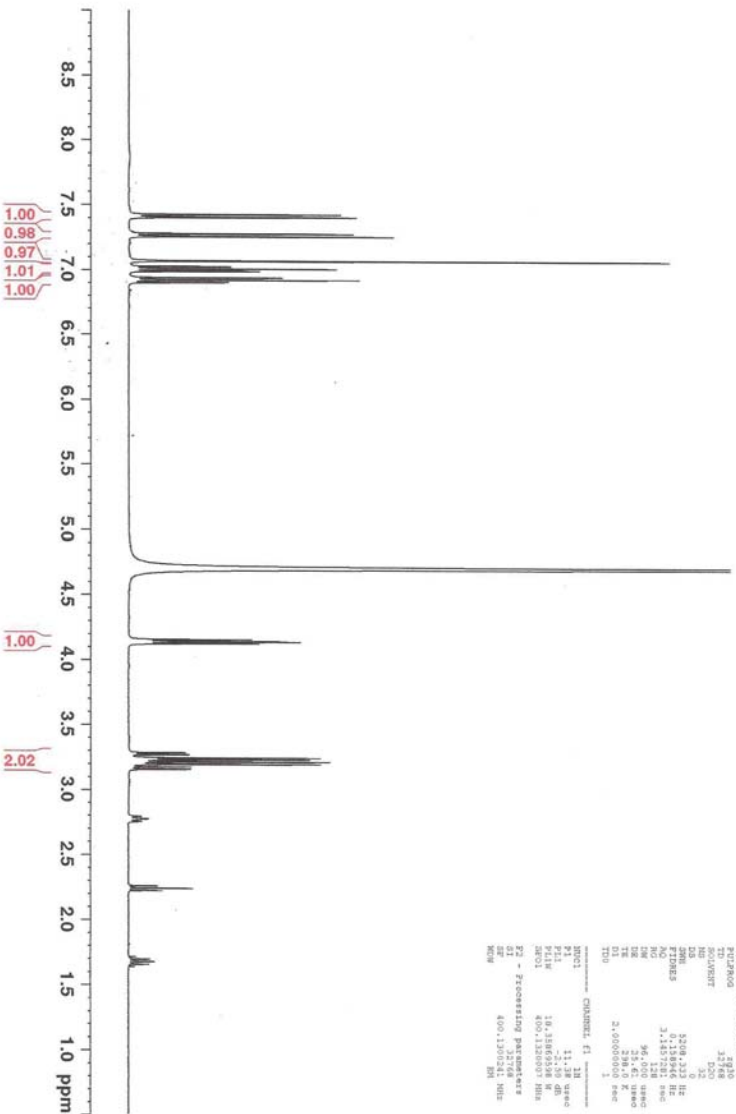
| Product Name | L-Tryptophan | Client Lot Number | 150603   |
|--------------|--------------|-------------------|----------|
| Report Date  | 04/19/16     | Order #           | SNT_0144 |

| Test              | Method  | Result     |
|-------------------|---|------------|
| Identification    | H-NMR   | Conforms   |
| Assay             | HPLC  | 100.2%     |
| Heavy Metals      | ICP-MS  | ppm        |
| Arsenic           | ICP-MS  | <0.001     |
| Cadmium           | ICP-MS  | <0.001     |
| Lead              | ICP-MS  | 0.212      |
| Mercury           | ICP-MS  | <0.001     |
| Total Plate Count | AOAC 966.23/ FDA BAM 8 <sup>th</sup> ED Rev A         | <100 cfu/g |
| Yeast             | FDA BAM 8 <sup>th</sup> ED Rev A                      | < 10 cfu/g |
| Mold              | FDA BAM 8 <sup>th</sup> ED Rev A                      | <10 cfu/g  |
| E. coli           | AOAC 966.24/ FDA BAM 8 <sup>th</sup> ED Rev A         | <3.0 MPN/g |
| Coliform          | AOAC 966.24/ FDA BAM 8 <sup>th</sup> ED Rev A         | <3.0 MPN/g |
| Salmonella        | AOAC 967.26, 967.27/ FDA BAM 8 <sup>th</sup> ED Rev A | Negative   |

Collin Thomas *CT*  
Laboratory Manager

04/19/2016 *4/19/16*  
Date

<sup>1</sup>H NMR of L-tryptophan  
 In D2O + DCl  
 Lot # 5925  
 400 MHz  
 Colmaric Analytical  
 04-08-16



```

Current Data Parameters
=====
NAME:      Agpd-2016-01-26-16
PROCNO:    1
PR - Acquisition Parameters
=====
Date_:     2016-04-19
Time:      14:43
INSTRUM:   spect
PROBHD:    5 mm QNP1H/1
PULPROG:   zgpg30
AQ:        4.890
RG:        655
COLNAME:   1206
SI:        32
SF:        400.1464101 MHz
NUC1:      15N
NUC2:      13C
PC:        220.0 MHz
F2:        125.761 MHz
SFO:       2.14746 GHz
RG:        655
AQ:        4.890
SI:        655
PC:        220.0 MHz
=====
CH1NAME:   CH1
CH1PRG:    zgpg30
=====
PR - Processing parameters
=====
SI:        655
SF:        400.1464101 MHz
WDW:       EM
SSB:       0
LB:        3.0000000 KHz
GB:        0
PC:        1
=====
  
```