



Specialized in chemicals

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## Certificate of Analysis

| Product Name: L-Threonine                                   | Quantity:500kgs                        | Batch No:TNJ2015090429    |
|-------------------------------------------------------------|----------------------------------------|---------------------------|
| Producing date: 2015.04.28                                  | Sampling date: 2015.04.28              | Send out date: 2015.04.29 |
| Reference standard: USP24                                   | Package:25kg/drum                      | Expiry date: 2017.04.27   |
| Item                                                        | Specifications                         | Results                   |
| Assay ,% min                                                | 98.5~101.5                             | 99.6                      |
| pH value                                                    | 5.2~6.2                                | 5.46                      |
| Specific optical rotation                                   | -27.6 <sup>0</sup> ~-29.0 <sup>0</sup> | -28.6 <sup>0</sup>        |
| State of solution, % $\geq$<br>(Transmittance), %           | 98.0                                   | 99.1                      |
| Loss on drying,% max                                        | 0.2                                    | 0.14                      |
| Residue on ignition max                                     | 0.10                                   | 0.05                      |
| Chloride (as Cl) ,% max                                     | 0.02                                   | <0.02                     |
| Sulfate(as SO <sub>4</sub> ),% max                          | 0.02                                   | <0.02                     |
| Heavy metals (as Pb),% max                                  | 0.001                                  | <0.001                    |
| Iron (as Fe) , % max                                        | 0.001                                  | <0.001                    |
| <b>Conclusion: This product conforms to USP24 standard.</b> |                                        |                           |

