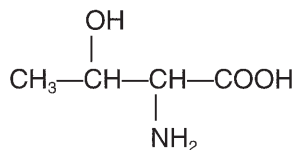


L-THREONINE

CAS NO. 72-19-5

Specification meets or exceeds the current JP USP EP and FCC.

MOLECULAR STRUCTURE AND FORMULA



$\text{C}_4\text{H}_9\text{NO}_3$: 119.12
N : 11.76%

DESCRIPTION

White crystals or crystalline powder
Odorless
Slightly sweet taste

IDENTIFICATION

Compare the infrared absorption spectrum of sample with that of the standard by ATR method.

SPECIFICATION AND PROCEDURE

| | | |
|--|----------------------------------|---|
| State of solution (Transmittance) | Not Less Than 98.0% | Sec.-1 5%, H ₂ O |
| pH | 5.2 ~ 6.2 | Sec.-26, 1% |
| Specific rotation $[\alpha]_{\text{D}}^{20}$ $[\alpha]_{\text{D}}^{25}$ | -27.6 ~ -29.0° -26.7 ~ -29.1° | Sec.-2, dry, 6%, H ₂ O |
| Ammonium (NH ₄) | Not More Than 0.020% | Sec.-43, 0.20 g 0.02 mol/l HCl |
| Chloride (Cl) | Not More Than 0.020% | Sec.-4-(1), 0.5 g 0.24 ml of 0.01 mol/l HCl |
| Sulfate (SO ₄) | Not More Than 0.020% | Sec.-5, 0.6 g 0.25 ml of 0.005 mol/l H ₂ SO ₄ |
| Iron (Fe) | Not More Than 10 ppm | Sec.-33 |
| Heavy metals (Pb)** | Not More Than 10 ppm | Sec.-7-(1), 1.0 g 1.0 ml of Standard solution |
| Arsenic (As ₂ O ₃) | Not More Than 1 ppm | Sec.-8-(1), 1.0 g + 5 ml dil. HCl 1.0 ml of Standard solution |
| Loss on drying | Not More Than 0.20% | Sec.-9-(1) 105°C, 3hr |
| Residue on ignition | Not More Than 0.10% | Sec.-10, 1 g |
| Related substances | Not More Than 0.5% | Sec.-43, 0.20 g 0.02 mol/l HCl |
| Endotoxin* | Less Than 6.0 EU/g | Sec.-34-(2), 10.0 g/100 ml |
| Assay (dry basis) | 99.0 ~ 101.0% | Sec.-15-(1), dry → 0.12 g 0.1 mol/l HClO ₄ 1 ml = 11.91 mg C ₄ H ₉ NO ₃ |

* The endotoxin-certified grade will be supplied on request.

** FCC grade (Lead : Not More Than 5 mg/kg) will be supplied on request.

STORAGE

Controlled room temperature in tight container

This product meets requirements of residual solvents listed in the current JP, USP and EP.