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CERTIFICATE OF QUALITY

**Product:** L-VALINE

**USP GRADE** Grade:

Code: 1B1102

White solid Appearance:

C5H11NO2 Mol. Formula:

Mol. Weight: 117.15

**Description:** 

| Assay:                 | <u>Min</u> | <u>Max</u> | <u>Units</u> | <b>Disposition</b> |
|------------------------|------------|------------|--------------|--------------------|
| Chloride               |            | 0.05       | %            | PASS               |
| Chromatographic Purity | PASS       |            | P/F          | PASS               |
| Heavy Metals           |            | 0.0015     | %            | PASS               |
| Identification         | PASS       |            | P/F          | PASS               |
| Iron                   |            | 0.003      | %            | PASS               |
| Loss on Drying         |            | 0.3        | %            | PASS               |
| pH (5%, Water) @25C    | 5.5        | 7.0        |              | PASS               |
| Purity (Dried)         | 98.5       | 101.5      | %            | PASS               |
| Residue on Ignition    |            | 0.1        | %            | PASS               |
| Specific Rotation      | +26.6      | +28.8      | degrees      | PASS               |
| Sulfate                |            | 0.03       | %            | PASS               |

Store at room temperature. Protect from moisture. Storage:

This signature indicates that the above material has met all quality specifications and has been reviewed by a quality representative. 1B1102USP

Signature:

QC MANAGER Title: Date: 6/13/2012