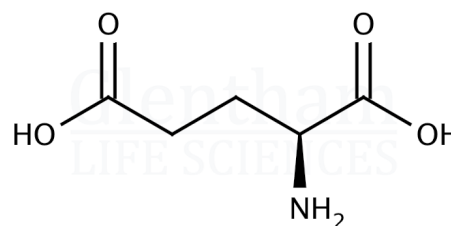


## Certificate of Analysis

|                |   |
|----------------|---|
| Product Name   | L-Glutamic acid, GlenCell™, suitable for cell culture |
| Glenthams Code | GM8976  |
| CAS Number     | 56-86-0   |
| EINECS         | 200-293-7   |
| MDL Number     | MFCD00002634  |
| Batch Number   | 761NYU  |

|                   |   |
|-------------------|---|
| Molecular Weight  | 147.13  |
| Molecular Formula | C <sub>5</sub> H <sub>9</sub> NO <sub>4</sub> |
| Storage Temp.     | +20°C   |



| Property  | Specification                           | Batch 761NYU   |
|---|---|----------------|
| Physical Description                              | White crystalline powder                | Conforms       |
| Identification                                    | To pass tests                           | Conforms       |
| Solubility (5% in water)                          | Clear, colourless solution              | Conforms       |
| pH (1% in water)                                  | 3.0 - 3.5                               | 3.3            |
| Transmittance                                     | ≥ 98.0% (5% in water, 430nm, 10mm cell) | Conforms       |
| Specific Optical Rotation ([α] <sub>D</sub> 20/D) | +31.5 - +32.2 °                         | +32.1°         |
| Chloride (Cl)                                     | ≤ 0.02%                                 | Conforms       |
| Sulphate (SO <sub>4</sub> )                       | ≤ 0.02%                                 | Conforms       |
| Ammonium (NH <sub>4</sub> )                       | ≤ 0.02%                                 | Conforms       |
| Iron (Fe)   | ≤ 10ppm                                 | Conforms       |
| Arsenic (As <sub>2</sub> O <sub>3</sub> )         | ≤ 1ppm                                  | Conforms       |
| Heavy Metals (as Pb)                              | ≤ 5ppm                                  | Conforms       |
| Any Individual Impurity                           | ≤ 0.2%                                  | 0.08% (max.)   |
| Total Impurities                                  | ≤ 0.6%                                  | 0.08%          |
| Sulphated Ash                                     | ≤ 0.1%                                  | 0.04%          |
| Loss on Drying                                    | ≤ 0.5%                                  | 0.04%          |
| Endotoxins  | ≤ 6EU/g                                 | ≤ 6EU/g        |
| Assay   | 99.0 - 101.0 % (dried basis)            | 99.6%          |
| Pharmacopoeia Specification(s)                    | EP                                      | Conforms to EP |
| Origin  | Non-animal origin                       | Conforms       |

|                       |            |
|-----------------------|------------|
| Specification Version | v1.0       |
| Manufacture Date      | 2017-03-09 |
| Re-Test Date          | 2024-12-21 |

Glenthams Life Sciences confirm that the above referenced product conformed to the information displayed in this document on the quality release date. Please check [www.glenthams.com](http://www.glenthams.com) or contact us using the details above for the current version of this document.

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