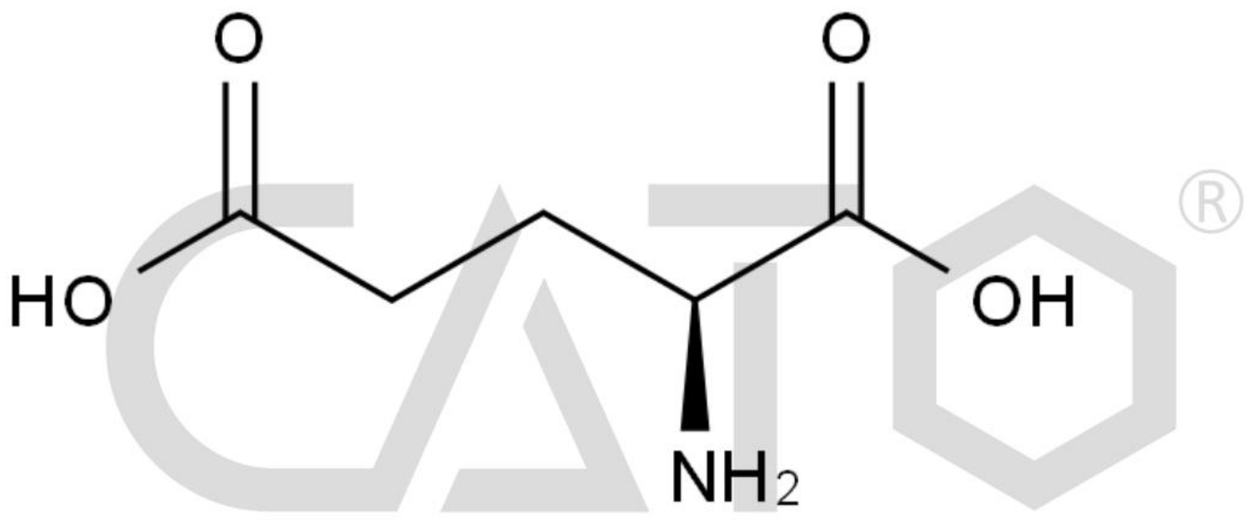
Certificate of Analysis

Reference Material & Standard

Product Name:	L-Glutamic Acid	**Catalogue Number:**	CCFD200381
Synonyms:	N/A	**Lot Number:**	1011-RF-0072
CAS Number:	56-86-0	**Expiry Date:**	Oct 14, 2028
Molecular Formula:	$C_5H_9NO_4$	**Storage:**	Room Temp Protected from light and Sealed
Molecular Weight:	147.13	**Shipping Condition:**	Shipping at Room Temperature
		Warning:	

Chemical Structure:



Test Items	Method	Results
Appearance	Visual inspection	White Solid
Identification	LCMS&IR&UV&HNMR	Confirmed
Purity	ELSD	100.000%
Loss on Drying	TGA	0.0478%
Assay		100.0%
Uncertainty		±2.0%

Comment:

1. The calculation of the mass balance method follows the formula (calculated on the non-dried basis):
*Assay (%) = (100%-Loss on Drying) * Purity ELSD (%) /100%*
Loss on Drying is considered as absolute effect, ELSD purity is considered as relative effect.
2. The uncertainty values are the expanded uncertainty and represent an estimated standard deviation equal to the positive square root of the total variation of the uncertainty of components. A normal distribution is assumed and a coverage factor of K=2 is chosen using approximately a 95% confidence level.

Signature:

Prepared by: Alice Date: Oct 15, 2024

Reviewed by: Lisa Date: Oct 15, 2024

Approved by General Manager: David Date: Oct 15, 2024

CATO Research Chemicals Inc.