

Certificate of Analysis

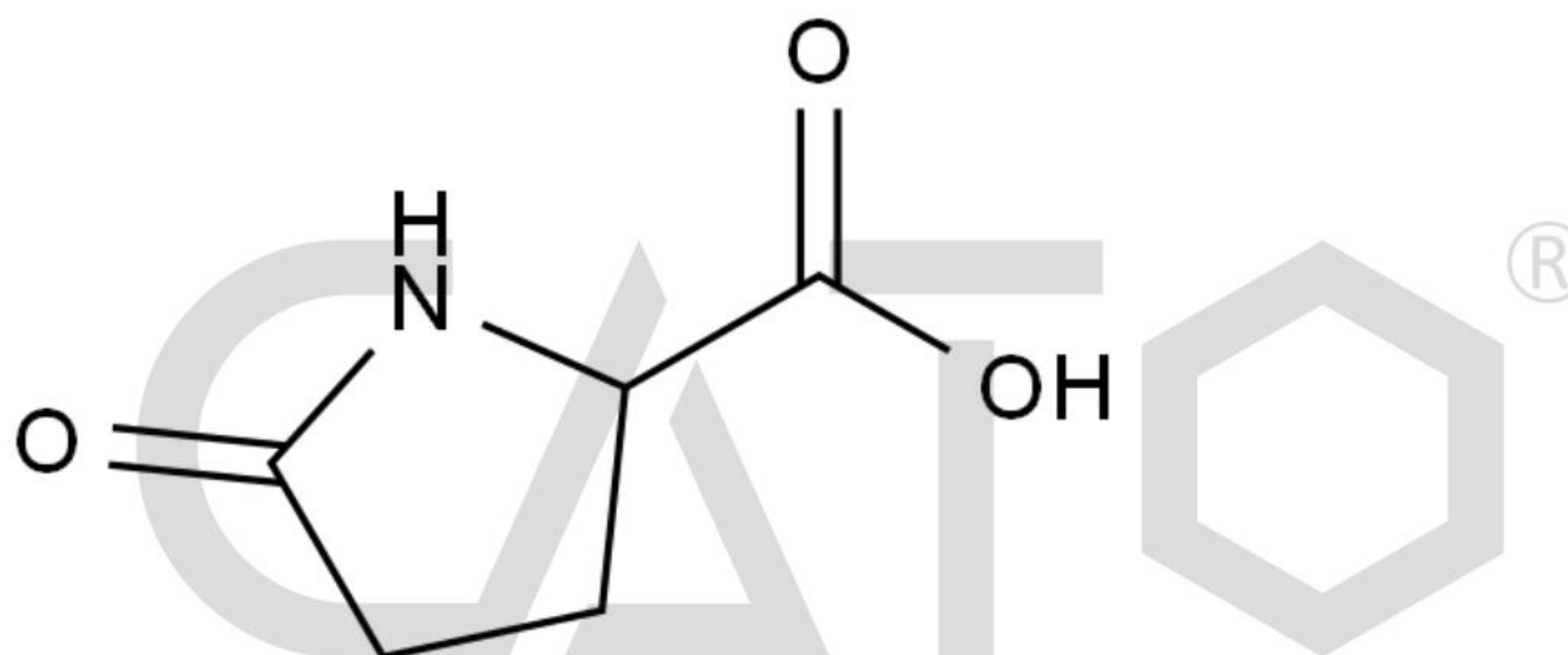
Reference Material & Standard

Product Name:	DL-Pyroglutamic Acid	Catalogue Number:	CCFD201162
Synonyms:	N/A	Lot Number:	0710-RH-0079
CAS Number:	149-87-1	Expiry Date:	Jul 09, 2030
Molecular Formula:	C ₅ H ₇ NO ₃	Storage:	Room Temp Protected from light and Sealed
Molecular Weight:	129.11	Shipping Condition:	Shipping at Room Temperature

Warning:



Chemical Structure:



Test Items	Method	Results
Appearance	Visual inspection	White Solid
Identification	LCMS&HNMR	Confirmed
Purity	ELSD	96.416%
Water Content	Karl Fischer	0.2569%
Assay		96.2%
Uncertainty		±0.7%

Comment:

1. The calculation of the mass balance method follows the formula (calculated on the non-dried basis):

$$\text{Assay (\%)} = (100\% - \text{Water Content}) * \text{Purity ELSD (\%)} / 100\%$$

Water Content 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:

Lisa

Reviewed by:

Hin Lam

Approved by General Manager:

David

Date: Jul 10, 2026

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Add: 3rd Floor, Building B, No.179, Guangpu Rd East, Huangpu District, Guangzhou, China

Tel: +86-20-81960175

Email: supports@cato-chem.com

Web: <https://www.cato-chem.com>

