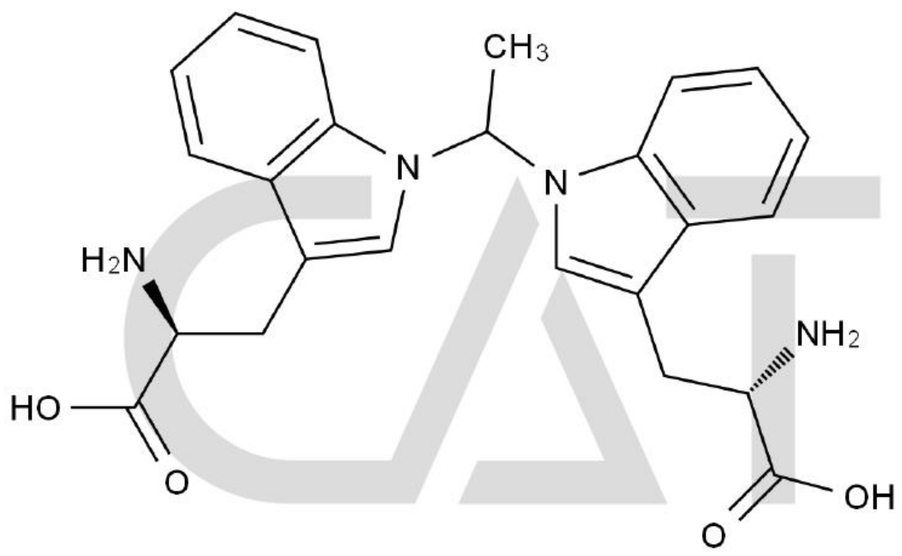
Certificate of Analysis

Reference Material & Standard

Product Name:	Tryptophan EP Impurity A	**Catalogue Number:**	C4X-13738
Synonyms:	L-Tryptophan,1,1'-ethylidenebis;Tadalafil Impurity；Tryptophan USP Related Compound A	**Lot Number:**	0317-RH-0097
CAS Number:	132685-02-0	**Expiry Date:**	Mar 22, 2030
Molecular Formula:	$C_{24}H_{26}N_4O_4$	**Storage:**	-20°C±5°C Protected from light and Sealed
Molecular Weight:	434.49	**Shipping Condition:**	Shipping with Ice Packs

Chemical Structure:



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Test Items	Method	Results
Appearance	Visual inspection	Yellow Solid
Identification	LCMS&IR&UV&CNMR&HNMR	Confirmed
Purity	HPLC	96.584%
Residue on Ignition	TGA	0.5267%
Loss on Drying	TGA	6.2360%
Assay	Mass Balance	90.1%

Comment:

The calculation of the mass balance method follows the formula (calculated on the non-dried basis):
*Assay (%) = (100%-Residue on Ignition-Loss on Drying) * Purity HPLC (%) /100%*
Residue on Ignition and Loss on Drying are considered as absolute effect, HPLC purity is considered as relative effect.

Signature:

Prepared by: Koi Date: Nov 12, 2026

Reviewed by: Lisa Date: Nov 12, 2026

Approved by General Manager: David Date: Nov 12, 2026

CATO Research Chemicals Inc.