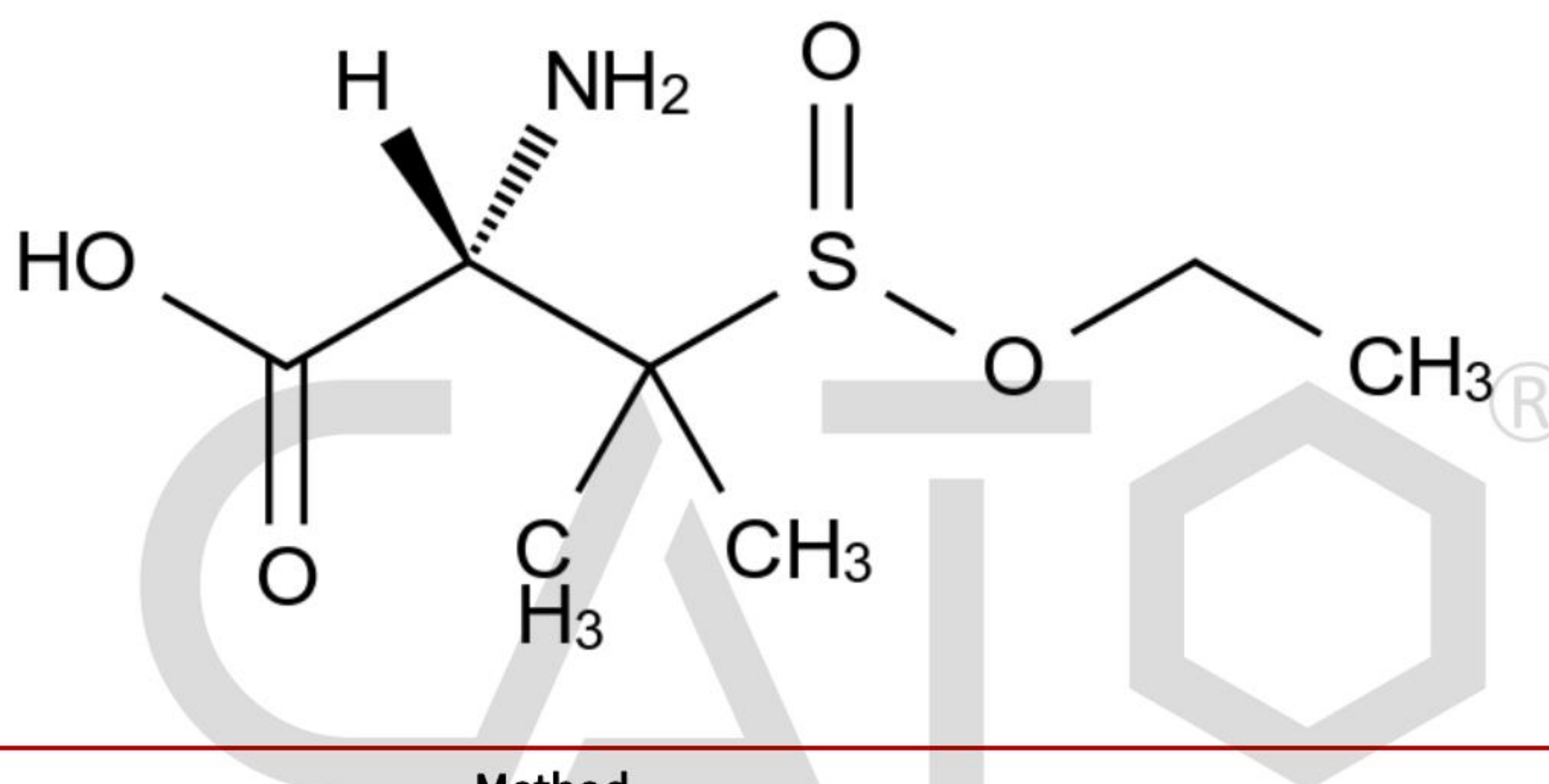


Certificate of Analysis

Reference Material & Standard

Product Name:	Sulbactam Impurity A Ethyl Sulfite	Catalogue Number:	C4X-175625
Synonyms:	N/A	Lot Number:	0813-RG-0023
CAS Number:	N/A	Expiry Date:	Feb 05, 2027
Molecular Formula:	C ₇ H ₁₅ NO ₄ S	Storage:	-20°C±5°C Protected from light and Sealed
Molecular Weight:	209.26		

Chemical Structure:



Test Items	Method	Results
Appearance	Visual inspection	White to Off-White Solid
Identification	LCMS&IR&HNMR	Confirmed
Purity	HPLC	95.6773%
Water Content	Karl Fischer	3.30%
Residual Solvents	NMR	Not detected in NMR
Optical Rotation		[α] _D ^{25.0} (c=0.32, CH ₃ CN: H ₂ O=1:1(V/V)): -73.4°
Assay		92.5%

Comment:

- The compound contains 3.5% Sulbactam EP impurity A (RT 1.04) according to its HPLC and LC-MS.
- The calculation of the 100% method follows the formula (calculated on the non-dried basis):

$$\text{Assay (\%)} = (100\% - \text{Water Content} - \text{Residual Solvents}) * \text{Purity HPLC (\%)} / 100\%$$
 Water Content and Residual Solvents are considered as absolute effect, HPLC purity is considered as relative effect.

Signature:

Prepared by:

Lily

Reviewed by:

Hinlam

Approved by General Manager:

David

Date: Aug 15, 2025

Date: Aug 15, 2025

Date: Aug 15, 2025

