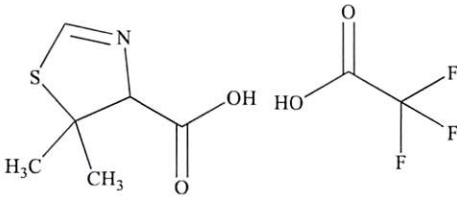


## Certificate of Analysis


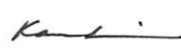
Certificate No.: **20260605008**

Date: June 5, 2026

Retest date: May 25, 2027

<b>Compound Name:</b> Benzylpenicillin Impurity 5 Trifluoroacetate		
<b>Synonyms:</b>	5,5-dimethyl-4,5-dihydrothiazole-4-carboxylic acid, 2,2,2-trifluoroacetic acid (1:1)	
<b>TLC Catalogue Number:</b>	B-285029	
<b>CAS Number:</b>	N/A	
<b>Alternate CAS Number:</b>	740742-98-7 (free base)	
<b>Molecular Weight:</b>	159.20 114.02	
<b>Molecular Formula:</b>	C <sub>6</sub> H <sub>9</sub> NO <sub>2</sub> S. C <sub>2</sub> HF <sub>3</sub> O <sub>2</sub>	
<b>Source:</b>	TLC Pharmaceutical Standards	
<b>Source Lot No.:</b>	7395-082A2	
<b>Storage Conditions:</b>	Protect from moisture, store at -20 °C	
<b>Solubility:</b>	Methanol, DMSO	

Test Description	Specifications	Results
<b>Visual Description</b>	Pale yellow solid	<b>Conforms</b>
<b>Identification</b>		
IR	Conforms to structure	<b>Conforms</b>
MS	Conforms to structure	<b>Conforms</b>
<sup>1</sup> H NMR	Conforms to structure	<b>Conforms</b>
<sup>19</sup> F NMR	Conforms to structure	<b>Conforms</b>
<b>Purity (HPLC)</b>	Not less than 95.0%	<b>99.2%</b>
<b>Impurity (HPLC)</b>	RT 12.94, 0.69%; RT 14.33, 0.15%	
<b>Residual Solvents (NMR)</b>	0.7% isopropyl ether	
<b>Assay (qNMR)</b>	Not less than 90.0%	<b>96.4%</b>
<b>Recommendation:</b>	<b>Release.</b>	

Name	Department	Signature	Date
Reviewed and approved by:	Quality Control		06/05/2026
Approved by:	Quality Assurance		06/05/2026

**Attachments:** Peak Attribution Table, Assay Calculation, HPLC, IR, MS and NMR spectra.