

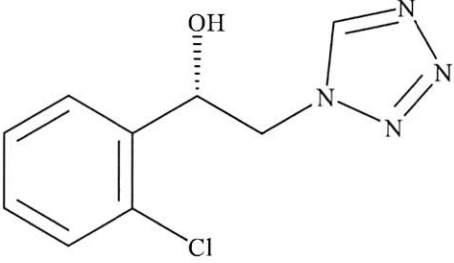
## Certificate of Analysis

Certificate No.: 20260609012



Date: June 9, 2026

Retest date: May 28, 2029

|  |  |
|--|--|
| <b>Compound Name:</b> <i>ent</i> -Tulobuterol Impurity 7 |  |
| <b>Synonyms:</b>   | (S)-1-(2-chlorophenyl)-2-(1 <i>H</i> -tetrazol-1-yl)ethan-1-ol |
| <b>TLC Catalogue Number:</b>                             | T-206035   |
| <b>CAS Number:</b>                                       | N/A  |
| <b>Alternate CAS Number:</b>                             | 2297784-40-6 (Racemic)   |
| <b>Molecular Weight:</b>                                 | 224.65   |
| <b>Molecular Formula:</b>                                | C <sub>9</sub> H <sub>9</sub> ClN <sub>4</sub> O               |
| <b>Source:</b>   | TLC Pharmaceutical Standards                                   |
| <b>Source Lot No.:</b>                                   | 7399-078A2   |
| <b>Storage Conditions:</b>                               | Store at 2-8 °C  |
| <b>Solubility:</b>                                       | Methanol, DMSO, Ethanol  |



| Test Description               | Specifications           | Results  |
|--------------------------------|--------------------------|--|
| <b>Visual Description</b>      | White to off-white 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>  |
| <b>Purity (HPLC)</b>           | Not less than 95.0%      | <b>100.0%</b>  |
| <b>Impurity (HPLC)</b>         | N/A                      |  |
| <b>Purity (Chiral HPLC)</b>    | Not less than 98.0%      | <b>99.0%</b>   |
| <b>Water Content (KF)</b>      | N/A                      | <b>0.1%</b>  |
| <b>Optical Rotation</b>        | N/A                      | [α] <sub>D</sub> <sup>25.0</sup> (c=0.33, CH <sub>3</sub> OH): <b>+93.5°</b> |
| <b>Residual Solvents (NMR)</b> | 0.1% ethyl acetate       |  |
| <b>Assay (%)</b>               | Not less than 90.0%      | <b>98.8%</b>   |
| <b>Recommendation:</b>         | <b>Release.</b>          |  |

| Name                      | Department        | Signature  | Date       |
|---------------------------|-------------------|--|------------|
| Reviewed and approved by: | Quality Control   |  | 06/09/2026 |
| Approved by:              | Quality Assurance |  | 06/09/2026 |

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