



## CERTIFICATE OF ANALYSIS

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### 1. Identification

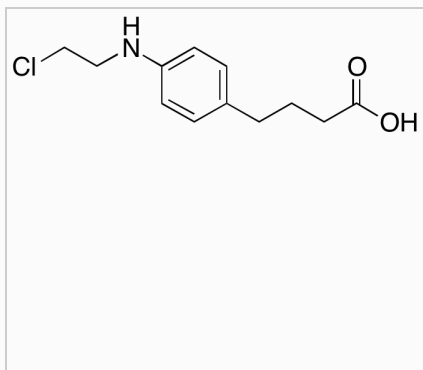
**Catalogue Number:** D290880

**CAS Number:** 116505-53-4

**Product:** N-Des-(2-chloroethyl) Chlorambucil

**Synonym:** 4-[(2-Chloroethyl)amino]benzenebutanoic Acid; Chlorambucil Impurity

**Structure:**



**Molecular Formula:**

C<sub>12</sub>H<sub>16</sub>ClNO<sub>2</sub>

**Molecular weight:**

241.71

**Source of Product:**

Synthetic

**Solubility:**

DMSO (Slightly), Methanol (Slightly)

**Lot Number:** 2-MJA-116-3

**Purity:** 98%

**Shipping Condition:** This Product Is Stable To Be Shipped At Room Temperature

**Storage Condition:** -20°C

### 2. Warning

**Warning 1:**

**Warning 2:**

**Warning 3:**

### 3. Analytical Information

| Tests:             | Specifications:               | Results:                      |
|--------------------|-------------------------------|-------------------------------|
| Appearance         | White to Off-White Waxy Solid | Off-White Waxy Solid          |
| Elemental Analysis | Conforms                      | %C: 58.85, %H: 6.47, %N: 5.61 |
| NMR                | Conforms to Structure         | Conforms                      |
| HPLC Purity        | Report Result                 | 98.41% (205 nm)               |
| MS                 | Conforms to Structure         | Conforms                      |

**Additional Information:** N/A

Purity is based on the analytical results of the tests performed. NMR and Elemental Analysis (if available) may have an accuracy of ± 2%. Isotopic purity is based on mass distribution observed. The contents of the specifications are subject to change without advance notice, and the specification values displayed here are the most up to date values.

### 4. Signatures

| Reviewed By | Reviewed By   | C of A Approved By | Test Date | Retest Date |
|-------------|---------------|--------------------|-----------|-------------|
| Nicole Yip  | Toni Rantanen | Chanell Chu        | 7/25/2023 | 7/23/2027   |