



## CERTIFICATE OF ANALYSIS

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### 1. Identification

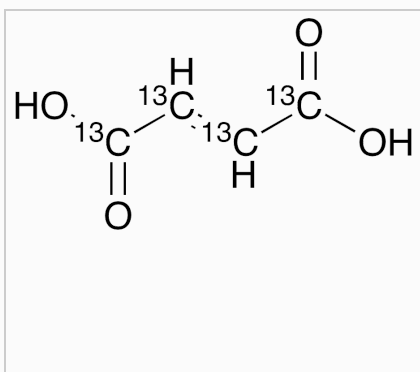
**Catalogue Number:** F500382

**CAS Number:** 201595-62-2

**Product:** Fumaric Acid-13C4

**Synonym:** (2E)-2-Butenedioic Acid-13C4; (2E)-But-2-enedioic Acid-13C4; (E)-2-Butenedioic Acid-13C4; 2-(E)-Butenedioic Acid-13C4; (E)-Butenedioic Acid-13C4; Allomaleic Acid-13C4; Bakeshure 451-13C4; Bakeshure 470-13C4; Boletic Acid-13C4; FC 33-13C4; Lichenic Acid-13C4; NSC 2752-13C4; Petrom-13C4; trans-1,2-Ethylenedicarboxylic Acid-13C4; trans-2-Butenedioic Acid-13C4; trans-Butenedioic Acid-13C4;

**Structure:**



**Molecular Formula:**

$^{13}\text{C}_4\text{H}_4\text{O}_4$

**Molecular weight:**

120.04

**Source of Product:**

N/A

**Solubility:**

DMSO (Slightly), Methanol (Sparingly)

**Lot Number:** 8-MIC-124-1

**Purity:** 98%

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

**Storage Condition:** 4°C

### 2. Warning

**Warning 1:**

**Warning 2:**

**Warning 3:**

### 3. Analytical Information

Tests:	Specifications:	Results:
Appearance	White to Off-White Solid	White Solid
NMR	Conforms to Structure	Conforms
C NMR	Conforms to Structure	Conforms
HPLC Purity	Report Result	99.85% (ELSD)
MS	Conforms to Structure	Conforms
Isotopic Purity	>95%	99.0% ( $^{13}\text{C}$ = 0.00%)

**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  $\pm 2\%$ . 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**

Nicole Yip



**Reviewed By**

Toni Rantanen



**C of A Approved  
By**

My Nguyen



**Test Date**

2/24/2021

**Retest Date**

2/22/2028