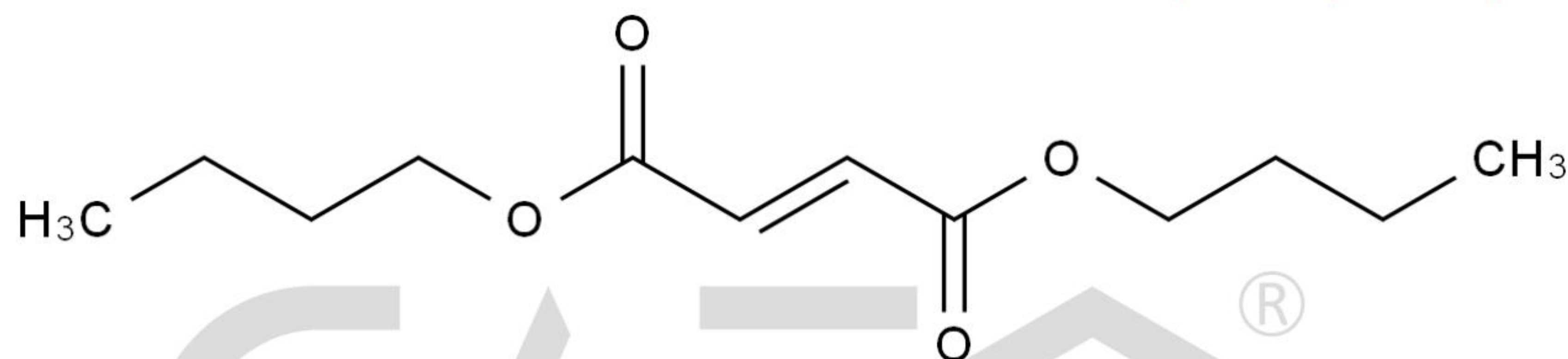


Certificate of Analysis

Reference Material & Standard

Product Name:	Dibutyl Fumarate	Catalogue Number:	CCEM500872
Synonyms:	N/A	Lot Number:	0901-RE-0061
CAS Number:	105-75-9	Expiry Date:	Aug 31, 2027
Molecular Formula:	C ₁₂ H ₂₀ O ₄	Storage:	Room Temp Protected from light and Sealed
Molecular Weight:	228.28	Warning:	

Chemical Structure:



Test Items	Method	Results
Appearance	Visual inspection	Colourless Liquid
Identification	GCMS&HNMR	Confirmed
Purity	HPLC	99.282%
Loss On Drying	TGA	2.2413%
Assay		97.1%
Uncertainty		±2.0%

Comment:

1. The calculation of the 100% method follows the formula (calculated on the non-dried basis):

$\text{Assay (\%)} = (100\% - \text{Loss On Drying}) * \text{Purity HPLC (\%)} / 100\%$

Loss On Drying is considered as absolute effect, HPLC purity is considered as relative effect.

2. The uncertainty values are the expanded uncertainty and represent an estimated standard deviation equal to the positive square root of the total variation of the uncertainty of components. A normal distribution is assumed and a coverage factor of K=2 is chosen using approximately a 95% confidence level.

Signature:

Prepared by:

Nice

Reviewed by:

Hinlam

Aporoved by General Manager:

David

Date: Sep 01, 2023

Date: Sep 05, 2023

Date: Sep 05, 2023

