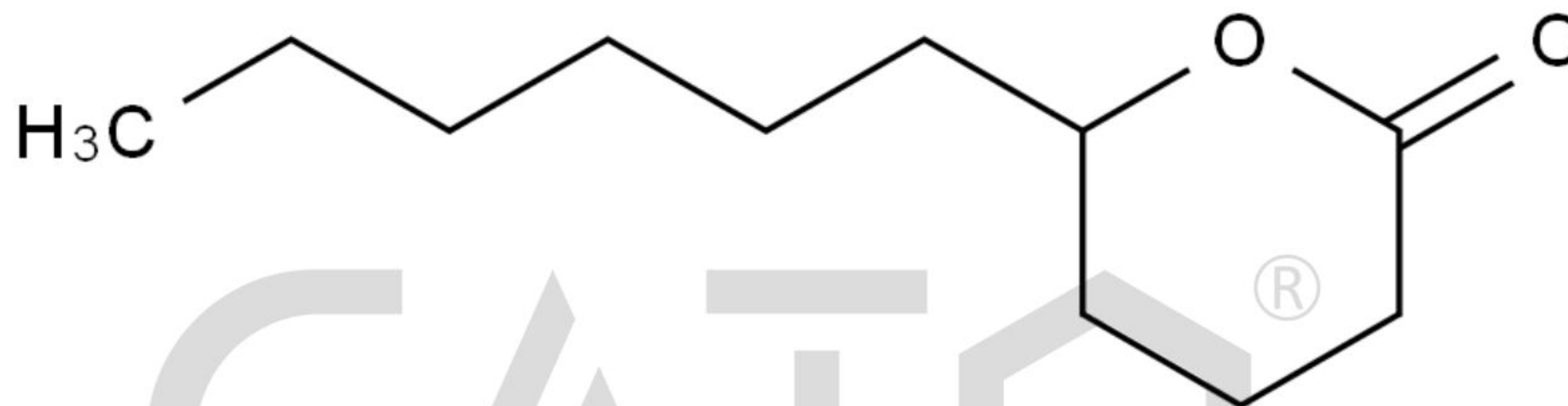


Certificate of Analysis

Reference Material & Standard

Product Name:	Delta-Undecalactone	Catalogue Number:	CCFD200689
Synonyms:	N/A	Lot Number:	1106-RG-0032
CAS Number:	710-04-3	Expiry Date:	Nov 05, 2029
Molecular Formula:	C ₁₁ H ₂₀ O ₂	Storage:	Room Temp Protected from light and Sealed
Molecular Weight:	184.28	Shipping Condition:	Shipping at Room Temperature

Chemical Structure:



Test Items	Method	Results
Appearance	Visual inspection	Colourless Liquid
Identification	GCMS&HNMR	Confirmed
Purity	GC	99.425%
Water Content	Karl Fischer	0.0345%
Assay		99.4%
Uncertainty		±0.2%

Comment:

- The calculation of the mass balance method follows the formula (calculated on the non-dried basis):

$$\text{Assay (\%)} = (100\% - \text{Water Content}) * \text{Purity GC (\%)} / 100\%$$
 Water Content is considered as absolute effect, GC purity is considered as relative effect.
- 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

Approved by General Manager:

David

Date: Nov 06, 2025

Date: Nov 06, 2025

Date: Nov 06, 2025



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