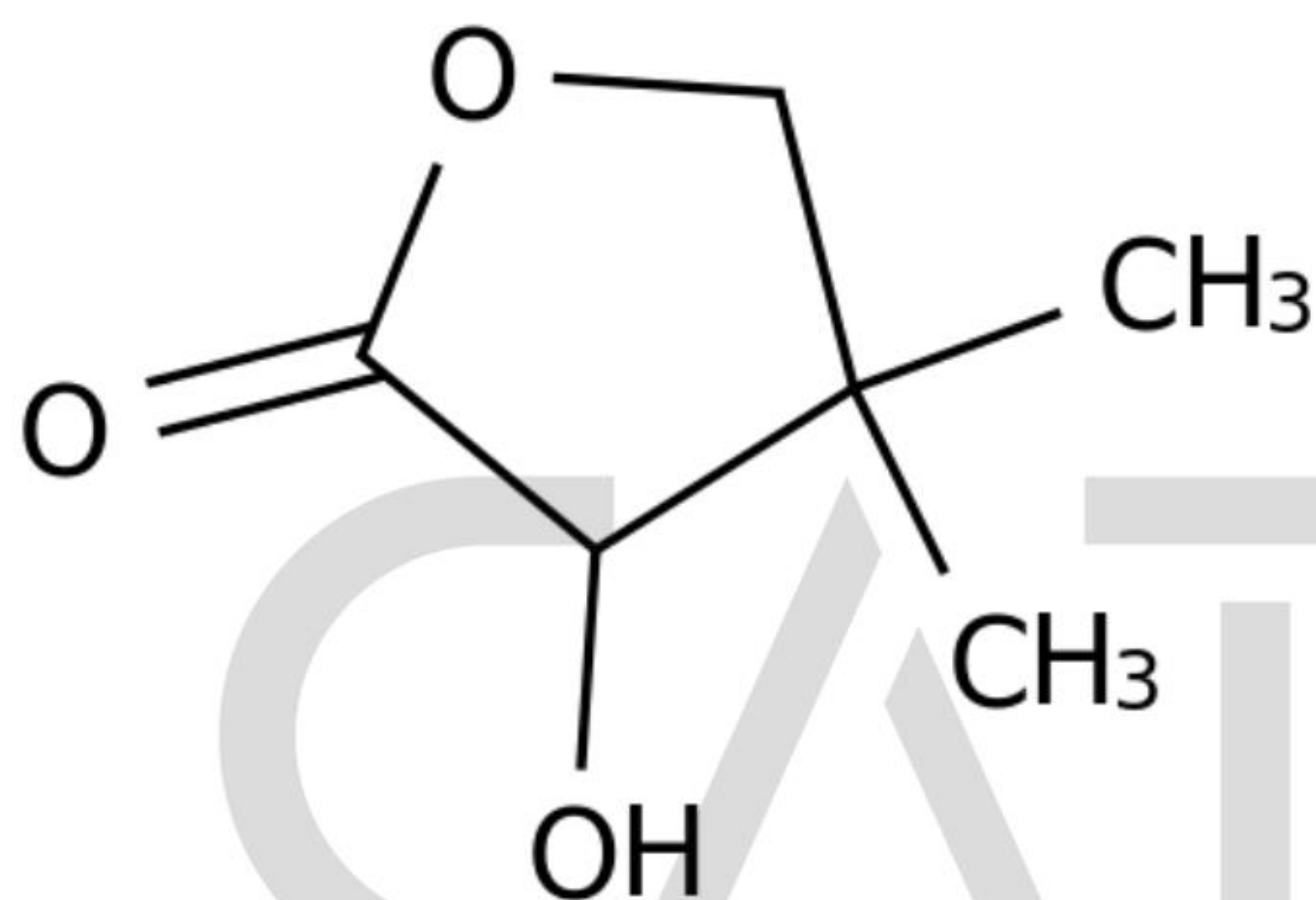


Certificate of Analysis

Reference Material & Standard

Product Name:	DL-Pantolactone	Catalogue Number:	CCAD300204
Synonyms:	N/A	Lot Number:	1215-RG-0131
CAS Number:	79-50-5	Expiry Date:	Dec 14, 2029
Molecular Formula:	C ₆ H ₁₀ O ₃	Storage:	2°C ~ 8°C Protected from light and Sealed
Molecular Weight:	130.14	Shipping Condition:	Shipping at Room Temperature

Chemical Structure:



Test Items	Method	Results
Appearance	Visual inspection	White Solid
Identification	GCMS&CNMR&HNMR	Confirmed
Purity	GC	96.093%
Water Content	Karl Fischer	4.3591%
Assay		91.9%
Uncertainty		±0.9%

Comment:

1. 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.

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:

Lisa

Reviewed by:

Hinlam

Approved by General Manager:

David

Date: Dec 15, 2025

Date: Dec 16, 2025

Date: Dec 16, 2025



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