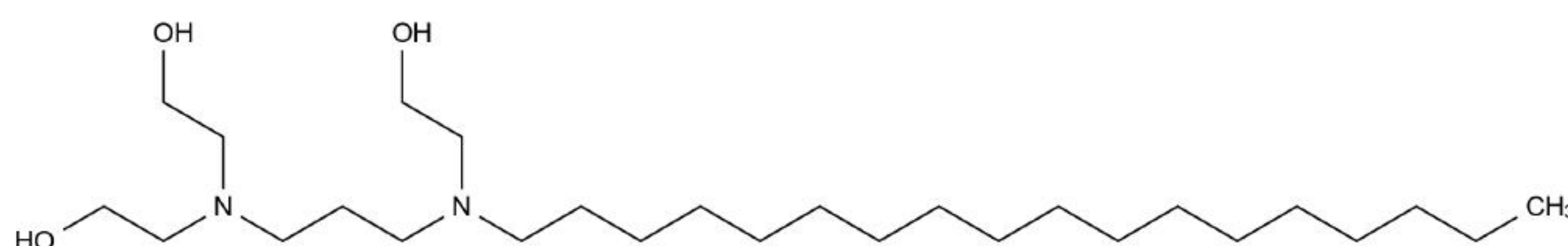


Certificate of Analysis

Reference Material & Standard

Product Name:	N-Stearyl-N-(2-hydroxyethyl)-N',N'-bis(2-hydroxyethyl)trimethylenediamine	Catalogue Number:	CCHM706090
Synonyms:	N/A	Lot Number:	0418-RG-0011
CAS Number:	17671-49-7	Expiry Date:	Apr 23, 2029
Molecular Formula:	C ₂₇ H ₅₈ N ₂ O ₃	Storage:	2°C ~ 8°C Protected from light and Sealed
Molecular Weight:	458.76	Shipping Condition:	Shipping at Room Temperature

Chemical Structure:



Test Items	Method	Results
Appearance	Visual inspection	Light Yellow Solid
Identification	LCMS&HNMR	Confirmed
Purity	ELSD	97.286%
Residue on Ignition	TGA	1.0854%
Loss on Drying	TGA	1.1092%
Assay		95.2%
Uncertainty		±0.5%

Comment:

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

Assay (%) = (100% - Residue on Ignition - Loss on Drying) * Purity ELSD (%) / 100%

Residue on Ignition and Loss on Drying are considered as absolute effect, ELSD 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:

Hin Lam

Approved by General Manager:

David

Date: Apr 30, 2025

Date: Apr 30, 2025

Date: Apr 30, 2025



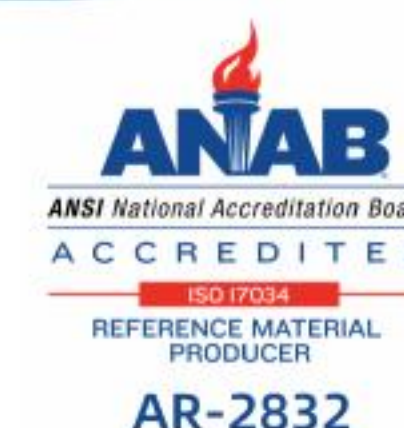
Add: 3rd Floor, Building B, No.179, Guangpu Rd East, Huangpu District, Guangzhou, China

Tel: +86-20-81960175

Email: supports@cato-chem.com

Web: <https://www.cato-chem.com>

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