



DALIAN HANDOM CHEMICALS CO.,LTD.

Add.: RM702, Unit 1, Building 21, Liuhe Road, Ganjingzi Dist, Dalian, Liaoning, China
E-mail: info@handomchemicals.com Web.: www.handomchemicals.com

Certificate of Analysis

Product Name: 21,39-di-tert-butyl 1-(2,5-dioxopyrrolidin-1-yl) (S)-9,18,23-trioxo-2,5,11,14-tetraoxa-8,17,22-triazanonatriacontane-1,21,39-tricarboxylate

Abbreviation: tBuO-Ste-Glu(AEEA-AEEA-OSu)-OtBu

CAS No.: 1118767-15-9

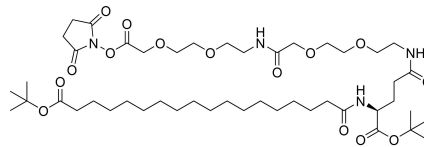
Batch No.: HDC20221206

Manufacturing Date: Dec 6th, 2022

Quantity: 20.30kg

Retest Date: Dec 5th, 2024

Chemical Structural Formula:



Recommended Storage Conditions:

Short-term storage at room temperature; more than three months is best stored at 2-8 degrees Celsius; more than one year is best stored at -20±5 degrees Celsius.

For reducing the absorption of the moisture, it should be slowly warmed to ambient temperature before opened.

Test Items	Specifications	Test Results	Test Methods
Appearance	Yellowish viscous liquid	Conforms	Visual
Identification	Meets the requirements	Conforms	¹ H-NMR
Molecular Weight	942.58±0.5 Da	942.60 Da	ESI-MS
Purity	Not less than 85.0%	87.0%	HPLC
e.e. %	Not less than 99.0%	99.9%	HPLC
Related Substances			
tBuO-Mar-Glu(AEEA-OSu)-OtBu (ZZ-68)	Not more than 1.00%	0.07%	HPLC
tBuO-Ste-Glu(AEEA-OSu)-OtBu (ZZ-76)	Not more than 1.00%	0.14%	HPLC
tBuO-Mar-Glu(AEEA-AEEA-OH)-OtBu (ZZ-18)	Not more than 1.00%	Not detected	HPLC
tBuO-Ste-Glu(AEEA-AEEA-OMe)-OtBu (ZZ-61)	Not more than 1.00%	0.23%	HPLC
tBuO-Ste-Glu(AEEA-AEEA-OH)-OtBu (ZZ-8)	Not more than 5.00%	2.40%	HPLC
NHS	Not more than 5.00%	0.11%	HPLC
tBuO-Ste-Glu(AEEA-AEEA-OSu)-OtBu-ZZ-82	Not more than 3.00%	2.43%	HPLC
DCU	Not more than 3.00%	0.12%	HPLC



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Moisture	Not more than 2.00%	0.56%	KF
Volatile Organics			
Dichloromethane	Not more than 30000 ppm	6977 ppm	GC
Methyl alcohol	Not more than 3000 ppm	Not detected	GC
N-heptane	Not more than 5000 ppm	Not detected	GC
Isopropyl alcohol	Not more than 5000 ppm	Not detected	GC
Tetrahydrofuran	Not more than 720 ppm	Not detected	GC
n-Hexane	Not more than 290 ppm	Not detected	GC
Ethyl acetate	Not more than 5000 ppm	172 ppm	GC
Methyl tert-butyl ether	Not more than 5000 ppm	Not detected	GC
Endotoxins	Not more than 2.0 EU/mg	<2.0 EU/mg	ChP<1143>
Conclusion	The testing results of this batch of product are complied with the Enterprise Standard.		

***Warnings:** HANDOM CHEM declares that its products comply with the information contained in this and other HANDOM's publications. Purchasers must determine the suitability of the products for their specific applications. The values indicated in the "Certificate of Analysis" are the results determined at the time of analysis.