

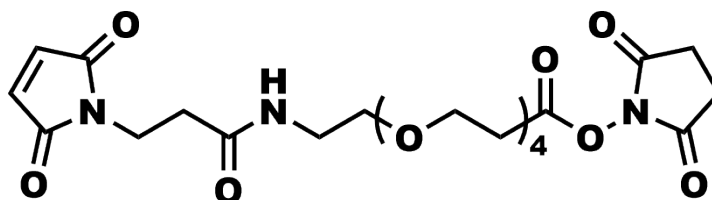
CERTIFICATE OF ANALYSIS

Product Number: 10214
Lot Number: AF1-A0402-070
Name: MAL-dPEG₄-NHS ester
Molecular Weight: 513.50

Test Description	Test Results	Test Parameters
Appearance	Pale yellow oil	REPORT ONLY
¹ H NMR (Structural)	Consistent with structure	Consistent with structure
¹ H NMR (Purity)*	98.5%	>90%
HPLC-ELSD (Purity)**	99.3%	REPORT ONLY

*Determined by quantitative ¹H NMR using an internal standard. Purity is the mean of three (3) independent samples and is corrected 0.2% 2-propanol as residual solvent that could not be removed during processing. The product contains 0.5% free (unbound) N-hydroxysuccinimide.

**Determined by RP-HPLC using Evaporative Light-Scattering Detection (ELSD). Purity is the mean of two (2) independent samples.



This document certifies that Lot No. AF1-A0402-070 was analyzed and released by Quanta BioDesign's QC Dept. on December 9, 2019, and was found to meet the currently established test parameters.



Dave Schory, M.S.
QC Manager