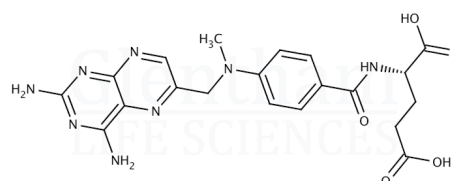


Certificate of Analysis

Product Name	Methotrexate hydrate
Glentham Code	GA6211
CAS Number	133073-73-1
MDL Number	MFCD00150847
Additional CAS	59-05-2
PubChem SID	310276236
Batch Number	647EDA
Molecular Weight	454.44 (anhydrous)
Molecular Formula	$C_{20}H_{22}N_8O_5 \cdot xH_2O$
Storage Temp.	-20°C



Property	Specification	Batch 647EDA
Physical Description	Yellow to dark yellow powder	Yellow powder
Identification (IR)	To conform to structure	Conforms
Specific Optical Rotation ($[\alpha]_{20/D}$)	+18.0 - +23.0 ° (c=0.1, 1M NaOH, anhydrous)	+19.5°
Residue on Ignition	≤ 0.1%	0.03%
Any Individual Impurity	≤ 0.5%	0.35%
Total Organic Impurities	≤ 2.0%	0.7%
Water (KF)	≤ 12.0%	10.9%
Assay	≥ 98.0%	99.3%

Specification Version	v1.1
Manufacture Date	2021-08-20
Re-Test Date	2030-12-14

Glentham Life Sciences confirm that the above referenced product conformed to the information displayed in this document on the quality release date. Please check www.glentham.com or contact us using the details above for the current version of this document.

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