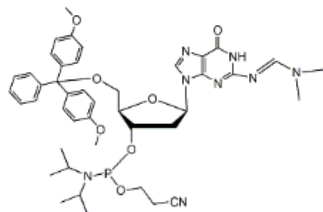


CERTIFICATE OF ANALYSIS

PRODUCT NAME:	dG(dmf) FastPhoramidite, 500mg	STRUCTURE 
PRODUCT NUMBER:	401182	
LOT NUMBER:	UF3402	
BULK NUMBER:	UE0115	
DESCRIPTION:	5'-O-Dimethoxytrityl-N2(dimethylaminoformamidite)-2'-deoxyguanosine-3'-O-(β-cyanoethyl-N,N-diisopropyl)phosphoramidite	
CHEMICAL FORMULA:	C ₄₃ H ₅₃ N ₈ O ₇ P	
MOLECULAR WEIGHT:	824.9 g/mol	
CAS NUMBER:	330628-04-1	
STORE:	-20°C	
SHIP:	Ambient	
MANUFACTURE DATE:	05/13/2019	
RETEST DATE:	11/13/2022	
EXPIRATION DATE:	05/12/2023	

ANALYSIS RESULTS

Property	Specification Limits	Observed Value
HPLC Purity	≥ 98.0%	99.2%
³¹ P NMR Purity	≥ 98.0%	99.0%
	Sum of 140-152 ppm ≤ 1.5%	0.0%
Average Coupling Efficiency	≥ 98.0%	99.0%
Sum of Acetonitrile, Ethyl Acetate and Dichloromethane	≤ 3.0%	2.0%
Material Origin (TSE/BSE)	No known animal-derived materials were used in the manufacture of this product	Pass

For Research Use Only: Not for use in diagnostic procedures.

Phosphoramidites are sensitive to environmental conditions when in powder or liquid form. Take precautions to avoid potential precipitation, degradation or hydrolysis that can affect performance or delivery of the phosphoramidite during synthesis. Control temperature, humidity, and exposure time to air for both the phosphoramidite and diluent.

QC Release By:

R. Kogutkiewicz

Gina Kogutkiewicz
Manager, Business Systems & Compliance
5/9/2019

QC Release Date:

Revision 5