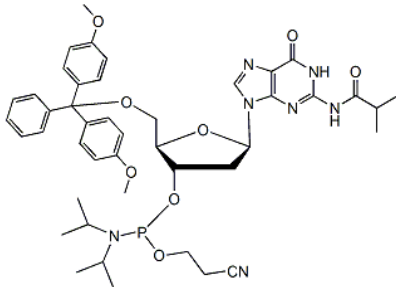


CERTIFICATE OF ANALYSIS

PRODUCT NAME:	dG β-Cyanoethyl Phosphoramidite	STRUCTURE 
PRODUCT NUMBER:	27-1734-94	
LOT NUMBER:	UG0382	
BULK NUMBER:	UE0125	
DESCRIPTION:	5'-O-Dimethoxytrityl-N ² -isobutyryl-2'-deoxyguanosine-3'-O-(β-cyanoethyl-N,N-diisopropyl) phosphoramidite	
CHEMICAL FORMULA:	C ₄₄ H ₅₄ N ₇ O ₈ P	
MOLECULAR WEIGHT:	839.92g/mol	
CAS NUMBER:	93183-15-4	
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
Appearance	White to light yellow powder	Pass
Solution Clarity	0.2M solution in acetonitrile is free from undissolved particulate	Pass
HPLC Purity	≥ 98.0%	99.2%
³¹ P NMR Purity	≥ 98.0%	99.4 %
Water Content	≤ 0.3%	0.1%
Material Origin (TSE/BSE)	No known animal-derived materials were used in the manufacture of this product	Pass

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
5/10/2019

QC Release Date:

Revision 19