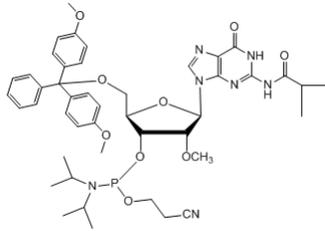


CERTIFICATE OF ANALYSIS

PRODUCT NAME:	2'-OMe Isobutyryl G β-Cyanoethyl Phosphoramidite	STRUCTURE 
PRODUCT NUMBER:	27-1846-11	
LOT NUMBER:	VI3152	
BULK NUMBER:	UH0035	
DESCRIPTION:	5'-O-Dimethoxytrityl-N ² -isobutyryl-2'-O-methyl-guanosine-3'-O-(β-cyanoethyl-N,N-diisopropyl phosphoramidite	
CHEMICAL FORMULA:	C ₄₅ H ₅₆ N ₇ O ₉ P	
MOLECULAR WEIGHT:	869.9 g/mol	
CAS NUMBER:	150780-67-9	
STORE:	-20°C	
SHIP:	Ambient	
MANUFACTURE DATE:	08/16/2019	
RETEST DATE:	02/16/2023	
EXPIRATION DATE:	08/15/2023	

ANALYSIS RESULTS

Property	Specification Limits	Observed Value
Appearance	Color intensity must not exceed Pantone #P1-4U or #P4-2U	Pass
HPLC Purity	≥ 98.0%	99.1%
³¹ P NMR Purity	≥ 98.0%	99.6%
	Sum of non-primary peaks in 140-152 ppm range ≤ 0.5 mole%	0.1%
Water Content	≤ 0.2%	0.2%
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:

Gina Kogutkiewicz

Gina Kogutkiewicz
Manager, Business Systems & Compliance
8/14/2019

QC Release Date:

Revision 11