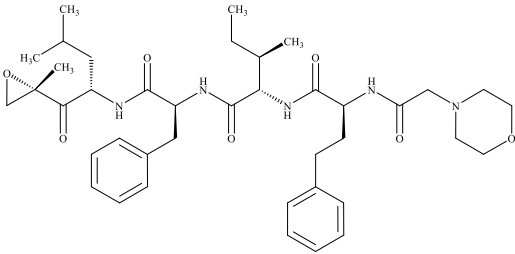


Certificate of Analysis

Certificate No.: 20200824002

Date: August 24, 2020

Retest date: August 14, 2023

Compound Name:	Carfilzomib Impurity 18	
Synonyms:	(2S,3R)-3-methyl-N-((S)-1-(((S)-4-methyl-1-((S)-2-methyloxiran-2-yl)-1-oxopentan-2-yl)amino)-1-oxo-3-phenylpropan-2-yl)-2-((S)-2-(2-morpholinoacetamido)-4-phenylbutanamido)pentanamide	
TLC Catalogue Number:	C-121021	
CAS Number:	N/A	
Molecular Weight:	719.92	
Molecular Formula:	C ₄₀ H ₅₇ N ₅ O ₇	
Source:	TLC Pharmaceutical Standards	
Source Lot No.:	4007-030A7	
Storage Conditions:	Store at 2-8 °C	
Solubility:	DMSO, DMF, Methanol	

Test Description	Specifications	Results
Visual Description	White to off-white solid	Conforms
Identification		
IR	Conforms to structure	Conforms
MS	Conforms to structure	Conforms
¹H NMR	Conforms to structure	Conforms
Purity (HPLC)	Not less than 95.0%	98.0%
Impurity (HPLC)	RT 14.06, 0.26%; RT 15.23, 0.81%; RT 16.53, 0.51%	
Water Content (KF)	N/A	0.9%
Optical Rotation	N/A	$[\alpha]_D^{25.0}(c=0.49, \text{CHCl}_3)$: -73.2°
Residual Solvents (NMR)	No residual solvent	
Assay (%)	Not less than 90.0%	97.1%
Recommendation:	Released.	

Name	Department	Signature	Date
Reviewed and approved by:	Analytical Services		
Approved by:	Quality Assurance		

Attachments: HPLC, IR, MS and NMR spectra.