



PRIME EUROPEAN PHARMACEUTICALS SpA - Sole Shareholder
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CERTIFICATE OF ANALYSIS

Product: **SIROLIMUS**

MANUFACTURING SITE: EUTICALS SpA - Via Volturmo 41/43 - 20089 Rozzano (MI)

Batch no.: **IE1800429A**

Manufacturing date: **July 2018**

Analysis date: **July 2018**

Code: **30123**

Re-test date: **July 2023**

TEST	SPECIFICATIONS	ANALYSIS VALUE
Characters:		
- Appearance	White to almost-white powder.	Complies
Identification:		
- HPLC	comply with the standard	Complies
- IR spectrum	comply with the standard material	Complies
Loss on Drying (TGA):	not more than 1.0 %	Complies
Sulfated ash	not more than 0.1 %	0.1 %
Specific optical rotation	- 140 to -160°	0.0 %
Heavy metals	Not more than 20 ppm	- 150°
Water (K.F.)	not more than 0.5 %	< 20 ppm
Sirolimus isomer (rrt 1.1)	report the found value	0.1 %
Assay (HPLC)	between 96.5 % and 102.0 % a.b. (expressed as sum of Sirolimus and Sirolimus isomer)	2,64 %
Related substances (HPLC):		100.0 %
- 27-O-demethyl-rapamycin	not more than 0.5 %	0.1 %
- 16-O-demethyl-rapamycin	not more than 0.5 %	0.0 %
- Prolylrapamycin	not more than 0.5 %	0.1 %
- 27-demethoxyrapamycin	not more than 0.2 %	0.1 %
- 40-oxorapamycin	not more than 0.2 %	0.0 %
- 11-ethyl/23-ethyl-rapamycin	not more than 0.5 %	0.0 %
- Any other	not more than 0.2 % each	0.1 %
- Total	not more than 1.5 %	0.1 %
Residual solvents:		0.3 %
- Acetone	not more than 500 ppm	135 ppm
- Ethyl ether	not more than 500 ppm	n.d.
Microbiological tests:		
TAMC	not more than 100 CFU/g	< 10 CFU/g
TYMC	not more than 10 CFU/g	< 10 CFU/g
E.coli	absent/g	Absent/g

Solubility: Soluble in ether, acetone, methanol; slightly soluble in n-hexane; practically insoluble in water

Milan, July 27, 2018

Q.C. Manager

DR.SSA CLAUDIA CALDIROLA

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