

Date: 13.04.2016

PRODUCT : HEPARIN SODIUM
TYPE : injectable grade
BATCH : 2636 / 3490 -
AR n. : 160713 / 113
PRODUCTION DATE : MAR 2016 -
EXPIRY DATE : FEB 2019 -

3735
N/O

CERTIFICATE of ANALYSIS

n	ANALYSIS	RESULTS	SPECIFICATIONS
1	APPEARANCE	White powder, hygroscopic	White to almost white, hygroscopic powder
2	SOLUBILITY (5 % solution)	Soluble	Soluble in water
3	IDENTIFICATION TESTS		
-	Test A) Assay	Complies	Complies test
-	Test B) Anti-Xa/anti-IIa ratio	1.0	0.9 - 1.1
-	Test C) NMR	Complies	Complies test
-	Test D) HPLC	Complies	Complies test
-	Test E) Sodium	Complies	Complies test
4	CLARITY OF SOLUTION	Clear	Clear
5	COLOUR OF SOLUTION	< BY 5	Not more coloured than degree 5 of BY reference solution
6	pH (1% solution)	6.8	5.5 - 8.0
7	NUCLEOTIDIC IMPURITIES - UV reading 260 nm (0.4 % solution)	0.031	NMT 0.15 OD
8	PROTEINS LOWRY	0.1 %	NMT 0.5% on dried basis
9	RELATED SUBSTANCES (HPLC)		
-	Sum of dermatan sulfate and chondroitin sulfate	0.18 %	NMT 2.0%
-	Any other impurity	Absent	Absent
10	NITROGEN	2.3 %	1.5% - 2.5 % on dried basis
11	HEAVY METALS	< 30 ppm	NMT 30 ppm
12	LOSS ON DRYING	1.9 %	NMT 8.0 %
13	QUATERNARY AMMONIUM SALTS	Absent	Absents
14	OXIDIZING SUBSTANCES	Negative	Negative
15	INORGANIC SULFATE	< 0.5 %	NMT 0.5 %
16	CHLORIDES (as NaCl)	0.6 %	NMT 1.0 %
17	MANGANESE	< 0.6 ppm	NMT 3 ppm
18	ACETATES	< 0.006 %	NMT 0.05 %
19	RESIDUAL SOLVENTS		
-	Methanol	< 18 ppm	NMT 100 ppm
-	Ethanol	< 86 ppm	NMT 5000 ppm
-	Acetone	< 80 ppm	NMT 1000 ppm
20	SODIUM	12.0 %	10.5% - 13.5 % on dried basis
21	ORGANIC SULFUR	12 %	NLT 10 % on dried basis
22	URONIC ACIDS	29 %	NLT 28 % on dried basis
23	ANTI-IIa activity Ph. Eur.	186 IU/mg	NLT 180 IU/mg on dried basis
-	ANTI-IIa activity Ph. Eur. as is	182 IU/mg	Only for information
24	MICROBIOLOGICAL PURITY		
-	TAMC	0 CFU/g	NMT 10 CFU / g
-	TYMC	Absent /g	Absent / g
-	Bile-tolerant gram-negative bacteria	Absent /g	Absent / g
-	Escherichia coli	Absent /g	Absent / g
-	Salmonella	Absent /10g	Absent / 10 g
-	Pseudomonas aeruginosa	Absent /g	Absent / g
-	Staphylococcus aureus	Absent /g	Absent / g
25	BACTERIAL ENDOTOXINS	< 0.002 IU/IU of Heparin	LT 0.01 IU/IU of Heparin

The API has been tested in accordance with monograph 01/2015:0333 updated at Ph. Eur. current edition.

HEAD QUALITY CONTROL
(Dr. Alfredo CERUTTI)



QUALIFIED PERSON
(Dr. Giorgio MAGGIA)

