

CERTIFICATE OF ANALYSIS

Product : **HEPES**
(4-(2-Hydroxyethyl)-1-piperazineethanesulfonic acid)
 Product number : H1504
 Batch number : 009138
 Date of analysis : 27-11-2012
 Date of expiry : 30-11-2017

Packaging and storage : in a well closed container, at room temperature.

	SPECIFICATION	RESULT	UNITS	REMARKS
Appearance	white coarse powder	complies		
Identification:				
- A (IR)	conform	complies		
Appearance of solution	clear and colourless	complies		5% in H ₂ O, 25°C
UV-absorbance	≤ 0.05	0.006		250 nm
Chlorides	≤ 50	< 50	ppm	
Sulphates	≤ 100	complies	ppm	
ICP analysis				
- aluminium	≤ 0.1	< 0.1	ppm	
- arsenic	≤ 0.1	< 0.1	ppm	
- barium	≤ 0.1	< 0.1	ppm	
- bismuth	≤ 0.1	< 0.1	ppm	
- cadmium	≤ 0.1	< 0.1	ppm	
- calcium	≤ 1	< 1	ppm	
- chromium	≤ 0.1	< 0.1	ppm	
- cobalt	≤ 0.1	< 0.1	ppm	
- copper	≤ 0.1	< 0.1	ppm	
- iron	≤ 0.1	< 0.1	ppm	
- lead	≤ 0.1	< 0.1	ppm	
- lithium	≤ 0.1	< 0.1	ppm	
- magnesium	≤ 0.1	< 0.1	ppm	
- manganese	≤ 0.1	< 0.1	ppm	
- molybdenum	≤ 0.1	< 0.1	ppm	
- nickel	≤ 0.1	< 0.1	ppm	
- potassium	≤ 1	< 1	ppm	
- sodium	≤ 1	< 1	ppm	
- strontium	≤ 0.1	< 0.1	ppm	
- zinc	≤ 0.1	< 0.1	ppm	
Residue on ignition	≤ 0.005	0.0025	%	
Assay	≥ 99.0	99.3	%	dried substance

This certificate of analysis is conform the results of the manufacturer.

Conclusion: approved

Released by:

drs. M. van Wissen, pharmacist
 Department of Quality Control Duchefa B.V.

Date: 04-07-2013