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CERTIFICATE OF ANALYSIS

PRODUCT NAME: L-GLUTATHIONE REDUCED PRODUCTION DATE: 2018-7-9
CAS: 70-18-8 REPORT DATE: 2018-7-20
BATCH NO: 180720 SHELF LIFE: 2 YEARS
STANDARD: EUROPEAN PHARMACOPOEIA
7.0 INJECTION GRADE

Tests	Standard	Test results
Appearance	White or almost white, crystalline powder or colourless crystals	White crystalline powder
Identification	1. S.O.R.: $-15.5^{\circ} \sim -17.5^{\circ}$	-16.3°
	2. Infrared: Conforms to the Reference Spectrum	Conform
Specific optical rotation	$-15.5^{\circ} \sim -17.5^{\circ}$	-16.3°
Appearance of solution	Clear and colourless	Clear and colourless
Chlorides	≤ 200 ppm	Conform
Sulfates	≤ 300 ppm	Conform
Ammonium	≤ 200 ppm	Conform
Iron	≤ 10 ppm	Conform
Heavy Metals	≤ 10 ppm	Conform
Loss on drying	$\leq 0.50\%$	0.2%
Sulfated ash	$\leq 0.10\%$	0.04%
Bacterial endotoxin	≤ 0.10 EU/mg	Conform
Related substances	Impurity A (L-cysteinylglycine) $\leq 0.5\%$	Conform
	Impurity B (Cysteine) $\leq 0.5\%$	Conform
	Impurity C (L-glutathione oxidised) $\leq 1.5\%$	Conform
	Impurity D (L- γ -glutamyl-L-cysteine) $\leq 1.0\%$	Conform
	Impurity E (Product of degradation) $\leq 0.5\%$	Conform
	Any other impurity $\leq 0.2\%$	Conform
	Total Impurities $\leq 2.5\%$	Conform
Assay	98% to 101.0%	99.0%
Storage	Well Sealed, preserved at cool and dry place and avoided light.	
Conclusion	Confirmed with the standard of European Pharmacopoeia 7.0	

Non-GMO, non-irradiation, non-BSE/TSE

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