



CERTIFICATE OF ANALYSIS

Product Name	L-Carnitine tartrate
Batch/Lot No	D030-2409725
Batch Size	1005 kg
Pack size	25 kg/drum
MFG. Date	2024-09-07
Retest Date	2028-09-06
Report Date	2024-12-09
Report ID	G20241221-1
Standard	Q/CDJ3.09 (04)

Physical & Chemical Characteristics

Analysis Item	Specification	Result
Appearance	White or off-white crystalline powder	white crystalline powder
Identification (IR)	In accordance with the IR absorption spectrum of the standard	Conform
Assay (by anhydrous)	≥98.0%	99.2%
Specific rotation (α^{20}_D)	-9.5° – -11.0°	-10.2°
Water	≤0.50%	0.08%
Residue on ignition	≤0.50%	0.05%
Heavy metals (total)	≤0.001%	<0.001%
Arsenic (As)	≤0.00001%	<0.00001%
pH	3.0 – 4.5	3.7
Solubility / Clarification	Clarification (Visual)	Conform
Chlorides	<0.4%	<0.4%
L-Carnitine content	68.2% ± 1.0%	67.7%
Tartaric acid content	31.8% ± 1.0%	31.9%
Particle size (mesh)	100% pass 20 mesh	Conform
Bulk density	0.4–0.7 g/ml	0.55 g/ml
Tapped density	0.5–0.9 g/ml	0.78 g/ml

Heavy Metals

Analysis Item	Specification	Result
Cadmium (Cd)	≤1 ppm	<0.007 ppm
Mercury (Hg)	≤0.1 ppm	<0.0004 ppm
Lead (Pb)	≤3 ppm	<0.1 ppm

Microbiological Tests

Analysis Item	Specification	Result
Total bacteria count	≤1000 cfu/g	1 cfu/g
Mold & yeast	≤100 cfu/g	<1 cfu/g
E. coli	Negative	Negative
Salmonella spp.	Negative	Negative
Staphylococcus aureus	Negative	Negative
Coliform	Negative	Negative

Residual Solvents

Analysis Item	Specification	Result
Residual Solvents: Ethanol	≤0.5%	0.05%