



CERTIFICATE OF ANALYSIS

Product Name	L-Lysine HCL USP43
Batch Number	W20221223
Production Date	23/12/2022
Expiry Date	22/12/2025
CAS Code	657-27-2

Organoleptic Characteristics

Analysis Item	Specification	Result
Appearance	White crystalline powder or crystalline particles	Complies
Odour	Characteristic	Complies

Physical & Chemical Characteristics

Analysis Item	Specification	Result
Assay	98.5 – 101.5%	99.5%
Particle size	80% through 20 mesh	Complies
Specific rotation (°)	+20.4° to +21.4°	+21.1°
Sulfate	≤ 0.03%	≤ 0.03%
Residue on ignition	≤ 0.1%	0.07%
Loss on drying	≤ 0.4%	0.25%
Chromatographic purity	Meets the requirement	Complies
Individual impurity	≤ 0.5%	Complies
Total impurity	≤ 2.0%	Complies
Chloride	19.0 – 19.6%	19.4%
Residual solvents	Meets the requirements	Complies
Bulk density	≥ 0.45 g/ml	Complies
Tapped density	≤ 0.80 g/ml	Complies
Water solubility	Soluble	Complies

Heavy Metals

Analysis Item	Specification	Result
---------------	---------------	--------

Iron	≤ 30 ppm	Complies
Total heavy metals	≤ 15 ppm	Complies
Lead (Pb)	≤ 3 ppm	Complies
Arsenic (As)	≤ 2 ppm	Complies
Cadmium (Cd)	≤ 1 ppm	Complies
Mercury (Hg)	≤ 0.1 ppm	Complies

Microbiological Characteristics

Analysis Item	Specification	Result
Total plate count	≤ 10,000 CFU/g	Complies
Total yeast & mould	≤ 1,000 CFU/g	Complies
Escherichia coli	Negative/g	Complies
Salmonella	Negative/10 g	Complies
Staphylococcus aureus	Negative/g	Complies

Contaminants

Analysis Item	Specification	Result
Benzo(a)pyrene	≤ 10 µg/kg	Complies
Sum of PAH4	≤ 50 µg/kg	Complies
Pesticides	In accordance with Commission Regulation (EC) 396/2005 and 149/2008	Complies
Ethylene oxide	In accordance with Regulation (EC) 396/2005	Complies

Packaging & Storage

Parameter	Description
Packing	Packed in paper drums and two plastic bags inside
Storage	Store in well closed container away from moisture