

CERTIFICATE OF ANALYSIS

DATE : 16/03/2023
 CUSTOMER :
 ISEGEN REF. : 055424
 D / N NO. : 055424
 CONTAINER NO. : CAIU 2610302
 SEAL NO. : HLB9609185
 VESSEL : NILEDUTCH BREDA
 MANUFACTURING DATE : 01/12/2023
 EXPIRY DATE : 01/12/2026 PROVIDED PRODUCT STORED IN DRY, COOL CONDITIONS AND NOT SUBJECT TO PRESSURE

MATERIAL DL MALIC ACID - FOOD GRADE (Hydroxysuccinic Acid) – 850um

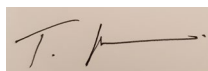
Molecular mass : 134.1 g/mole CAS : 617-48-1

BATCH NO 7230301

QUANTITY 17500kg

<u>ANALYSIS</u>	<u>METHOD OF ANALYSIS</u>	<u>SPECIFICATION</u>	<u>RESULTS</u>
Appearance	FCC 11	White or nearly white granules	Complies
Identification	FCC 11	To comply with std. scan	Complies
Assay as Malic Acid	FCC 11	NLT 99.0% and NMT 100.5% of C ₄ H ₆ O ₅	99.99
Test for Malate	Isegen Proc. 1.22.5.2.25	Passes test	Passes
Water	Karl Fischer	NMT 0.3% m/m	0.23
Melting Point	Isegen Proc. 1.22.5.2.3	127 → 132 °C	130.1
Fumaric Acid	FCC 11	NMT 1.0% m/m	0.54
Maleic Acid	FCC 11	NMT 0.05% m/m	0.005
Heavy Metals as Pb	FCC 11	NMT 5 mg/kg	<5
Lead	ICP	NMT 2 mg/kg	<2
Arsenic	ICP	NMT 1 mg/kg	<1
Mercury	ICP	NMT 0.1 mg/kg	<0.1
Residue on Ignition (Sulphated Ash)	FCC 11	NMT 0.1% m/m	0.050
Water Insoluble Matter	FCC 11	NMT 0.1% m/m	0.020
Readily Oxidisable Substances	Isegen Proc. 1.22.5.2.16	Passes Test – 3 minutes (min)	Complies
Chlorides	Isegen Proc. 1.22.5.2.17	NMT 40 mg/kg	Complies
Specific Rotation [α] _D ²⁵	FCC 11	- 0.10° and + 0.10°	Complies
Particle Size Distribution	Isegen Proc. 1.22.5.2.14. 3	NLT 98% thru 850 um	99.62
		NMT 5% thru 150 um	0.04

We confirm that this batch complies with FCC 11 and E296



QA REPRESENTATIVE