



ISEGEN

SOUTH AFRICA (PTY) LTD
Registration No. : 007/006640/07

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CERTIFICATE OF ANALYSIS

DATE : 05/04/2017

ISEGEN REF. : 020386

D/N NO. : 020386

CONTAINER NO. : TCLU 3483641

SEAL NO. : ML-2A4602687

VESSEL : DAL KAROO

MANUFACTURING DATE : 26/03/2017

EXPIRY DATE : 26/03/2019 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

7170326

QUANTITY

17500 kg

<u>ANALYSIS</u>	<u>METHOD OF ANALYSIS</u>	<u>SPECIFICATION</u>	<u>RESULTS</u>
Appearance	FCC 10	White or nearly white granules	Complies
Identification	FCC 10	To comply with std. scan	Complies
Assay as Malic Acid	FCC 10	NLT 99.0% and NMT 100.5% of C ₄ H ₆ O ₅	99.13
Test for Malate	Isegen Proc. 1.22.11.2.1	Passes test	Passes
Water	Karl Fischer	NMT 0.3% m/m	0.22
Melting Point	Isegen Proc. 1.22.5.2.2	127 → 132 °C	128.6
Fumaric Acid	FCC 10	NMT 1.0% m/m	0.74
Malic Acid	FCC 10	NMT 0.05% m/m	0.008
Heavy Metals as Pb	FCC 10	NMT 5 mg/kg	<5
Lead	FCC 10	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 10	NMT 0.1% m/m	0.039
Water Insoluble Matter	FCC 10	NMT 0.1% m/m	0.028
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 10	- 0.10° and + 0.10°	Complies
Particle Size Distribution	Isegen Proc. 1.22.5.2.14	NLT 98% thru 850 um	99.96
		NMT 5% thru 150 um	0.02

We confirm that this batch complies with FCC 10, E298 and is GMO and Allergen free

QA REPRESENTATIVE