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MATERIAL SAFETY DATA SHEET

Section 1 Product and Company Identification

Product Name: Succinic Acid 99.5%
Synonym: Amber Acid; Butanedioic Acid; Ethylenesuccinic Acid; 1,2-Ethanedicarboxylic Acid
Company: Shanghai Runkey Biotech Co., Ltd
Address: RM 601, Building 62, No. 221, Caiyun Road, Shanghai, 201306, China
Tel: +86 21 58070171 Fax: +86 21 58070171
Email: info@runkeybio.com

Section 2 Composition/information on ingredients

Description: Mixture of substances listed below with additions.

Components Number:	CAS Number	Approximate (%) by Wt.
Succinic acid	110-15-6	100

Section 3 Hazards identification

Irritating to eyes, respiratory system and skin.
Potential Health Effects
Eye: Causes eye irritation. May cause chemical conjunctivitis.
Skin: Causes skin irritation. Contact with heated material can cause skin burns and irritation.
Ingestion: May cause gastrointestinal irritation with nausea, vomiting and diarrhea.
Inhalation: Causes respiratory tract irritation. Can produce delayed pulmonary edema.
Chronic: Effects may be delayed.

Section 4 First aid measures

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately.
Skin: Get medical aid. Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.
Ingestion: Never give anything by mouth to an unconscious person. Get medical aid immediately. Do NOT induce vomiting. If conscious and alert, rinse mouth drink 2-4 cupfuls of milk or water.
Inhalation: Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.
Notes to Physician: Treat symptomatically and supportively.

Section 5 Fire fighting measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Dusts at sufficient concentrations can form explosive mixtures with air. During a fire, irritating and highly

toxic gases may be generated by thermal decomposition or combustion.
Extinguishing Media: For small fires, use water spray, dry chemical, carbon dioxide or chemical foam. Use water spray, dry chemical, carbon dioxide, or appropriate foa

Section 6 Accidental release measures

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks: Clean up spills immediately, observing precautions in the Protective Equipment section. Sweep up, then place into a suitable container for disposal. Avoid generating dusty conditions. Provide ventilation.

Section 7 Handling and storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Minimize dust generation and accumulation. May form flammable dust-air mixtures. Avoid contact with eyes, skin, and clothing. Keep container tightly closed. Avoid ingestion and inhalation. Wash clothing before reuse.
Storage: Store in a tightly closed container. Keep from contact with oxidizing materials. Store in a cool, dry, well-ventilated area away from incompatible

Section 8 Exposure controls/personal protection

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low. Exposure Limits CAS# 110-15-6: Personal Protective Equipment Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Skin: Wear appropriate protective gloves to prevent skin exposure.
Clothing: Wear appropriate protective clothing to prevent skin exposure.
Respirators: A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant a respirator's use. Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

Section 9 Physical and chemical properties

Physical State: Solid
Color: white
Odor: none reported
pH: 2.7 (0.1 M sol.)
Vapor Pressure: Negligible.
Viscosity: Not available.
Boiling Point: 455 deg F
Freezing/Melting Point: 363 deg F
Autoignition Temperature: 630 deg C (1,166.00 deg F)

Flash Point: 206 deg C (402.80 deg F)
Explosion Limits, lower: Not available.
Explosion Limits, upper: Not available.
Decomposition Temperature: 455 deg F
Solubility in water: Moderately soluble in water.
Specific Gravity/Density: 1.6 (water=1)
Molecular Formula: C4H6O4
Molecular Weight: 118.0396

Section 10 Stability and reactivity

Chemical Stability: Stable at room temperature in closed containers under normal storage and handling conditions.
Conditions to Avoid: High temperatures, incompatible materials, excess heat.
Incompatibilities with Other Materials: None reported.
Hazardous Decomposition Products: Carbon monoxide, carbon dioxide.
Hazardous Polymerization: Has not been reported.

Section 11 Toxicological information

RTECS#:
CAS# 110-15-6: WM4900000 LD50/LC50:
CAS# 110-15-6: Draize test, rabbit, eye: 750 ug Severe; Oral, rat: LD50 = 2260 mg/kg.
Carcinogenicity: Succinic Acid - Not listed by ACGIH, IARC, or NTP.
Other: See actual entry in RTECS for complete information.

Section 12 Ecological information

Other No information available.

Section 13 Disposal considerations

Dispose of in a manner consistent with federal, state, and local regulations.

Section 14 transport information

IATA
Not regulated as a hazardous material.
IMO
Not regulated as a hazardous material.
RID/ADR
Not regulated as a hazardous material

Section 15 Regulatory information

European/International Regulations
European Labeling in Accordance with EC Directives
Hazard Symbols: XI

Risk Phrases:
R 36/37/38 Irritating to eyes, respiratory system
and skin.
Safety Phrases:
WGK (Water Danger/Protection)
CAS# 110-15-6: 0
Canada
CAS# 110-15-6 is listed on Canada's DSL List.
CAS# 110-15-6 is listed on Canada's Ingredient Disclosure List.
US FEDERAL
TSCA
CAS# 110-15-6 is listed on the TSCA inventory.

Section 16 Other information

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