

MATERIAL SAFETY DATA SHEET

CHEMICAL PRODUCT FOR INDUSTRIAL USE

According to Regulation EC No 1907/2006 of the European Parliament and of the Council of 18 December 2006 (REACH).

SUCCINIC ACID

1. PRODUCT AND COMPANY IDENTIFICATION

Product name : SUCCINIC ACID
Company : BIOAMBER S.A.S
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2. HAZARDS IDENTIFICATION

Substance classifying

According to Regulation (EC) 1272/2008
Skin irritation (category 2)
Serious eye damage (category 1)



Xi **Irritant**

R Phrases

R36/37/38 Irritating to eyes, respiratory system and skin
R41 Risk of serious damage to eyes

S Phrases

S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

According to Directive 67/548/CEE

Skin and respiratory irritation. May cause serious eye damage.

Emergency Overview

OSHA Hazards

Irritant

GHS Label elements, including precautionary statements

Pictogram



Signal word

Danger

Hazard statement(s)

- H315 Causes skin irritation.
H318 Causes serious eye damage.
H335 May cause respiratory irritation.

Precautionary statement(s)

- P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P280 Wear protective gloves/eye protection/face protection.
P305 + P351 + P338
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

HMIS Classification

Health hazard: 2

Flammability: 0

Physical hazards: 0

NFPA Rating

Health hazard: 2

Fire: 0

Reactivity Hazard: 0

Potential Health Effects

- Inhalation** Causes respiratory tract irritation.
Skin Causes skin irritation.
Eyes Causes eye irritation.
Ingestion May be harmful if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : Butanedioic acid
Formula : C₄H₆O₄
Molecular Weight : 118.09 g/mol

| CAS-No | EC-No | Index-No | Classification | Concentration |
|----------|-----------|----------|---|---------------|
| 110-15-6 | 203-740-4 | - | Skin Irrit. 2; Eye Dam. 1; STOT SE 3; H315, H318, H335 Xi, R36/37/38 – R41 | 90%-100% |

4. FIRST AID MEASURES

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled

If breathed in, move person into fresh air. If not breathing give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIRE-FIGHTING MEASURES**Suitable extinguishing media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for fire-fighters

Wear self contained breathing apparatus for fire fighting if necessary.

6. ACCIDENTAL RELEASE MEASURES**Personal precautions**

Use personal protective equipment. Avoid dust formation. Avoid breathing dust. Ensure adequate ventilation.

Environmental precautions

Do not let product enter drains.

Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE**Precautions for safe handling**

Avoid contact with skin and eyes. Avoid formation of dust and aerosols.

Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection.

Conditions for safe storage

Keep container tightly closed in a dry and well-ventilated place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Contains no substances with occupational exposure limit values.

Personal protective equipment**Respiratory protection**

Where risk assessment shows air-purifying respirators are appropriate use a dust mask type N95 (US) or type P3 (EN 143) respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection

Handle with gloves.

Eye protection

Safety glasses with side-shields conforming to EN166

Skin and body protection

Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Powder
Colour white

Safety data

| | |
|---------------------------------|-----------------------------------|
| pH (1% in water) | 2,4 – 2,8 |
| Melting point | 184 - 192 °C |
| Kst, Pmax | Kst = 51 bar.m/s - Pmax = 7,4 bar |
| Min. Flammability Energy | > 1 000 mJ |
| Min. Flammability Temp. (cloud) | 620°C |
| Water solubility | moderately soluble |

10. STABILITY AND REACTIVITY

Chemical stability

Stable under recommended storage conditions.

Conditions to avoid

no data available

Materials to avoid

Bases, Oxidizing agents, Reducing agents

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides

11. TOXICOLOGICAL INFORMATION

Acute toxicity

LD50 Oral - rat - 2,260 mg/kg

Skin corrosion/irritation**Serious eye damage/eye irritation**

Eyes - rabbit - Severe eye irritation

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

Genotoxicity in vitro - Human - fibroblast

DNA inhibition

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1%

is identified as a carcinogen or potential carcinogen by ACGIH.
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

no data available

Specific target organ toxicity - single exposure (GHS)

Inhalation - May cause respiratory irritation.

Specific target organ toxicity - repeated exposure (GHS)

no data available

Aspiration hazard

no data available

Potential health effects**Inhalation** May be harmful if inhaled. Causes respiratory tract irritation.**Ingestion** May be harmful if swallowed.**Skin** May be harmful if absorbed through skin. Causes skin irritation.**Eyes** Causes eye irritation.

12. ECOLOGICAL INFORMATION

Toxicity

no data available

Persistence and degradability

no data available

Bioaccumulative potential

no data available

Mobility in soil

no data available

PBT and vPvB assessment

no data available

Other adverse effects

no data available

13. DISPOSAL CONSIDERATIONS

Product

Observe all federal, state, and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

Not dangerous goods

IMDG

Not dangerous goods

IATA

Not dangerous goods

15. REGULATORY INFORMATION

SUCCINIC ACID

Substance classifying

According to Regulation (EC) 1272/2008
Skin irritation (category 2)
Serious eye damage (category 1)



XI - Irritant

According to Directive 67/548/CEE

Skin and respiratory irritation. May cause serious eye damage.

OSHA Hazards

Irritant

DSL Status

All components of this product are on the Canadian DSL list.

SARA 302 Components

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold

(De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

Acute Health Hazard

Massachusetts Right To Know Components

No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

Succinic acid

CAS-No.

110-15-6

Revision Date

New Jersey Right To Know Components

Succinic acid

CAS-No.

110-15-6

Revision Date

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. A.R.D. shall not be held liable for any damage resulting from handling or from contact with the above product.