

Section 1: Identification of the substance/mixture and of the company/undertaking**1.1. Product identifier****Product name:** DL-2-HYDROXYBUTANEDIOIC ACID**CAS number:** 6915-15-7**EINECS number:** 230-022-8**Product code:** A68330**Synonyms:** DL-MALIC ACID

(+) -2-HYDROXYSUCCINIC ACID

1.2. Relevant identified uses of the substance or mixture and uses advised against**Use of substance / mixture:** Laboratory Chemicals, Manufacture of Substances.**1.3. Details of the supplier of the safety data sheet****Company name:** PHILIP HARRIS

2 Gregory Street

Hyde

Cheshire

SK14 4HR

United Kingdom

Tel: +44 (0)845 1200 506**Fax:** +44 (0)161 367 2140**Email:** enquiries@philipharris.co.uk**1.4. Emergency telephone number****Emergency tel:** +44 (0) 845 1200 506**Section 2: Hazards identification****2.1. Classification of the substance or mixture****Classification under CLP:** STOT SE 3: H335; Acute Tox. 4: H302; Eye Dam. 1: H318; Skin Irrit. 2: H315**Classification under CHIP:** This product has no classification under CHIP.**2.2. Label elements****Label elements:****Hazard statements:** H315: Causes skin irritation.

H318: Causes serious eye damage.

H335: May cause respiratory irritation.

H302: Harmful if swallowed.

Signal words: Danger**Hazard pictograms:** GHS05: Corrosion

GHS07: Exclamation mark

SAFETY DATA SHEET

DL-2-HYDROXYBUTANEDIOIC ACID

Page: 2



Precautionary statements: P280: Wear protective gloves/protective clothing/eye protection/face protection.
P302+352: IF ON SKIN: Wash with plenty of water/.
P304+340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310: Immediately call a POISON CENTER/doctor/.
P321: Specific treatment (see instructions on this label).
P261: Avoid breathing dust/fumes/gas/mist/vapours/spray.

2.3. Other hazards

PBT: This product is not identified as a PBT/vPvB substance.

Section 3: Composition/information on ingredients

3.1. Substances

Chemical identity: DL-2-HYDROXYBUTANEDIOIC ACID

CAS number: 6915-15-7

EINECS number: 230-022-8

Section 4: First aid measures

4.1. Description of first aid measures

Skin contact: Wash immediately with plenty of soap and water. Consult a doctor.

Eye contact: Bathe the eye with running water for 15 minutes. Consult a doctor.

Ingestion: Wash out mouth with water. Never give anything by mouth to an unconscious person
Consult a doctor. Do not induce vomiting.

Inhalation: Remove casualty from exposure ensuring one's own safety whilst doing so. If breathing is irregular or stopped, administer artificial respiration. Consult a doctor.

4.2. Most important symptoms and effects, both acute and delayed

Skin contact: There may be mild irritation at the site of contact.

Eye contact: There may be irritation and redness.

Ingestion: There may be irritation of the throat.

Inhalation: No symptoms.

4.3. Indication of any immediate medical attention and special treatment needed

Immediate / special treatment: Show this safety data sheet to the doctor in attendance. The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section

SAFETY DATA SHEET
DL-2-HYDROXYBUTANEDIOIC ACID

Page: 3

Section 5: Fire-fighting measures

5.1. Extinguishing media

Extinguishing media: Suitable extinguishing media for the surrounding fire should be used. Use water spray to cool containers. CO₂, extinguishing powder or water jet. Fight larger fires with water jet or alcohol-resistant foam.

5.2. Special hazards arising from the substance or mixture

Exposure hazards: In combustion emits toxic fumes. In combustion emits toxic fumes of carbon dioxide / carbon monoxide.

5.3. Advice for fire-fighters

Advice for fire-fighters: Wear self-contained breathing apparatus. Wear protective clothing to prevent contact with skin and eyes.

Section 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions: Refer to section 8 of SDS for personal protection details. Turn leaking containers leak-side up to prevent the escape of liquid. Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to a safe area.

6.2. Environmental precautions

Environmental precautions: Do not discharge into drains or rivers. Contain the spillage using bunding.

6.3. Methods and material for containment and cleaning up

Clean-up procedures: Absorb into dry earth or sand. Transfer to a closable, labelled salvage container for disposal by an appropriate method.

6.4. Reference to other sections

Reference to other sections: Refer to section 8 of SDS. Refer to section 13 of SDS.

Section 7: Handling and storage

7.1. Precautions for safe handling

Handling requirements: Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. For precautions see section 2.2

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions: Store in a cool, well ventilated area. Keep container tightly closed. Containers which are open must be carefully resealed and kept upright to prevent leakage.

Suitable packaging: Must only be kept in original packaging.

[cont...]

SAFETY DATA SHEET
DL-2-HYDROXYBUTANEDIOIC ACID

Page: 4

7.3. Specific end use(s)

Specific end use(s): Apart from uses mentioned in section 1.2 no other specific uses are stipulated.

Section 8: Exposure controls/personal protection

8.1. Control parameters

Workplace exposure limits: No data available.

DNEL/PNEC Values

DNEL / PNEC No data available.

8.2. Exposure controls

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

Respiratory protection: Respiratory protection not required. Where risk assessment shows air-purifying respirators are appropriate use a full face respirator with multi purpose combination (US) or type AXBEK (EN14387 respirator cartridges as a back up to engineering controls. If the respirator is the sole means of protection use a full face supplied air respirator. Use respirators and components tested & approved under appropriate government standards eg CEN (EU) or NIOSH (US).

Hand protection: Protective gloves. Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching the gloves outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use.

Wash and dry hands. Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M) Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Eye protection: Ensure eye bath is to hand. Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN166(EU).

Skin protection: Protective clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Section 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

State: Solid

Colour: Colourless

[cont...]

SAFETY DATA SHEET
DL-2-HYDROXYBUTANEDIOIC ACID

Page: 5

Evaporation rate: No data available.

Oxidising: No data available.

Solubility in water: No data available.

Viscosity: No data available.

Boiling point/range°C: No data available.

Flammability limits %: lower: No data available.

Flash point°C: No data available.

Autoflammability°C: 340

Relative density: 1.6

VOC g/l: No data available.

Melting point/range°C: 131-133

upper: No data available.

Part.coeff. n-octanol/water: No data available.

Vapour pressure: No data available.

pH: No data available.

9.2. Other information

Other information: No data available.

Section 10: Stability and reactivity

10.1. Reactivity

Reactivity: Stable under recommended transport or storage conditions.

10.2. Chemical stability

Chemical stability: Stable under normal conditions.

10.3. Possibility of hazardous reactions

Hazardous reactions: Hazardous reactions will not occur under normal transport or storage conditions.

Decomposition may occur on exposure to conditions or materials listed below.

10.4. Conditions to avoid

Conditions to avoid: Heat.

10.5. Incompatible materials

Materials to avoid: Strong oxidising agents. Strong acids. Bases, Amines, Alkali metals, Metals, hexalithium disilicide, permanganates, e.g. potassium permanganate, Fluorine

10.6. Hazardous decomposition products

Haz. decomp. products: In combustion emits toxic fumes. In the event of fire see section 5.

Section 11: Toxicological information

11.1. Information on toxicological effects

Toxicity values:

Route	Species	Test	Value	Units
ORAL	RAT	LD50	1,600	mg/kg

[cont...]

SAFETY DATA SHEET
DL-2-HYDROXYBUTANEDIOIC ACID

Page: 6

Relevant hazards for substance:

Hazard	Route	Basis
Acute toxicity (ac. tox. 4)	ING	Hazardous: calculated
Skin corrosion/irritation	DRM	Hazardous: calculated
Serious eye damage/irritation	OPT	Hazardous: calculated
STOT-single exposure	INH	Hazardous: calculated

Symptoms / routes of exposure

Skin contact: There may be mild irritation at the site of contact.

Eye contact: There may be irritation and redness.

Ingestion: There may be irritation of the throat.

Inhalation: No symptoms.

Section 12: Ecological information

12.1. Toxicity

Ecotoxicity values: No data available.

12.2. Persistence and degradability

Persistence and degradability: Biodegradable.

12.3. Bioaccumulative potential

Bioaccumulative potential: No bioaccumulation potential.

12.4. Mobility in soil

Mobility: Readily absorbed into soil.

12.5. Results of PBT and vPvB assessment

PBT identification: This product is not identified as a PBT/vPvB substance.

12.6. Other adverse effects

Other adverse effects: Negligible ecotoxicity.

Section 13: Disposal considerations

13.1. Waste treatment methods

Disposal operations: Dispose according to legislation. Consult the appropriate local waste disposal expert about waste disposal. Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company.

Disposal of packaging: Dispose of as unused product.

NB: The user's attention is drawn to the possible existence of regional or national regulations regarding disposal.

[cont...]

SAFETY DATA SHEET
DL-2-HYDROXYBUTANEDIOIC ACID

Page: 7

Section 14: Transport information

14.1. UN number

UN number: UN1789

14.2. UN proper shipping name

Shipping name: HYDROCHLORIC ACID

14.3. Transport hazard class(es)

Transport class: 8

14.4. Packing group

Packing group: II

14.5. Environmental hazards

Environmentally hazardous: No

Marine pollutant: No

14.6. Special precautions for user

Special precautions: No special precautions.

Tunnel code: E

Transport category: 2

Section 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.2. Chemical Safety Assessment

Section 16: Other information

Other information

Other information: This safety data sheet is prepared in accordance with Commission Regulation (EU) No 453/2010.

* indicates text in the SDS which has changed since the last revision.

Phrases used in s.2 and s.3: H302: Harmful if swallowed.

H315: Causes skin irritation.

H318: Causes serious eye damage.

H335: May cause respiratory irritation.

Legal disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. This company shall not be held liable for any damage resulting from handling or from contact with the above product.