SECTION-1: Identification of the substance / mixture and the company / undertaking

Catalogue Number	CS-ZH-32760
Product Name	Malonaldehyde
CAS No.	542-78-9
Category	Fine Chemicals
Synonyms	Not available
Brand	Clearsynth Labs Ltd.
Identified uses	Laboratory Chemicals
Uses advised against	Not available
Company	Clearsynth Labs Ltd. Mumbai, India
Emergency Phone #	+91-22-245045900
REACH No.	Not available

SECTION 2: Hazards identification

Disclaimer: This is sample MSDS. Please email **sales@clearsynth.com** for more details.

2.1 Classification of the substance or mixture-Regulation (EC) No 1272/2008:

Not available

2.2 Label Elements

Signal Word: Not available

Not available

Hazard Statement(s)

Code	Statement
Not available	Not available

Precautionary Statement(s)

Code	Statement
Not available	Not available

SECTION 3: Composition / information on ingredients

3.1 Substance

Component : Malonaldehyde
CAS Number : 542-78-9
Molecular Formula : OCHCH2CHO or C3H4O2
Molecular Weight : 72.06 g/mol
Parent Chemical : Not available
Synonyms : Not available
Concentration : Not available

SECTION 4: First aid measures

SECTION 4: First-aid measures

4.1 Description of first aid measures
- General advice: Seek medical attention if symptoms occur or persist. Show this SDS to the physician.
- Inhalation: Move person to fresh air. If breathing is difficult, seek medical attention.
- Skin contact: Wash with plenty of soap and water. Remove contaminated clothing and wash before reuse. Seek medical attention if irritation develops.
- Eye contact: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Seek medical attention.
- Ingestion: Rinse mouth. Do not induce vomiting unless directed by medical personnel. Seek medical attention.

4.2 Most important symptoms and effects, both acute and delayed
- Not available.

4.3 Indication of any immediate medical attention and special treatment needed
- Treat symptomatically. No data available.

SECTION 5: Firefighting measures

SECTION 5: Fire-fighting measures

5.1 Extinguishing media
- Suitable extinguishing media: Use extinguishing measures appropriate to surrounding fire.
- Unsuitable extinguishing media: Not available.

5.2 Special hazards arising from the substance or mixture
- Hazardous combustion products: Not available.
- Specific hazards: Not available.

5.3 Advice for firefighters
- Wear self-contained breathing apparatus (SCBA) and full protective gear.
- Cool unopened containers exposed to fire with water spray.
- Prevent fire-fighting water from entering drains or waterways.

SECTION 6: Accidental release measures

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
- Avoid breathing dust/vapors/mist.

- Avoid contact with skin and eyes.
- Use appropriate personal protective equipment (see Section 8).
- Ensure adequate ventilation.

6.2 Environmental precautions
- Prevent further leakage or spillage if safe to do so.
- Avoid release to the environment. Prevent entry into drains, sewers, or waterways.

6.3 Methods and material for containment and cleaning up
- Contain spill.
- Collect spilled material using appropriate inert absorbent or suitable means.
- Place in a suitable, labeled container for disposal.
- Clean contaminated area with water and detergent as appropriate.

6.4 Reference to other sections
- See Section 8 for exposure controls/personal protection and Section 13 for disposal considerations.

SECTION-7: Handling and storage

SECTION 7: Handling and storage

7.1 Precautions for safe handling
- Handle in accordance with good industrial hygiene and safety practice.
- Avoid contact with skin, eyes, and clothing.
- Avoid breathing dust/vapors/mist.
- Use only with adequate ventilation.
- Keep container tightly closed when not in use.

7.2 Conditions for safe storage, including any incompatibilities
- Store in a cool, dry, well-ventilated place.
- Keep in original container, tightly closed.
- Protect from incompatible materials.
- Incompatible materials: Not available.

7.3 Specific end use(s)
- Fine chemical / laboratory use. No data available.

SECTION 8: Exposure controls / personal protection

SECTION 8: Exposure controls/personal protection

8.1 Control parameters
- Occupational exposure limits: Not available.
- Biological limit values: Not available.

8.2 Exposure controls
- Engineering controls: Provide adequate ventilation. Use local exhaust where appropriate.
- Personal protective equipment (PPE):
- Eye/face protection: Safety glasses with side shields or chemical splash goggles.
- Skin protection: Protective gloves. Protective clothing as appropriate.
- Respiratory protection: If ventilation is inadequate, use appropriate respiratory protection.

- Hygiene measures: Wash hands after handling. Remove contaminated clothing and wash before reuse.
- Environmental exposure controls: Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Test	Result
Appearance	No data available
IR spectrum	No data available
pH	No data available
Solubility	No data available

Property	Value
a) Physical State	No data available
b) Color	No data available
c) Odor	No data available
d) pH	No data available
e) Vapour Pressure	No data available
f) Viscosity	No data available
g) Initial Boiling Point and boiling range	No data available
h) Melting Point / Freezing Point	No data available
i) Auto Ignition Temperature	No data available
j) Flash Point	No data available
k) Explosion Limit, Lower	No data available
l) Explosion Limit, Upper	No data available
m) Decomposition Temperature	No data available
n) Loss on Drying	No data available
o) Relative Density	No data available
p) Solubility (in DMSO)	No data available
q) Oxidizing Properties	No data available

SECTION 10: Stability and reactivity

SECTION 10: Stability and reactivity

10.1 Reactivity
- No data available.

10.2 Chemical stability
- Stable under recommended storage conditions. No data available.

10.3 Possibility of hazardous reactions
- No data available.

10.4 Conditions to avoid
- Not available.

10.5 Incompatible materials
- Not available.

10.6 Hazardous decomposition products
- Not available.

SECTION 11: Toxicological information

11.1 Information on toxicological effects
- Acute toxicity: Uremic toxins such as malondialdehyde are actively transported into the kidneys via organic ion transporters (especially OAT3). Increased levels of uremic toxins can stimulate the production of reactive oxygen species. This seems to be mediated by the direct binding or inhibition by uremic toxins of the enzyme NADPH oxidase (especially NOX4 which is abundant in the kidneys and heart) (A7868). Reactive oxygen species can induce several different DNA methyltransferases (DNMTs) which are involved in the silencing of a protein known as KLOTHO. KLOTHO has been identified as having important roles in anti-aging, mineral metabolism, and vitamin D metabolism. A number of studies have indicated that KLOTHO mRNA and protein levels are reduced during acute or chronic kidney diseases in response to high local levels of reactive oxygen species (A7869). For more Non-Human Toxicity Excerpts (Complete) data for MALONALDEHYDE (15 total), please visit the HSDB record page.
- Skin corrosion/irritation: No data available.
- Serious eye damage/eye irritation: No data available.
- Respiratory or skin sensitization: No data available.
- Germ cell mutagenicity: EXPOSURE OF PRIMARY RAT SKIN FIBROBLAST CULTURES TO 1X10(-3) AND 1X10(-4) MOLAR MALONALDEHYDE GAVE DOSE-DEPENDENT PRODUCTION OF MICRONUCLEI. CHROMOSOMAL ABERRATIONS WERE PRODUCED IN 14 AND 34% OF METAPHASES, RESPECTIVELY. AT 24 HR, THE CORRESPONDING FREQUENCIES WERE 46 AND 52%. DOSE-DEPENDENT INCREASES IN ANEUPLOIDY WERE SEEN AT GREATER THAN OR EQUAL TO 1X10(-4) MOLAR MALONALDEHYDE. RAW AND COOKED MEAT WITH 30% FAT HAD HIGHER MALONALDEHYDE LEVELS THAN THE MEAT WITH 10% FAT. MALONALDEHYDE VALUES WERE HIGHER IN THE COOKED PATTIES THAN IN THE RAW. AMES TEST REVERTANT NUMBERS WERE HIGHER FOR THE EXTRACT FROM PATTIES COOKED TO 95 °C AT 218 °C THAN THOSE COOKED TO 83 °C AT 175 °C. REVERTANT NUMBERS WERE NOT DIFFERENT FOR PATTIES AT THE TWO DIFFERENT FAT LEVELS. GENERALLY THE LOWER COOKING TEMPERATURE RESULTED IN LOWER COOKING LOSSES, LOWER MALONALDEHYDE LEVELS, AND REVERTANT NUMBERS THAN DID THE HIGHER TEMPERATURES.

- Carcinogenicity: Evaluation: No epidemiological data relevant to the carcinogenicity of malonaldehyde were available. There is limited evidence in experimental animals for the carcinogenicity of malonaldehyde. Overall evaluation: Malonaldehyde is not classifiable as to its carcinogenicity to humans (Group 3) irritation eyes, skin, respiratory system; central nervous system depression; [potential occupational carcinogen]
- Reproductive toxicity: No data available.
- STOT-single exposure: No data available.
- STOT-repeated exposure: Uremic toxins such as malondialdehyde are actively transported into the kidneys via organic ion transporters (especially OAT3). Increased levels of uremic toxins can stimulate the production of reactive oxygen species. This seems to be mediated by the direct binding or inhibition by uremic toxins of the enzyme NADPH oxidase (especially NOX4 which is abundant in the kidneys and heart) (A7868). Reactive oxygen species can induce several different DNA methyltransferases (DNMTs) which are involved in the silencing of a protein known as KLOTHO. KLOTHO has been identified as having important roles in anti-aging, mineral metabolism, and vitamin D metabolism. A number of studies have indicated that KLOTHO mRNA and protein levels are reduced during acute or chronic kidney diseases in response to high local levels of reactive oxygen species (A7869). Chronic exposure to uremic toxins can lead to a number of conditions including renal damage, chronic kidney disease and cardiovascular disease.
- Aspiration hazard: No data available.

Likely routes of exposure
- No data available.

Symptoms related to the physical, chemical and toxicological characteristics
- MALONDIALDEHYDE, THE MOST STUDIED PRODUCT OF LIPID PEROXIDATION, WAS INVESTIGATED FOR POSSIBLE INHIBITORY EFFECTS ON ALDH FOR RAT LIVER MITOCHONDRIA. MALONDIALDEHYDE WAS A POTENT INHIBITOR OF THE ENZYME. THE ENZYME WAS EQUALLY SENSITIVE TO INHIBITION WHEN INTACT MITOCHONDRIAL PREPARATIONS WERE COMPARED WITH DISRUPTED MITOCHONDRIA. EXTENT OF INHIBITION DEPENDED ON MALONDIALDEHYDE CONCN AND TIME OF INCUBATION; HIGH CONCN COMPLETELY AND IRREVERSIBLY INHIBITED LOW KM MITOCHONDRIAL ALDH. THE RATE OF ALDH INACTIVATION WAS BIPHASIC, WITH RAPID AND SLOWER RATES BOTH DEPENDENT ON MALONDIALDEHYDE CONCN.

SECTION 12: Ecological information

SECTION 12: Ecological information

12.1 Toxicity
- No data available.

12.2 Persistence and degradability
- No data available.

12.3 Bioaccumulative potential
- No data available.

12.4 Mobility in soil
- No data available.

12.5 Results of PBT and vPvB assessment
- Not available.

12.6 Endocrine disrupting properties
- No data available.

12.7 Other adverse effects
- No data available.

SECTION 13: Disposal considerations

SECTION 13: Disposal considerations

13.1 Waste treatment methods
- Dispose of contents/container in accordance with local/regional/national/international regulations.
- Do not discharge to drains or the environment.
- Contaminated packaging: Dispose of as unused product or according to local regulations.
- Waste code: Not available.

SECTION 14: Transport information

SECTION 14: Transport information

- UN number: Not available.
- UN proper shipping name: Not available.
- Transport hazard class(es): Not available.
- Packing group: Not available.
- Environmental hazards: Not available.
- Special precautions for user: Not available.
- Transport in bulk according to IMO instruments: Not available.

SECTION 15: Regulatory information

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
- Not available.

15.2 Chemical safety assessment
- No data available.

SECTION 16: Other information

SECTION 16: Other information

- Product name: Malonaldehyde
- Catalog No.: CS-ZH-32760
- CAS No.: 542-78-9
- Supplier: Clearsynth Labs Ltd., Mumbai, India
- Emergency phone: +91-22-245045900

Disclaimer

- The information provided is believed to be accurate as of the date of preparation; however, no warranty is expressed or implied regarding its accuracy or completeness. Users must determine suitability for their particular purpose and comply with all applicable laws and regulations.

Revision information
- Revision date: Not available.
- Version: Not available.

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