

According to the UN GHS revision 8

Creation Date: April 30, 2026

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1. IDENTIFICATION

1.1 GHS Product identifier

Product name: Maleic hydrazide

Catalog Number: T20781

CAS Number: 123-33-1

1.2 Other means of identification

Other names: -

1.3 Recommended use of the chemical and restrictions on use

Identified uses:

1.4 Supplier's details

Company: Targetmol Chemicals Inc.

Address: 34 Washington Street, Wellesley Hills, Massachusetts 02481 USA

Tel/Fax: (781) 999-4286

1.5 Emergency phone number

Emergency phone number: 781-999-4286

Service hours: Monday to Friday, 9am-5pm (Standard timezone: UTC/GMT -5 hours).

2. HAZARD IDENTIFICATION

2.1 Classification of the substance or mixture

Skin irritation, Category 2

Eye irritation, Category 2

Specific target organ toxicity - single exposure, Category 3

Germ cell mutagenicity, Category 2

2.2 GHS label elements, including precautionary statements

Pictogram(s):



Signal word:

Warning

Hazard statement(s):

H315 Causes skin irritation
H319 Causes serious eye irritation
H335 May cause respiratory irritation
H341 Suspected of causing genetic defects

Precautionary statement(s):

Prevention:

P264 Wash ... thoroughly after handling.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P271 Use only outdoors or in a well-ventilated area.
P203 Obtain, read and follow all safety instructions before use.

Response:

P302+P352 IF ON SKIN: Wash with plenty of water/...
P321 Specific treatment (see ... on this label).

P332+P317 If skin irritation occurs: Get medical help.
P362+P364 Take off contaminated clothing and wash it before reuse.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P319 Get medical help if you feel unwell.
P318 IF exposed or concerned, get medical advice.

Storage: P403+P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.

Disposal: P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

2.3 Other hazards which do not result in classification

no data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number
Maleic hydrazide	-	123-33-1	204-619-9

4. FIRST-AID MEASURES

4.1 Description of necessary first-aid measures

General advice

no data available

If inhaled

Move the victim into fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration and consult a doctor immediately. Do not use mouth to mouth resuscitation if the victim ingested or inhaled the chemical.

Following skin contact

Take off contaminated clothing immediately. Wash off with soap and plenty of water. Consult a doctor.

Following eye contact

Rinse with pure water for at least 15 minutes. Consult a doctor.

Following ingestion

Rinse mouth with water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a doctor or Poison Control Center immediately.

4.2 Most important symptoms/effects, acute and delayed

Basic treatment: Establish a patent airway. Suction if necessary. Watch for signs of respiratory insufficiency and assist ventilations if necessary. Administer oxygen by nonrebreather mask at 10 to 15 L/min. Monitor for pulmonary edema and treat if necessary. Anticipate seizures and treat if necessary. For eye contamination, flush eyes immediately with water. Irrigate each eye continuously with normal saline during transport. Do not use emetics. For ingestion, rinse mouth and administer 5 ml/kg up to 200 ml of water for dilution if the patient can swallow, has a strong gag reflex, and does not drool. Administer activated charcoal. Cover skin burns with dry, sterile dressings after decontamination. Hydrazine and Related Compounds

4.3 Indication of immediate medical attention and special treatment needed, if necessary

Inhalation of dust causes irritation of nose and throat. Contact with eyes or skin causes irritation. Ingestion has been observed to cause tremors and muscle spasms in test animals. (USCG, 1999)

5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Extinguish with water, dry chemicals, foam or carbon dioxide.

5.2 Specific hazards arising from the chemical

Special Hazards of Combustion Products: Toxic nitrogen oxides are produced. (USCG, 1999)

5.3 Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Avoid breathing mist, gas or vapours. Avoid contacting with skin and eye. Use personal protective equipment. Wear chemical impermeable gloves. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

6.2 Environmental precautions

Prevent further spillage or leakage if it is safe to do so. Do not let the chemical enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

Ventilate area of spill or leak. Collect for reclamation, or absorb in vermiculite, dry sand, earth, or a similar material.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

7.2 Conditions for safe storage, including any incompatibilities

De-Cut, Fair Plus, Super De-sprout have indefinite shelf life and should be stored at room temp.

Powder: -20°C for 3 years | In solvent: -80°C for 1 year

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Occupational Exposure limit values

no data available

Biological limit values

no data available

8.2 Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Wear tightly fitting safety goggles with side-shields conforming to EN 166(EU) or NIOSH (US).

Skin protection

Wear fire/flame resistant and impervious clothing. Handle with gloves. Gloves must be inspected prior to use. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Respiratory protection

If the exposure limits are exceeded, irritation or other symptoms are experienced, use a full-face respirator.

Thermal hazards

no data available

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state

Solid

Color

no data available

Odour	Odorless
Melting point/freezing point	142°C(lit.)
Boiling point or initial boiling point and boiling range	123°C/10mmHg(lit.)
Flammability	no data available
Lower and upper explosion limit/flammability limit	no data available
Flash point	300°C
Auto-ignition temperature	707°F
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	DMSO: 100 mg/mL (892.14 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
N-octanol-water partition coefficient	log Kow= -0.68 pH = 5; -1.96 at pH = 7; -2.41 at pH = 9
Vapour pressure	0.289mmHg at 25°C
Density and/or relative density	1.6 g/cm ³
Relative vapour density	no data available
Particle characteristics	no data available

10. STABILITY AND REACTIVITY

10.1 Reactivity

no data available

10.2 Chemical stability

Very stable to both acidic & basic hydrolysis.

10.3 Possibility of hazardous reactions

MALEIC HYDRAZIDE can be decomposed by oxidizing agents. It can also be decomposed by strong acids. It forms water-soluble alkali-metal and amine salts. It is slightly acidic and may be titrated as a monobasic acid. Mild oxidation produces a compound which reacts instantly with dienes at -107° F to form crystalline derivatives. This chemical is slightly corrosive to iron and zinc. It is incompatible with pesticides that are highly alkaline in reaction. In the presence of heavy metal and iron, zinc, calcium and magnesium ions, sparingly-soluble salts are formed. (NTP, 1992)

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

If in presence of strong acid, maleic hydrazide acid may precipitate. Do not use concentrate through brass nozzles as the amine content may cause erosion.

10.6 Hazardous decomposition products

When heated to decomposition it emits highly toxic fumes of /nitrogen oxides/.

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral: LD50 Rat oral >5000 mg/kg

Inhalation: LC50 Rat inhalation >20 mg/L/1 hr

Dermal: LD50 Rabbit percutaneous >5000 mg/kg

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

Cancer Classification: Group E Evidence of Non-carcinogenicity for Humans

Reproductive toxicity

no data available

STOT-single exposure

no data available

STOT-repeated exposure

no data available

Aspiration hazard

no data available

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish: LC50 *Lepomis macrochirus* (Bluegill) 1608 mg/L/96 hr /Conditions of bioassay not specified

Toxicity to daphnia and other aquatic invertebrates: LC50 *Daphnia magna* 107.5 ppm /Technical maleic hydrazide, 90% ai

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

12.2 Persistence and degradability

Maleic hydrazide can serve as sole source of carbon & nitrogen for number of microorganisms & ... is very subject to bacterial decomp in soil .

12.3 Bioaccumulative potential

An estimated BCF of 3 was calculated for maleic hydrazide(SRC), using a log Kow of -1.96 (1) and a regression-derived equation(2).

According to a classification scheme(3), this BCF suggests the potential for bioconcentration in aquatic organisms is low(SRC).

12.4 Mobility in soil

The reported Koc of maleic hydrazide was 264 for a clay soil, and 23 for a sand(1). Based on a classification scheme(2), these Koc values suggest that maleic hydrazide has very high to moderate mobility in soil(SRC). In a field experiment in which 5 and 10 kg/ha of maleic hydrazide were applied, the hydrazide did not migrate below a depth of 10 cm(3). This may be due to extensive biodegradation of maleic hydrazide(3). Maleic hydrazide was shown to bind to the clay component in Aiken clay loam where anion exchange is the predominant process(4). In a study of the adsorption of maleic hydrazide in 22 different soils, adsorption was most significantly correlated to specific surface area, clay content, and pH(5). The lack of correlation of adsorption with organic content of the soils may have been partly caused by the low organic content of the soils studied (<2%)(5). Adsorption of the herbicide ranged from high to low(5). Based upon the above information, maleic hydrazide may generally be expected to be mobile in soils with low clay content and relatively immobile in soils with high clay content. The mobility also may be affected by pH and specific surface area of the soils(SRC).

12.5 Other adverse effects

no data available

13. DISPOSAL CONSIDERATIONS

13.1 Disposal methods

Product

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The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

14. TRANSPORT INFORMATION

14.1 UN Number

no data available

14.2 UN Proper Shipping Name

no data available

14.3 Transport hazard class(es)

no data available

14.4 Packing group, if applicable

no data available

14.5 Environmental hazards

no data available

14.6 Special precautions for user

no data available

14.7 Transport in bulk according to IMO instruments

no data available

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations specific for the product in question

European Inventory of Existing Commercial Chemical Substances (EINECS)	Listed.
EC Inventory	Listed.
United States Toxic Substances Control Act (TSCA) Inventory	Listed.
China Catalog of Hazardous chemicals 2015	Not Listed.
New Zealand Inventory of Chemicals (NZIoC)	Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)	Listed.
Vietnam National Chemical Inventory	Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)	Listed.
Korea Existing Chemicals List (KECL)	Listed.

16. OTHER INFORMATION

Information on revision

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Abbreviations and acronyms

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

References

IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>

HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>

IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>

eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en

CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>

ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>

ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>

Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>

ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

Other Information

no data available

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