SAFETY DATA SHEETS

According to the UN GHS revision 10

1: Identification

1.1 GHS Product identifier

Product name	Acrolein

1.2 Other means of identification

Product number	107-02-8
Other names	Acrolein

1.3 Recommended use of the chemical and restrictions on use

Identified uses	Industrial and scientific research use.
Uses advised against	no data available

1.4 Supplier's details

Company	Zhongshan Greenrock Technology Co., Ltd.
Address	No. 138, Jinsan Avenue, Sanjiao Town, Zhongshan City, Guangdong Province, China
Telephone	+86-2087066781

1.5 Emergency phone number

Emergency phone number	+86-2087066781
Service hours	Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

2: Hazard identification

2.1 Emergency Overview

Highly toxic substances, even small amounts of which can cause death or serious health effects. They can enter the body through inhalation, skin contact, or ingestion. Immediate protective measures must be taken to avoid any contact.

2.2 GHS Classification

Flammable liquids : Category 2
Acute toxicity, oral : Category 1, 2
Acute toxicity, oral : Category 3
Acute toxicity, dermal : Category 3
Skin corrosion/irritation : Category 1, 1A, 1B, 1C
Serious eye damage/eye irritation : Category 1
Acute toxicity, inhalation : Category 1, 2
Hazardous to the aquatic environment, acute hazard : Category 1

Hazardous to the aquatic environment, long-term hazard : Category 1

2.3 GHS label elements, including precautionary statements

Pictogram(s)	
Signal word	Danger
Hazard statement(s)	H225 Highly Flammable liquid and vapor H300 Fatal if swallowed H301 Toxic if swallowed H311 Toxic in contact with skin H314 Causes severe skin burns and eye damage H318 Causes serious eye damage H330 Fatal if inhaled H400 Very toxic to aquatic life H410 Very toxic to aquatic life with long lasting effects
Precautionary statement(s)	
Prevention	P210 Keep away from heat, hot surface, sparks, open flames and other ignition sources. No smoking. P233 Keep container tightly closed. P240 Ground/bond container and receiving equipment. P241 Use explosion-proof [electrical/ventilating/lighting/.../] equipment. P242 Use only non-sparking tools. P243 Take precautionary measures against static discharge. P260 Do not breathe dust/fume/gas/mist/vapors/spray. P262 Do not get in eyes, on skin, or on clothing. P264 Wash hands [and ...] thoroughly after handling. P270 Do not eat, drink or smoke when using this product. P271 Use only outdoors or in a well-ventilated area. P273 Avoid release to the environment. P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/... P284 [In case of inadequate ventilation] Wear respiratory protection. P264+P265 Wash hands [and ...] thoroughly after handling. Do not touch eyes.

Response	P316 Get emergency medical help immediately. P317 Get emergency medical help. P320 Specific treatment is urgent (see ... on this label). P321 Specific treatment (see ... on this label). P330 Rinse mouth. P363 Wash contaminated clothing before reuse. P391 Collect spillage. P301+P316 IF SWALLOWED,Get emergency medical help immediately. P301+P330+P331 IF SWALLOWED,Rinse mouth. Do NOT induce vomiting. P302+P352 IF ON SKIN,wash with plenty of water/... P302+P361+P354 IF ON SKIN,Take off Immediately all contaminated clothing. Immediately rinse with water for several minutes. P303+P361+P353 IF ON SKIN (or hair),Take off Immediately all contaminated clothing. Rinse SKIN with water [or shower]. P304+P340 IF INHALED,Remove person to fresh air and keep comfortable for breathing. P305+P354+P338 IF IN EYES,Immediately rinse with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. P361+P364 Take off immediately all contaminated clothing and wash it before reuse. P370+P378 In case of fire,Use ... to extinguish.
Storage	P405 Store locked up. P403+P233 Store in a well-ventilated place. Keep container tightly closed. P403+P235 Store in a well-ventilated place. Keep cool.
Disposal	P501 Dispose of contents/container to ...

2.4 Physical and chemical

Some substances may also be flammable or corrosive. Mixing with other substances may produce toxic products. Highly volatile substances can form toxic vapor clouds, expanding the hazard range.

2.5 Health hazards

Acute toxicity,May cause respiratory failure, cardiac arrest, nervous system depression, or organ failure. Severe symptoms may appear within a short period of exposure (minutes to hours). Long-term effects may include permanent organ damage.

2.6 Environmental hazards

It is extremely toxic to aquatic organisms and terrestrial ecosystems, and even a small release can cause large-scale biological mortality. It may persist in the environment and accumulate through the food chain, causing long-term damage to ecosystems.

2.7 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	Concentration
Acrolein	Acrolein	107-02-8	203-453-4	99%

4: First-aid measures

4.1 General advice

Stop contact immediately and move to a safe area; bring the material SDS document and call emergency services immediately; record the route of exposure (inhalation/skin/ingestion), exposure time and dosage for the doctor's judgment.

4.2 If inhaled

Quickly transfer the patient to a place with fresh air, keep the patient lying flat with the head tilted to one side (to prevent suffocation by vomitus); if cyanosis or breathing difficulties occur, immediately give oxygen (flow rate 5-10L/min); it is strictly forbidden to feed/drink water to the unconscious person, and seek medical attention immediately.

4.3 In case of skin contact

Immediately remove contaminated clothing (if clothing is stuck to the skin, cut it with scissors to avoid tearing it). Rinse the affected area with plenty of running water for 20-30 minutes (the water temperature should be around 37°C, avoiding excessive heat or cold). If the skin is damaged, cover it with sterile gauze after rinsing. Do not apply ointment.

4.4 In case of eye contact

Immediately flush with an eyewash station for 15 minutes (open the eyelids to ensure thorough flushing of the upper and lower fornixes); wear a light-shielding eye mask after flushing to avoid strong light stimulation, and immediately seek medical attention from an ophthalmologist (bring along the substance SDS).

4.5 If swallowed

Self-induced vomiting is strictly prohibited (especially with corrosive and toxic substances, which may cause secondary burns to the esophagus). If the patient is conscious and not convulsing, they can drink 50-100ml of milk under the guidance of a doctor (to protect the gastric mucosa).

4.6 Most important symptoms and effects, both acute and delayed

Acute symptoms: nausea and vomiting, abdominal pain, dyspnea, convulsions, confusion, and decreased blood pressure; delayed symptoms: liver and kidney damage (appearing within 24-72 hours), methemoglobinemia (such as nitrite poisoning).

4.7 Protection of first-aiders

Rescuers must wear fully enclosed chemical protective clothing, a gas mask (with a targeted gas filter cartridge, such as for organic vapors and acid gases), and chemical protective gloves; avoid direct contact with the patient's vomitus/secretions, and wash hands immediately with chlorine-containing disinfectant after contact.

4.8 Notes to physician

Inform the physician of the substance's toxicity (e.g., oral LD50 = 5 mg/kg) and route of exposure; prioritize gastric lavage (physician evaluation required for appropriateness) and administer antidotes (e.g., atropine for organophosphate poisoning); monitor liver and kidney function, electrolytes, and coagulation function.

5: Fire-fighting measures

5.1 Unsuitable extinguishing media

It is strictly forbidden to use fire extinguishing agents that may cause the spread of toxic substances (such as high-pressure water jets); if flammable liquids are involved, avoid using carbon dioxide (which may cause toxic vapor condensation).

5.2 Specific hazards during fire fighting

Combustion may be accompanied by the release of highly toxic substances (such as cyanide and arsenide), which are fatal by inhalation or skin contact; the combustion of flammable components can easily cause explosions and intensify the spread of toxic substances; toxic vapors are heavier than air and tend to accumulate in low-lying areas.

5.3 Hazardous combustion products

Highly toxic gases (such as hydrogen chloride, hydrogen fluoride, phosgene), carbon monoxide, nitrogen oxides; some contain heavy metal components that release toxic fumes such as mercury and lead.

5.4 Specific extinguishing methods

For small areas: use dry powder fire extinguishing agent to extinguish the fire, and dilute the toxic vapor with mist water (avoid direct spraying); for large areas: give priority to evacuation. If fire extinguishing is necessary, set up a fire extinguishing point upwind and cover it with foam (to isolate oxygen); after extinguishing the fire, test the area for toxicity concentration (entry is allowed only when the value is below MAC).

5.5 Special protective equipment for fire-fighters

Wear fully enclosed chemical protective clothing, gas masks (with targeted gas filter boxes, such as organic vapor + acidic gas), and chemical protective gloves (made of fluororubber); carry a portable toxic gas detector; equipment must be disinfected after the operation, and personnel must undergo health monitoring.

6: Accidental release measures

6.1 Protective measures for workers

Wear fully enclosed chemical protective clothing, positive pressure air respirator, chemical protective gloves (toxic-resistant type) and goggles; avoid direct contact with the skin and wash immediately after work.

6.2 Environmental protection measure

Isolate the 30-meter contaminated area to prevent the leak from spreading through rainwater/groundwater; take samples of water/soil for testing, and use activated carbon adsorption (organic poison) or neutralizer (inorganic poison) for treatment when exceeding the standard; strictly prohibit the leak from entering the drinking water source.

6.3 Containment methods for leaked chemicals

Collect liquids in corrosion-resistant sealed containers (marked with "toxic substances"); collect solids in chemical-resistant bags (to avoid dust); and store them separately in a hazardous waste warehouse after collection, away from food/feed.

6.4 Cleanup methods for chemical spills

Small leakage: absorb with special absorbent cotton (toxic-resistant) and put into chemical-proof bag; large leakage: professionals use chemical-proof pump to transfer to special storage tank; after cleaning, treat the ground with neutralizer (weak base for acid poison and weak acid for alkali poison).

6.5 Measures to prevent the spread of leaks

Set up a 30-meter isolation zone and prohibit unauthorized personnel from entering; volatile toxic substances require explosion-proof ventilation to reduce gas concentration; use chemical defense isolation belts to block them, and focus on monitoring low-lying areas (to prevent the accumulation of toxic substances).

6.6 Container leakage treatment

Minor leaks: Seal with compatible sealant; Serious leaks: Evacuate immediately, close the upstream valve (if safe), and have the toxic material disposal team handle it. It is strictly forbidden to open the container without authorization.

6.7 Special considerations

Workers must receive poisoning first aid training and carry antidotes (if applicable). In case of skin contact, flush immediately with plenty of water for 15 minutes. In case of inhalation poisoning, move immediately to fresh air and seek medical attention.

7: Handling and storage

7.1 Safe storage conditions

Store in a closed, impermeable dedicated warehouse (the walls are made of anti-corrosion materials, such as polyethylene coating); the container is made of corrosion-resistant material (such as polytetrafluoroethylene, glass-lined steel), with a double sealing cover (threaded cover + nitrile rubber sealing ring); the warehouse is equipped with a negative pressure ventilation system (air changes ? 8 times/hour), and the exhaust gas must be treated with activated carbon adsorption (adsorption efficiency ? 95%).

7.2 Storage precautions

Store them separately from food, feed, and medicine (isolation distance ? 3 meters), and strictly prohibit them from being adjacent to drinking water sources; clearly mark "highly toxic" and H code on container labels and store them separately on locked shelves; check the sealing of containers weekly and immediately transfer them to the emergency treatment area if any leakage is found; workers must wear fully enclosed chemical protective clothing before entering the warehouse.

7.3 VCI Storage Grade

Level 1 (highest): The inner wall of the metal container is coated with a VCI anti-rust coating (thickness ? 50?m), and the outer surface of the container is wrapped with a vapor phase anti-rust film; the concentration of toxic substances in the warehouse is tested monthly to ensure that it is lower than the MAC value (for example, MAC of oral toxic substances ? 0.1mg/m³).

7.4 Recommended storage temperature

10-30?, avoid extreme temperatures (below 0? or above 35?); volatile toxic substances must be kept at a temperature ?25? to reduce vapor release; refrigerated storage substances (such as certain biotoxins) must be maintained at 2-8? and equipped with dual power supply protection (if the label has a recommended storage temperature, the label shall prevail).

7.5 Handling

For precautions see Safety Data Sheet section 2
Advice on safe handling : Work under hood. Do not inhale substance/mixture.

8: Exposure controls/personal protection

8.1 Respiratory protection

Choose according to the exposure route: volatile substances require positive pressure air respirators; dust/aerosols require powered air-purifying respirators to ensure the protection factor (APF) ? 1000.

8.2 Recommended Filter type

For organic toxic substances, choose Type A filter cartridge (to protect against organic vapors, such as benzene and methanol); for inorganic toxic substances, choose Type B (to protect against ammonia) or Type E (to protect against acidic gases, such as hydrogen chloride); for dust, add Type P3 filter cotton.

8.3 Eye/face protection

Wear a full-face chemical protective mask. The mask material must be resistant to toxic penetration (such as fluororubber), and the lens must be anti-fog and anti-chemical corrosion.

8.4 Skin and body protection

Wear fully enclosed chemical protective clothing. The material must be compatible with toxic substances (such as polyethylene + neoprene composite material); the cuffs and ankles must be tightened and equipped with emergency escape zippers.

8.5 Hand protection

Wear toxic and chemical-resistant gloves, preferably made of fluororubber or butyl rubber, with a length of ?30 cm, covering the forearm, and change every 4 hours

8.6 Hygiene measures

Immediately after the operation, clean the skin with a special detergent (such as a weak alkaline detergent), and then rinse with running water for 15 minutes; clothes need to be disinfected at high temperature (above

60°C) before washing; regular physical examinations (blood routine, liver and kidney function tests every 3 months).

9: Physical and chemical properties and safety characteristics

Physical state	colourless to slightly yellow liquid
Colour	Colorless or yellowish liquid
Odour	Extremely sharp; extremely acrid, pungent, burnt sweet; hot fat
Melting point/freezing point	-87.7oC
Boiling point or initial boiling point and boiling range	52.7oC
Flammability	Class IB Flammable Liquid: Fl.P. below 22.78°C and BP at or above 37.78°C.Highly flammable.
Lower and upper explosion limit/flammability limit	Lower flammable limit: 2.8% by volume; Upper flammable limit: 31% by volume
Flash point	-26oC
Auto-ignition temperature	233.89°C (USCG, 1999)
Decomposition temperature	When heated to decomposition, it emits highly toxic fumes ...
pH	pH 6.0 (max), a 10% solution in water at 25°C
Kinematic viscosity	0.35 cP at 20°C
Solubility	In water:Soluble. 21.25 g/100 mL
Partition coefficient n-octanol/water	log Kow = -0.01
Vapour pressure	4.05 psi (20 °C)
Density and/or relative density	0.8389
Relative vapour density	1.94 (vs air)
Particle characteristics	no data available

10: Stability and reactivity

10.1 Reactivity

no data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Dangerous fire hazard when exposed to heat, flame, or oxidizers.The vapour is heavier than air and may travel along the ground; distant ignition possible.ACROLEIN can react violently with oxidizing agents. Polymerizes exothermically on contact with small amounts of acids (including sulfur dioxide), alkalis, volatile amines and pyridines, salts, thiourea, oxidizing agents (air) and on exposure to light and heat. Polymerization initiated by amines and pyridines occurs after a deceptive induction period. Water solutions of mineral acids and metal ions can initiate polymerization. The inhibitor (usually hydroquinone) greatly reduces tendency to polymerize. Undergoes Diels-Alder reaction with itself to give acrolein dimer. This can become a runaway reaction at 90°C [Kirk-Othmer, 4th Ed, Vol. 1]. Mixing in equal molar portions with any of the following substances in a closed container caused the temperature and pressure to increase: 2-aminoethanol, ammonium hydroxide, chlorosulfonic acid, ethylenediamine, ethyleneimine [NFPA 1991].

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Incompatible materials: Oxidizing agents, oxygen, bases, strong acids.

10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions - Carbon oxides.

11: Toxicological information

11.1 Acute toxicity

Oral: LD50 Rat oral 46 mg/kg
Inhalation: LC50 Mouse inhalation 66 ppm/6 hr
Dermal: no data available

11.2 Skin corrosion/irritation

no data available

11.3 Serious eye damage/irritation

no data available

11.4 Respiratory or skin sensitization

no data available

11.5 Germ cell mutagenicity

no data available

11.6 Carcinogenicity

Under the Draft Revised Guidelines for Carcinogen Risk Assessment (U.S. EPA, 1999), the potential carcinogenicity of acrolein cannot be determined because the existing "data are inadequate for an assessment of human carcinogenic potential for either the oral or inhalation route of exposure." There are no adequate human studies of the carcinogenic potential of acrolein. Collectively, experimental studies provide inadequate evidence that acrolein causes cancer in laboratory animals. Specifically, two inhalation bioassays in laboratory animals are inadequate to make a determination because of protocol limitations. Two gavage bioassays failed to show an acrolein-induced tumor response in 2 species of laboratory animals. Suggestive evidence of an extra-thoracic tumorigenic response in a drinking water study in female rats was not supported in the reanalysis of data by an independently-convened pathology working group. Questions were also raised about the accuracy of the reported levels of acrolein in the drinking water from this study. A skin tumor initiation-promotion study was negative, and the findings from an intraperitoneal injection study were of uncertain significance. Although acrolein has been shown to be capable of inducing sister chromatid exchange, DNA cross-linking and mutations under certain conditions, its highly reactive nature and the lack of tumor induction at portals of entry make it unlikely that acrolein reaches systemic sites at biologically-significant exposure levels. The observations of positive mutagenic results in bacterial systems occurred at high concentrations near the lethal dose. This evaluation replaces the cancer assessment for acrolein added to the IRIS database in 1988. Under the Risk Assessment Guidelines of 1986 (EPA/600/8-87/045) applied at that time, acrolein was classified as a possible human carcinogen (Category C). The 1988 classification for acrolein was based on the increased incidence of adrenal cortical adenomas in female rats and carcinogenic potential of an acrolein metabolite, its mutagenicity in bacteria, and its structural relationship to probable or known human carcinogens. The updated cancer characterization considered new study results and reevaluated previous studies.

11.7 Reproductive toxicity

No information is available on the reproductive effects of acrolein in humans. In available reproductive animal studies, rats exposed to 0.55 to 4 ppm (1.3 - 9.2 milligrams per cubic meter) of acrolein by inhalation, showed no effects on the number of pregnancies, the number and weights of the fetuses, or the overall reproductive fitness of the animals. No studies were located regarding developmental effects in humans or animals after inhalation exposure to acrolein.

11.8 STOT-single exposure

no data available

11.9 STOT-repeated exposure

no data available

11.10 Aspiration hazard

no data available

12: Ecological information

12.1 Toxicity

Toxicity to fish: LC50; Species: Lepomis macrochirus (Bluegill sunfish) fingerling, length 26.2 mm; Conditions: freshwater, flow through, 15.6°C, pH 7.7-8.0, hardness 71.4-81.7 mg/L $CaCO_3$, alkalinity 52-

61 mg/L $CaCO_3$, dissolved oxygen 7.7-8.0 mg/L; Concentration: 79 ug/L for 24 hr /formulated product
Toxicity to daphnia and other aquatic invertebrates: LC50; Species: Daphnia magna (Water flea); Concentration: 0.23 mg/L for 24 hr /Conditions of bioassay not specified
Toxicity to algae: EC50; Species: Pseudokirchneriella subcapitata (Green algae); Conditions: freshwater, static; Concentration: 50 ug/L for 5 days (95% confidence interval: 45-55 ug/L); Effect: population, abundance /95.03% purity
Toxicity to microorganisms: no data available

12.2 Persistence and degradability

AEROBIC: The half-life of acrolein in natural unsterilized water was 29 hours compared with 43 hours in sterilized (thymol-treated) water suggesting that biodegradation was partially responsible for the degradation(1). A loss of 100% was observed when 5 and 10 mg/L acrolein underwent a static incubation in the dark at 25°C with sewage inoculum for 7 days(2). In another experiment, acrolein reached 30% of its theoretical BOD in river water after 100 hrs(3). It has been reported that acrolein is metabolized easily in soil, being mineralized to carbon dioxide(4). Results of other biodegradation screening studies also indicate that acrolein would be readily degraded by mixed microbial populations(5-7). In contrast, no BOD removal was observed during a 5-day BOD dilution test in which effluent from a biological waste treatment plant was used(8). Acrolein, present at 100 mg/L, reached 0% of its theoretical BOD in 4 weeks using an activated sludge inoculum at 30 mg/L in the Japanese MITI test, however, the acrolein formed 3-hydroxypropanal in the water(9) which is the hydration reaction product of acrolein in water(10). Field and laboratory studies using irrigation channels suggested that the degradation of the hydration product of acrolein, 3-hydroxypropanal, occurs after the concentration of acrolein falls below 2-3 ppm. The degradation of 3-hydroxypropanal was also preceded by a 100-hour lag period, suggesting that biodegradation was occurring through the action of acclimated cultures(11). In a laboratory study conducted in an aerobic sandy loam soil from Phoenix AZ, acrolein was completely gone within 8 hours in the nonsterile soils and within 115 hours in the sterilized soil. The biotransformation half-life in the nonsterile soil was calculated to be 4.2 hours and four products/intermediates were identified: acrylic acid, 3-hydroxypropionic acid, 3-hydroxypropanal, and CO_2(12). Transformation products (acrylic acid, 3-hydroxypropionic acid) were also readily biotransformed and were presumably converted to CO_2 with a half-life of 29 days(12).

12.3 Bioaccumulative potential

An estimated BCF of 3 was calculated in fish for acrolein(SRC), using a log Kow of -0.01(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). Results of BCF tests using carp (Cyprinus carpio) which were exposed to acrolein over an 8-week indicate the compound has low bioconcentration(4), however, actual BCF values were not reported(SRC). A log BCF of 2.54 (BCF = 347) was measured for acrolein in a bluegill sunfish based on the whole body weight(5). In another study, a BCF of 344 was measured for acrolein in bluegill sunfish(6). However, these measured values may be an overestimate since total (14)C was measured in the fish, which may have resulted in the measurement of acrolein metabolites(7).

12.4 Mobility in soil

Using a structure estimation method based on molecular connectivity indices(1), the Koc of acrolein can be estimated to be 1.0(SRC). According to a classification scheme(2), this estimated Koc value suggests that acrolein is expected to have very high mobility in soil.

12.5 Other adverse effects

no data available

13: Disposal considerations

13.1 Disposal methods for waste chemicals

This must be handled by a qualified unit that handles highly toxic waste, using high-temperature incineration (800-1000°C) or chemical neutralization (such as oxidative decomposition) to completely destroy the toxicity. Liquid highly toxic substances must be solidified before incineration. Those that cannot be incinerated must be stabilized/solidified before being safely landfilled.

13.2 Precautions

Disposal personnel must wear fully enclosed chemical protective suits and positive pressure respirators; waste must be strictly classified and packaged to prevent leakage; exhaust gas and wastewater generated during the disposal process must meet discharge standards; mixing with other types of waste is prohibited; and disposal records must be kept for at least 10 years for traceability.

14: Transport information

14.1 UN Number

ADR/RID: UN1092
IMDG: UN1092
IATA: UN1092

14.2 UN Proper Shipping Name

ADR/RID: ACROLEIN, STABILIZED
IMDG: ACROLEIN, STABILIZED
IATA: ACROLEIN, STABILIZED

14.3 Transport hazard class(es)

ADR/RID: 6.1
IMDG: 6.1
IATA: 6.1

14.4 Packing group, if applicable

ADR/RID: I
IMDG: I
IATA: I

14.5 Environmental hazards

ADR/RID: yes
IMDG: yes
IATA: yes

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

Chemical name	Common names and synonyms	CAS number	EC number
Acrolein	Acrolein	107-02-8	203-453-4
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Listed.
Australian Inventory of Industrial Chemicals (AIIC)			Not Listed.
Catalogue of Strictly Restricted Toxic Chemicals in China			Not Listed.
China Catalog of Hazardous chemicals 2015			Listed.
European INventory of Existing Commercial chemical Substances			Not Listed.
IARC Monographs on the Evaluation of Carcinogenic Risks to Humans			Listed.
TSCA Inventory of Chemical Substances			Listed.

16: Other information

Information on revision

SDS Creation Date	July 1, 2025
SDS Revision Date	July 1, 2025

Abbreviations and acronyms in SDS

- 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%

SDS 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/

Any questions regarding this Safety Data Sheet, Please send your inquiry to sales@MolBest.com

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