



Shandong Lichen Chemical Co.,Ltd

Material Safety Data Sheet

According to Regulation (EU) No. 1907/2006 (REACH), Annex II

Version: 1.0/EN

Revision date: 25/01/2022

Product name: FRD-90 Disinfecting Granules/ Powder /Tablets

Printing date: 25/01/2022

Section 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name: Disinfecting Granules/Powder/Tablets
Substance name: Trichloroisocyanuric acid
REACH Reg. No.: The substance is only used in biocidal products and included either in the Annex I of Regulation (EC) No 1451-2007. It shall be regarded as being registered according to the Article 15 of REACH.
Index No.: 613-031-00-5
CAS No.: 87-90- 1
EC No.: 201-782-8

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses: Algaecide, bactericide, disinfectant, fungicide, microbiocide/microbiostat (Active ingredient in household dry bleaches; dishwashing compounds, scouring powders; detergent sanitizers, commercial laundry; bleaches, swimming pool disinfectant).
Uses advised against: No uses advised against.

1.3 Details of the supplier of the SDS

Manufacturer: Henan Qx Trade Co.,Ltd.
Address: Zhengzhou City, Henan,China

1.4 Emergency telephone number

In China: +86-0371-63232677 (Only office hours available.)

Section 2: Hazards identification



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2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008[CLP]

This substance is classified in the Annex VI of Regulation (EC) No 1272/2008 as such:

Oxidising solids, category 2; H272

Acute toxicity oral category 4; H302

Eye irritation, category 2; H319

Specific Target Organ Toxicity - Single exposure category 3; H335

Hazardous to the aquatic environment, Acute hazard category 1; H400

Chronic hazard category 1; H410

Classification according to Council Directive 67/548/EEC [DSD]

This substance is classified in the Annex I of Directive 67/548/EEC as such:

O; R8 - Xn; R22 - Xi; R36/37 - R31 - N; R50/53

Additional information

Full text of R-phrase(s) and H-statement(s): see section 16.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 [CLP]

Substance name: Symclosene

Hazard pictogram(s):

Signal word: GHS03 GHS07 GHS09
Danger

Hazard statements: H272 May intensify fire; oxidizer.
H302 Harmful if swallowed.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements:

Prevention: P210 Keep away from heat/sparks/open flames/hot surfaces.-No smoking.
P221 Take any precaution to avoid mixing with combustibles .
P273 Avoid release to the environment.

Response: P301 + P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Disposal: P501 Dispose of contents/container in accordance with local/ regional/ national/ international



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_regulations.

Supplemental Hazard information (EUH):

EUH031 Contact with acids liberates toxic gas.

Special rules for supplemental label elements for certain mixtures:

No information available.

2.3 Other hazards

No information available.

Section 3: Composition/information on ingredients

3.1 Substance information

Substance name: Symclosene;

Synonyms: Trichloroisocyanuric acid; Trichloro- 1,3,5-triazinetriion; TCCA,
Trichloro- s- triazinetrione

Index No. : 613-031-00-5

CAS No. : 87-90- 1

EC No. : 201-782-8

Molecular Formula: $C_3Cl_3 N_3O_3$

Molecular Weight: 232.41

Purity: >98% (The rest unspecified ingredients are impurities, and they are not hazard.)

Section 4: First aid measures

4.1 Description of first aid measures

General notes: In all cases of doubt, or when symptoms persist, seek medical attention.

Following inhalation:

If inhaled, remove to fresh air. If irregular or not breathing, give artificial respiration. If breathing is difficult, oxygen should be administered by qualified personnel. Call for medical attention immediately.

Following skin contact:

In case of contact with skin, wash off immediately with plenty of water. Immediately remove all contaminated clothing including footwear. If irritation persists, get medical attention.

Following eye contact:

Check for and remove any contact lenses. Immediately flush eyes with clean water for at least 15 minutes. Retract eyelids to ensure complete wash of all eye and lid tissues. In case of continued irritation, get medical attention immediately.



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Following ingestion:

If victim is conscious and alert, allow to rinse mouth, and then drink two cups of water. Never give anything by mouth to an unconscious person. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs spontaneously, keep airway clear. Drink more water when vomiting stops. Seek medical attention immediately.

Notes for the doctor:

Treat symptomatically and supportively.

Treatment may vary with condition of victim and specifics of incident.

4.2 Most important symptoms and effects, both acute and delayed

Inhalation: Cough. Sore throat. Laboured breathing.

Skin : Redness.

Eyes: Redness. Pain. Burns.

Ingestion: Abdominal pain. Burning sensation. Shock or collapse.

Human Health Hazards: Corrosive. Avoid contact with eyes, can cause irreversible eye damage. Avoid contact with skin; may cause burns to moist skin, if not promptly removed. Avoid breathing this material; may be fatal, if inhaled. Harmful if swallowed.

4.3 Indication of the immediate medical attention and special treatment needed

Persons with pre-existing skin, eye, or respiratory disease may be at increased risk from the irritant or allergic properties of this material. Attending physician should treat exposed patients symptomatically.

Section 5: Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media:

Water in large amounts. Foam . Dry powder.

Unsuitable extinguishing media:

In case of fire: cool drums, etc., by spraying with water but avoid contact of the substance with water.

5.2 Special hazards arising from the substance or mixture

Not combustible but enhances combustion of other substances. Gives off irritating or toxic fumes (or gases) in a fire. In case of combustion or heat by an outside source (temperatures > 240°C), the product will release under a self-sustaining decomposition dense noxious gases (e.g. hydrogen oxide, nitrous oxides) without visible flame. Wet material may generate nitrogen trichloride, an explosion hazard. Risk of explosion when heated and on contact with combustible substances and other substances.

5.3 Advice for fire-fighters



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Do not stay in dangerous zone without self-contained breathing apparatus.

In order to avoid contact with skin, keep a safety distance and wear suitable protective clothing.

Section 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Isolate hazard area and keep unnecessary people away. Wear chemical safety goggles. Have suitable clothing and gloves, avoid exposing skin. A self-contained breathing apparatus should be used, if working in contaminated area. Remove clothing immediately after work. Wash hands thoroughly before eating, drinking, smoking or using the toilet.

6.2 Environmental precautions

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

6.3 Methods and material for containment and cleaning up

Stop leak if without risk. Do not get water inside container. Avoid raising dust. Ensure ventilation and circulation of air. Prevent entry into sewers, water supplies and confined areas. Damp material/product should be neutralized to a non-oxidizing state. When material is being removed, follow the directions under section 7. Call for further assistance on disposal.

6.4 Reference to other sections

See Section 7 for information on safe handling.

See section 8 for information on personal protection equipment.

See Section 13 for information on disposal.

Section 7: Handling and storage

7.1 Precautions for safe handling

Do not get in eyes, on skin, and or on clothing. Avoid breathing dust and vapors when opening product containers. Ensure adequate ventilation. Wash thoroughly after handling. Never add water to this product; always add the product to large quantities of water. Use clean and dry utensils.

7.2 Conditions for safe storage, including any incompatibilities

Follow all current regulations and standards. Keep properly labeled product container tightly closed and dry in a cool, well ventilated area. Keep away from heat and direct sunlight. Keep away from food, drink, animal feed. Keep away from potential sources of ignition and any incompatible substances.



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7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

Section 8 : Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limit values:

TLV–TWA: 0.5 ppm (1.5 mg/m³)

TLV–STEL: 1 ppm (3.0 mg/m³) (IUCLID)

DNEL(Derived No Effect Level) for workers:

There are no DNEL values for workers established for the substance.

DNEL(Derived No Effect Level) for the general population:

There are no DNEL values for the general population established for the substance.

PNEC(Predicted No Effect Concentration) values:

There are no PNEC values established for the substance.

8.2 Exposure controls

Appropriate engineering controls:

Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Personal protective equipment:

Eye and face protection: Sufficient eye protection must be worn. Wear glasses with side protection.

Skin protection: Body protection:

Depending on the risk, wear a tight, long apron and boots or suitable chemical protection clothing.

Hand protection:

Experience says that polychloroprene, nitrile rubber, butyl rubber, fluoro-caoutchouc, and polyvinyl chloride are suitable as glove materials for protection against un-dissolved solids.

Glove material: Nitrile rubber

Glove thickness: 0.11 mm; Break through time: > 6h

Respiratory protection: In an emergency (e.g.: unintentional release of the substance) respiratory protection must be worn. Consider the maximum period for wear. Respiratory protection: Particle filter P2 or P3, colour code white.

Environmental exposure controls:

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.



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Discharge into the environment must be avoided.

Industrial hygiene:

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

Section 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance:	Granules/ Tablets
Colour:	White
Odour:	Chlorine
pH:	2.7-3.3 at 25°C (1% aqueous solution)
Melting point:	No data available.
Boiling point:	No data available.
Bulk density:	2.07 g/cm ³ at 25°C
Vapour pressure:	No applicable.
Partition coefficient (n -octanol/water):	Log Kow = 0.94 (estimated) (HSDB)
Solubility(ies):	12 g/l in water at 25°C
Flash point:	No data available.
Flammability:	Non flammable .
Decomposition temperature:	225°C
Explosive properties:	Non explosive.
Oxidising properties:	No data available.

9.2 Other information

No data available.

Section 10: Stability and reactivity

10.1 Reactivity

Wet material may generate nitrogen trichloride, a potential explosion hazard.

Avoid contact with any oxidizable organic material.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of hazardous reactions

A risk of explosion and/or of toxic gas formation exists with the following substances: Organic Substances,



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combustible substances, nitrogenous compounds, Ammonia, ammonium compounds, urea, bases, Oxidizing agents, Reducing agents, Water.

Generates dangerous gases or fumes in contact with: acids.

10.4 Conditions to avoid

Incompatible materials. Heating (explosive decomposition). Exposure to moisture.

10.5 Incompatible materials

Incompatible products are acids, ammonia, bases, calcium hypochlorite, reducing agents and organic solvents.

10.6 Hazardous decomposition products

Hazardous decomposition and combustion products such as chlorine, cyanogens chloride, hydrogen oxide, nitrogen, nitrogen trichloride, nitrous oxides, and phosgene can be generated when in contact with heat or water.

Section 11: Toxicological information

11.1 Toxicokinetics, metabolism and distribution

No relevant information available.

11.2 Information on toxicological effects

Acute toxicity:

Acute Oral toxicity: LDLo = 1900 mg/kg (rabbit) (NLM Dataset);

Acute Inhalation toxicity: LC₅₀ > 2000 mg/m³/ 1h (rat) (NLM Dataset);

Acute Dermal toxicity: LDLo = 5010 mg/kg (rabbit) (NLM Dataset);

Skin corrosion/irritation:

Rabbit, slight irritation .

Serious eye damage/irritation:

Rabbit: Eye irritation.

Respiratory or skin sensitization:

The substance is not classified as skin sensitization.

CMR effects (Carcinogenicity, Mutagenicity and Toxicity for Reproduction):

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.

The substance is not classified as mutagens or toxic to reproduction.

STOT-single exposure and repeated exposure:

Effects of short-term exposure:



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The substance is severely irritating to the eyes and the respiratory tract and is mildly irritating to the skin. Corrosive on ingestion. Inhalation of the dust may cause lung oedema (see Notes).

The substance is classified as specific target organ toxicant, single exposure, hazard category 3.

Additional information:

RTECS # XZ1925000

Section 12: Ecological information

12.1 Toxicity

Acute toxicity to fish: $LC_{50} = 0.2 \text{ mg/l/96h}$ (*Lepomis macrochirus*)(ECOTOX Database);

Acute toxicity to daphnia: $EC_{50} = 0.17 \text{ mg/l/48h}$ (*Daphnia magna*)(ECOTOX Database);

Acute toxicity to bacteria: $EC_{50} = 0.6 \text{ mg/l/0.5h}$ (*Photobacterium phosphoreum*) (Merck).

12.2 Persistence and degradability

Aerobic: Cyanuric acid is ultimately the end product of use of chloroisocyanurates in bleaching, sanitizing, and disinfection applications. Since the N-chloro derivatives are biocidal, biodegradation studies have centered on the residual cyanuric acid, which has been shown to undergo biodegradation under environmental conditions. In the Japanese MITI test, trichloroisocyanuric acid reacted with water to form isocyanuric acid, which is confirmed to be biodegradable. (HSDB)

12.3 Bioaccumulative potential

An estimated BCF of 3.1 was calculated for trichloroisocyanuric acid, using water solubility of $1.20 \times 10^{-4} \text{ mg/l}$ and a regression-derived equation. According to a classification scheme, this BCF suggests the potential for bioconcentration in aquatic organisms is low. In the Japanese MITI test, trichloroisocyanuric acid reacted with water to form isocyanuric acid, which is confirmed to be not bioaccumulative. (HSDB)

12.4 Mobility in soil

The Koc of trichloroisocyanuric acid is estimated as 25, using a water solubility of $1.20 \times 10^{-4} \text{ mg/l}$ and a regression-derived equation. According to a classification scheme, this estimated Koc value suggests that trichloroisocyanuric acid is expected to have very high mobility in soil. (HSDB)

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment information is not available as chemical safety assessment not conducted.

12.6 Other adverse effects

Harmful effect on aquatic organisms.

Endangers drinking-water supplies if allowed to enter soil and/or waters in large quantities.



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Section 13: Disposal considerations

13.1 Waste treatment methods

Waste must be disposed in accordance with applicable federal, state and local environmental control regulations. Keep spilled product out of trash containers, drains, and sewers. Incompatible material can cause a reaction and combustion. Do not transport wet or damp material. Damp material should be neutralized. Contact Company for further disposal instructions.

Section 14: Transport information

14.1 Land transport (ADR/RID/GGVSE)

UN-No.:	2468
Official transport designation:	TRICHLOROISOCYANURIC ACID, DRY
Class:	5.1
Classification Code:	O2
Packing group:	II
Hazard label:	5.1

14.2 Sea transport (IMDG-Code/GGVSee)

Proper Shipping Name:	TRICHLOROISOCYANURIC ACID, DRY
Class:	5.1
UN-No.:	2468
Packing group:	II
EmS No.:	F-A, S-Q

14.3 Air transport (ICAO- TI/IATA-DGR)

Proper Shipping Name:	TRICHLOROISOCYANURIC ACID, DRY
Class:	5.1
UN-No.:	2468
Packing group:	II

14.4 Additional information

No other information available.

Section 15: Regulatory information



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25/01/2022 **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

EU regulation:

Authorisations: No information available.

Restrictions on use: No information available.

EINECS: CAS# 87-90- 1 is listed in the inventory.

DSD (67/548/EEC): CAS# 87-90- 1 is listed in the Annex I.

1451/2007/EC: CAS# 87-90- 1 is listed in the Annex I Active substances identified as existing.

Other chemical regulation:

USA - TSCA: CAS# 87-90- 1 is listed in the inventory.

Canada – DSL/NDSL: CAS# 87-90- 1 is listed in the DSL inventory.

Australia - AICS: CAS# 87-90- 1 is listed in the inventory.

Korea - ECL: CAS# 87-90- 1 is listed in the inventory.

China - IECSC: CAS# 87-90- 1 is listed in the inventory.

15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance.

Section 16: Other information

16.1 Revision Information:

Date of the previous revision: Not applicable.

Date of this revision: 25/01/2011.

Revision summary: The first new SDS

16.2 Abbreviations and acronyms

CLP: EU regulation (EC) No 1272/2008 on classification, labelling and packaging of chemical substances and mixtures.

CAS: Chemical Abstracts Service (division of the American Chemical Society).

EINECS: European Inventory of Existing Commercial Chemical Substances.

RID: European Rail Transport .

IMDG: International Maritime Code for Dangerous Goods.

IATA: International Air Transport Association.

OSHA: The United States Occupational Safety and Health Administration.

TSCA: Toxic Substances Control Act, The American chemical inventory.

DSD: Dangerous Substance Directive (67/548/EEC) .

DSL/NDSL: Domestic Substances List/Non-Domestic Substances List,The Canadian chemical inventory.

AICS: The Australian Inventory of Chemical Substances.

ECL: Existing Chemicals List, the Korean chemical inventory.



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IECSC: Inventory of existing chemical substances in China.

16.3 Key literature references and sources for data

ESIS IUCLID Dataset: European chemical Substances Information System .

HSDB: Hazardous Substances Data Bank.

NLM Dataset: United States National library of medicine.

ICSC: International Chemical Safety Cards.

16.4 Relevant R-phrases and H-statements

R-phrases (code and full text):

R8 Contact with combustible material may cause fire.

R22 Harmful if swallowed.

R36/37 Irritating to eyes and respiratory system .

R31 Irritating to eyes and respiratory system .

R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

H-statements (code and full text):

H272 May intensify fire; oxidizer.

H302 Harmful if swallowed.

H319 Causes serious eye irritation.

H335 May cause respiratory irritation.

H410 Very toxic to aquatic life with long lasting effects.

H400 Very toxic to aquatic life.

EUH031 Contact with acids liberates toxic gas.

16.5 Training advice

Provide adequate information, instruction and training for operators.

16.6 Declare to reader

The information in this Safety Data Sheet (SDS) was obtained from sources which we believe are reliable. However, the information is provided without any warranty, express or implied, regarding its correctness. The conditions or methods of handling, storage, use or disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. This SDS was prepared and is to be used only for this product. If the product is used as a component in another product, this SDS information may not be applicable. According to REACH Article 31(5), the SDS shall be supplied in an official language of the Member State(s) where the substance or mixture is placed on the market, unless the recipient Member State(s) concerned provide otherwise. It should also be noted that this SDS is applicable to the countries with English as an official



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language.

----- End of the SDS -----