

FRD-90 Disinfecting Powder/Granules/Tablet

Safety Data Sheet

according to Regulation (EU) 2015/830
Date of issue: 9/26/2018 Version: 1.0

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

1.1. Product identifier

Product form	: Trichloroisocyanuric acid
Trade name	: FRD-90 Disinfecting Powder/Granules/Tablet
Substance name	: Symclosene
EC Index-No.	: 613-031-00-5
EC-No.	: 201-782-8
CAS-No.	: 87-90-1
Formula	: C3Cl3N3O3
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.

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

1.2.1. Relevant identified uses

Use of the substance/mixture : Algaecide, bactericide, disinfectant, fungicide, microbiocide/microbiostat (Active ingredient in household dry bleaches; dishwashing compounds, scouring powders; detergent sanitizers, commercial laundry; bleaches, swimming pool disinfectant).

1.2.2. Uses advised against

Restrictions on use : No uses advised against.

1.3. Details of the supplier of the safety data sheet

Manufacturer: HEZE HUAYI CHEMICAL CO., LTD.
Address: No.1 East Construction Street, Juancheng County, Shandong, China.

E-mail: chem6@huayi-chem.com

Telephone: +86-530-2402588

Fax:

Importer:

Address:

E-mail:

Telephone:

Fax:

1.4. Emergency telephone number

Emergency number : In China: +86-530-2402588 (Only office hours available.)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Oxidising Liquids, Category 2	H272
Acute toxicity (oral), Category 4	H302
Serious eye damage/eye irritation, Category 2	H319
Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation	H335
Hazardous to the aquatic environment — Acute Hazard, Category 1	H400
Hazardous to the aquatic environment — Chronic Hazard, Category 1	H410
Full text of H statements : see section 16	

Adverse physicochemical, human health and environmental effects

No information available.

2.2. Label elements

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

Hazard pictograms (CLP) :



GHS03

GHS07

GHS09

Signal word (CLP) :

Danger

Hazard statements (CLP) :

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

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Precautionary statements (CLP)

- : P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- P220 - Keep away from clothing and other combustible materials.
- P273 - Avoid release to the environment.
- P301+P312 - IF SWALLOWED: Call a POISON CENTRE or doctor 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.
- P391 - Collect spillage.
- P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Name	: Symclosene
Synonyms	: Trichloroisocyanuric acid; Trichloro-1,3,5-triazinetriol; TCCA, Trichloro-s-triazinetriol
CAS-No.	: 87-90-1
EC-No.	: 201-782-8
EC Index-No.	: 613-031-00-5

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Symclosene	(CAS-No.) 87-90-1 (EC-No.) 201-782-8 (EC Index-No.) 613-031-00-5	>98	Ox. Sol. 2, H272 Acute Tox. 4 (Oral), H302 Eye Irrit. 2, H319 STOT SE 3, H335 Aquatic Acute 1, H400 Aquatic Chronic 1, H410

Full text of H-statements: see section 16

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	: Call a poison center or a doctor if you feel unwell.
First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Call a poison center or a doctor if you feel unwell.
First-aid measures after 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.
First-aid measures after eye contact	: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Retract eyelids to ensure complete wash of all eye and lid tissues. If eye irritation persists: Get medical advice/attention.
First-aid measures after 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.

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

Symptoms/effects	: Harmful if swallowed. Skin:redness Ingestion: Abdominal pain. Burning sensation. Shock or collapse.
Symptoms/effects after inhalation	: May cause respiratory irritation. Inhalation:Cough. Sore throat. Laboured breathing.
Symptoms/effects after eye contact	: Eye irritation. Eyes: Redness. Pain. Burns. Avoid contact with eyes, can cause irreversible eye damage.

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

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Water spray. Dry powder. Foam.

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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

Fire hazard : May intensify fire; oxidiser.
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.

Hazardous decomposition products in case of fire : Toxic fumes may be released.

5.3. Advice for firefighters

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Ventilate spillage area. 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. No open flames, no sparks, and no smoking. Avoid breathing dust/fume/gas/mist/vapours/spray. Avoid contact with skin and eyes.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

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

6.3. Methods and material for containment and cleaning up

For containment : Collect spillage.

Methods for cleaning up : Stop leak if without risk. Pick up and transfer to properly labelled containers.
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.
Notify authorities if product enters sewers or public waters.

Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Wear personal protective equipment. Use only outdoors or in a well-ventilated area. Avoid breathing dust/fume/gas/mist/vapours/spray. Avoid contact with skin and eyes. Never add water to this product; always add the product to large quantities of water. Use clean and dry utensils.

Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : 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.

Incompatible materials : combustible materials.

7.3. Specific end use(s)

No information available.

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)

8.2. Exposure controls

Appropriate engineering controls:

Ensure good ventilation of the work station.

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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

Eye protection:

Sufficient eye protection must be worn. Wear glasses with side protection.

Skin and body protection:

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

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:

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

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Appearance	: Powder/Granules/Tablet.
Colour	: White
Odour	: Chlorine
Odour threshold	: No data available
pH	: 2.7-3.3 at 25°C (1% aqueous solution)
pH solution	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Relative evaporation rate (ether=1)	: No data available
Melting point	: 246.8 °C
Freezing point	: No data available
Boiling point	: No data available
Flash point	: No data available
Critical temperature	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: 225°C
Flammability (solid, gas)	: Non flammable.
Vapour pressure	: No applicable.
Critical pressure	: No data available
Relative vapour density at 20 °C	: No data available
Relative density	: No data available
Relative density of saturated gas/air mixture	: No data available
Density	: ≥ 2.04 - ≤ 2.1 g/mL (25 °C)
Bulk density	: 2.07 g/cm ³ at 25°C
Relative gas density	: No data available
Solubility	: Water: 12 g/l (25°C)
Log Pow	: No data available
Log Kow	: 0.94 (estimated) (HSDB)
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: Non explosive.
Oxidising properties	: No data available.
Explosive limits	: No data available
Lower explosive limit (LEL)	: No data available
Upper explosive limit (UEL)	: No data available

9.2. Other information

No additional information available

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SECTION 10: Stability and reactivity

10.1. Reactivity

May intensify fire; oxidiser.

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

Avoid contact with any oxidizable organic material.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

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

Avoid contact with hot surfaces. Heat. No flames, no sparks. Eliminate all sources of ignition.

10.5. Incompatible materials

Combustible materials. 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. Information on toxicological effects

Acute toxicity (oral) : Oral: Harmful if swallowed.

Acute toxicity (dermal) : Not classified

Acute toxicity (inhalation) : Not classified

Symclosene (87-90-1)

LD50 oral rat	406 mg/kg
LDLo oral rabbit	1900 mg/kg (rabbit) (NLM Dataset);
LD50 dermal rabbit	> 2000 mg/kg
LDLo dermal rabbit	5010 mg/kg (NLM Dataset)
LC50 inhalation rat (mg/l)	0.09 - 0.29 mg/l/4h
LC50 inhalation rat	> 2000 mg/m ³ /1h (NLM Dataset);

Skin corrosion/irritation : Not classified
pH: 2.7-3.3 at 25°C (1% aqueous solution)
Rabbit, slight irritation.

Serious eye damage/irritation : Causes serious eye irritation.
pH: 2.7-3.3 at 25°C (1% aqueous solution)
Rabbit: Eye irritation.

Respiratory or skin sensitisation : Not classified
The substance is not classified as skin sensitization.

Germ cell mutagenicity : Not classified
The substance is not classified as mutagens.

Carcinogenicity : Not classified
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.

Reproductive toxicity : Not classified
The substance is not classified as toxic to reproduction.

STOT-single exposure : May cause respiratory irritation.
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

STOT-repeated exposure : Not classified

Aspiration hazard : Not classified

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Very toxic to aquatic life with long lasting effects.

Acute aquatic toxicity : Very toxic to aquatic life.

Chronic aquatic toxicity : Very toxic to aquatic life with long lasting effects.

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Symclosene (87-90-1)	
LC50 fish 1	0.13 - 0.5 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [static])
LC50 fish 2	0.06 - 0.11 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [static])
LC50 fish 3	0.2 mg/l/96h (Lepomis macrochirus)(ECOTOX Database);
EC50 Daphnia 1	0.21 mg/l (Exposure time: 48 h - Species: Daphnia magna)
EC50 Daphnia 2	0.16 - 0.18 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
EC50 Daphnia 3	0.17 mg/l/48h (Daphnia magna)(ECOTOX Database);
EC50 bacteria	0.6 mg/l/0.5h (Photobacterium phosphoreum) (Merck).

12.2. Persistence and degradability

FRD-90 Disinfecting Granules (87-90-1)

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)
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12.3. Bioaccumulative potential

FRD-90 Disinfecting Granules (87-90-1)

Log Pow	No data available
Log Kow	0.94 (estimated) (HSDB)
Bioaccumulative potential	An estimated BCF of 3.1 was calculated for trichloroisocyanuric acid, using water solubility of 1.20X10+4 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

FRD-90 Disinfecting Granules (87-90-1)

Ecology - soil	The Koc of trichloroisocyanuric acid is estimated as 25, using a water solubility of 1.20X10+4 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)
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12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

Other adverse effects : No information available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

SECTION 14: Transport information






In accordance with ADR / RID / IMDG / IATA / ADN

ADR	IMDG	IATA	ADN	RID
14.1. UN number				
2468	2468	2468	2468	2468
14.2. UN proper shipping name				
TRICHLOROISOCYANURIC ACID, DRY	TRICHLOROISOCYANURIC ACID, DRY	Trichloroisocyanuric acid, dry	TRICHLOROISOCYANURIC ACID, DRY	TRICHLOROISOCYANURIC ACID, DRY
Transport document description				
UN 2468 TRICHLOROISOCYANURIC ACID, DRY, 5.1, II, (E), ENVIRONMENTALLY HAZARDOUS	UN 2468 TRICHLOROISOCYANURIC ACID, DRY, 5.1, II, MARINE POLLUTANT/ENVIRONMENTALLY HAZARDOUS	UN 2468 Trichloroisocyanuric acid, dry, 5.1, II, ENVIRONMENTALLY HAZARDOUS	UN 2468 TRICHLOROISOCYANURIC ACID, DRY, 5.1, II, ENVIRONMENTALLY HAZARDOUS	UN 2468 TRICHLOROISOCYANURIC ACID, DRY, 5.1, II, ENVIRONMENTALLY HAZARDOUS

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14.3. Transport hazard class(es)				
5.1	5.1	5.1	5.1	5.1
				
14.4. Packing group				
II	II	II	II	II
14.5. Environmental hazards				
Dangerous for the environment : Yes	Dangerous for the environment : Yes Marine pollutant : Yes	Dangerous for the environment : Yes	Dangerous for the environment : Yes	Dangerous for the environment : Yes
No supplementary information available				

14.6. Special precautions for user

Overland transport

Classification code (ADR)	: O2
Limited quantities (ADR)	: 1kg
Excepted quantities (ADR)	: E2
Packing instructions (ADR)	: P002, IBC08
Special packing provisions (ADR)	: B4
Mixed packing provisions (ADR)	: MP10
Portable tank and bulk container instructions (ADR)	: T3
Portable tank and bulk container special provisions (ADR)	: TP33
Tank code (ADR)	: SGAN
Tank special provisions (ADR)	: TU3
Vehicle for tank carriage	: AT
Transport category (ADR)	: 2
Special provisions for carriage - Packages (ADR)	: V11
Special provisions for carriage - Loading, unloading and handling (ADR)	: CV24
Hazard identification number (Kemler No.)	: 50
Orange plates	: 

Tunnel restriction code (ADR)	: E
EAC code	: 1W

Transport by sea

Packing instructions (IMDG)	: P002
IBC packing instructions (IMDG)	: IBC08
IBC special provisions (IMDG)	: B21, B4
Tank instructions (IMDG)	: T3
Tank special provisions (IMDG)	: TP33
EmS-No. (Fire)	: F-A
EmS-No. (Spillage)	: S-Q
Stowage category (IMDG)	: A
Stowage and handling (IMDG)	: H1
Properties and observations (IMDG)	: Colourless powder or granules. Mixtures with combustible material are sensitive to friction and are liable to ignite. On contact with nitrogen compounds, fumes of nitrogen trichloride can be formed, which are very explosive. Harmful by inhalation. Irritating to skin, eyes and mucous membranes.

Air transport

PCA Excepted quantities (IATA)	: E2
PCA Limited quantities (IATA)	: Y544
PCA limited quantity max net quantity (IATA)	: 2.5kg

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PCA packing instructions (IATA)	: 558
PCA max net quantity (IATA)	: 5kg
CAO packing instructions (IATA)	: 562
CAO max net quantity (IATA)	: 25kg
ERG code (IATA)	: 5L

Inland waterway transport

Classification code (ADN)	: O2
Limited quantities (ADN)	: 1 kg
Excepted quantities (ADN)	: E2
Equipment required (ADN)	: PP
Number of blue cones/lights (ADN)	: 0

Rail transport

Classification code (RID)	: O2
Limited quantities (RID)	: 1kg
Excepted quantities (RID)	: E2
Packing instructions (RID)	: P002, IBC08
Special packing provisions (RID)	: B4
Mixed packing provisions (RID)	: MP10
Portable tank and bulk container instructions (RID)	: T3
Portable tank and bulk container special provisions (RID)	: TP33
Tank codes for RID tanks (RID)	: SGAN
Special provisions for RID tanks (RID)	: TU3
Transport category (RID)	: 2
Special provisions for carriage – Packages (RID)	: W11
Special provisions for carriage - Loading, unloading and handling (RID)	: CW24
Colis express (express parcels) (RID)	: CE10
Hazard identification number (RID)	: 50

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

No REACH Annex XVII restrictions

FRD-90 Disinfecting Powder/Granules/Tablet is not on the REACH Candidate List

FRD-90 Disinfecting Powder/Granules/Tablet is not on the REACH Annex XIV List

Directive 2012/18/EU (SEVESO III)

15.1.2. National regulations

Germany

Reference to AwSV : Water hazard class (WGK) 2, significant hazard to water (Classification according to AwSV; ID No. 7322)

12th Ordinance Implementing the Federal Immission Control Act - 12.BImSchV : Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)

Netherlands

SZW-lijst van kankerverwekkende stoffen : The substance is not listed

SZW-lijst van mutagene stoffen : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling : The substance is not listed

Denmark

Danish National Regulations : Young people below the age of 18 years are not allowed to use the product

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

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SECTION 16: Other information

Data sources : LOLI.

Training advice : Normal use of this product shall imply use in accordance with the instructions on the packaging.

Full text of H- and EUH-statements:

H272	May intensify fire; oxidiser.
H302	Harmful if swallowed.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

SDS EU (REACH Annex II)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product