

HICHEM INDUSTRIAL CHEMICAL CO. LTD.

2, Leader Paradise, No.16A Fuzhounan Road,
Qingdao, Shandong Province.

MSDS - MATERIAL SAFETY DATA SHEET

TRICHLOROISOCYANURIC ACID (TCCA)

Section 1 - Product Name

TRICHLOROISOCYANURIC ACID

Section 2 - CAS #. & Synonyms

CAS #: 87-90-1

SYNONYMS:

Trichloro-s-triazinetrione; Trichlor; 1,3,5-Triazine-2,4,6(1H,3H,5H)-trione,1,3,5-trichloro-;
Symclosene; TCCA

Section 3 - Hazards Identification

NFPA RATINGS (SCALE 0-4): HEALTH=2 FIRE=0 REACTIVITY=2

HMIS RATINGS (SCALE 0-4): HEALTH=3 FLAMMABILITY=0 REACTIVITY=2

POTENTIAL HEALTH EFFECTS:

INHALATION:

SHORT TERM EXPOSURE: irritation (possibly severe), burns

LONG TERM EXPOSURE: not a likely route of exposure, ulcers

SKIN CONTACT:

SHORT TERM EXPOSURE: irritation (possibly severe), burns

LONG TERM EXPOSURE: dermatitis

EYE CONTACT:

SHORT TERM EXPOSURE: burns, eye damage, blindness

LONG TERM EXPOSURE: eye damage, blindness

INGESTION:

SHORT TERM EXPOSURE: not a likely route of exposure, irritation (possibly severe), burns

LONG TERM EXPOSURE: not a likely route of exposure, ulcers

CARCINOGEN STATUS: OSHA: No NTP: No IARC: No

Section 4 - First Aid Measures

INHALATION:

If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not reathing.

If breathing is difficult, oxygen should be administered by qualified personnel. If respiration or

pulse as stopped, have a trained person administer Basic Life Support (Cardio-Pulmonary

Resuscitation/Automatic xternal Defibrillator) and CALL FOR EMERGENCY SERVICES

IMMEDIATELY.

SKIN CONTACT:

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Immediately flush contaminated areas with water. Remove contaminated clothing, jewelry, and shoes immediately.

Wash contaminated areas with soap and water. Thoroughly clean and dry contaminated clothing and shoes before reuse. IF IRRITATION OCCURS, GET MEDICAL ATTENTION.

EYE CONTACT:

Immediately flush eyes with a directed stream of water for at least 15 minutes, forcibly holding eyelids apart to ensure complete irrigation of all eye and lid tissues. Washing eyes within several seconds is essential to achieve maximum effectiveness. GET MEDICAL ATTENTION IMMEDIATELY.

INGESTION:

Never give anything by mouth to an unconscious or convulsive person. If swallowed, do not induce vomiting. Give water. If vomiting occurs spontaneously, keep airway clear. Give more water when vomiting stops. GET MEDICAL ATTENTION IMMEDIATELY.

NOTE TO PHYSICIAN:

Probable mucosal damage may contraindicate the use of gastric lavage.

Section 5 - Fire Fighting Measures

FIRE AND EXPLOSION HAZARDS:

Negligible fire hazard. If heated by outside source to temperatures

EMERGENCY OVERVIEW:

COLOR: white

PHYSICAL FORM: powder, granules

ODOR: chlorine odor

MAJOR HEALTH HAZARDS:

CORROSIVE. CAUSES IRREVERSIBLE EYE DAMAGE. MAY CAUSE BURNS TO MOIST SKIN IF NOT PROMPTLY

REMOVED. MAY BE FATAL IF INHALED. HARMFUL IF SWALLOWED.

PHYSICAL HAZARDS:

Strong oxidizer. above 240 C (464 F), this product will undergo self-sustaining decomposition with the evolution of heat and dense noxious gases but no visible flame. Wet material may generate nitrogen trichloride, an explosion hazard.

EXTINGUISHING MEDIA:

Flood with water. Do not use dry chemicals, carbon dioxide or halogenated extinguishing agents.

FIRE FIGHTING:

Consider evacuation of personnel located downwind. Keep unnecessary people away, isolate hazard area and deny entry. Move container from fire area if it can be done without risk. Avoid inhalation of material or combustion byproducts.

Stay upwind and keep out of low areas. Wear NIOSH approved positive-pressure self-contained breathing apparatus. Material which appears undamaged except for being damp on the outside, should be opened and inspected immediately. DO NOT attempt to reseal contaminated drums. Damp material should be neutralized to a nonoxidizing state. Contact OxyChem for instructions

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for handling and disposal of damp material.

SENSITIVITY TO MECHANICAL IMPACT: Not sensitive

SENSITIVITY TO STATIC DISCHARGE: Not sensitive

FLASH POINT: N/A

HAZARDOUS COMBUSTION PRODUCTS:

Thermal decomposition products or combustion: chlorine, nitrogen, nitrogen trichloride, cyanogen chloride, oxides of carbon, phosgene

Section 6 - Accidental Release Measures

OCCUPATIONAL RELEASE:

Keep unnecessary people away, isolate hazard area and deny entry. DO NOT add water to spilled materials. DO NOT use floor sweeping compounds to clean up spills. Sweep and scoop spilled material into clean, dedicated equipment.

Every attempt should be made to avoid mixing spilled material with other chemicals or debris when cleaning up. DO NOT attempt to reseal contaminated drums. DO NOT transport wet or damp material. Damp material should be neutralized to a non-oxidizing state. Contact OxyChem for instructions for handling and disposal of damp material.

Keep out of water supplies and sewers. Releases should be reported, if required, to appropriate agencies.

Section 7 - Handling and Storage

STORAGE:

Store and handle in accordance with all current regulations and standards. (NFPA Oxidizer Classification 1.) Do not allow water to get in container. If liner is present, tie after each use. Keep container tightly closed and properly labeled. Store containers on pallets. Keep away from food, drink and animal feed. Keep separated from incompatible substances.

HANDLING: Do not get in eyes, on skin, or on clothing. Avoid breathing vapors or dust when opening container. Avoid creation of dust. Wash thoroughly after handling. Never add water to this product. Always add product to large quantities of water. Use clean, dry utensils. Do not add the product to any dispensing device containing residuals of other products.

Section 8 - Exposure Controls, Personal Protection

EXPOSURE LIMITS:

Chlorine may be found in slight amounts in the head space of containers of TCCA Products.

TRICHLORO-S-TRIAZINETRIONE:

0.5 mg/m³ recommended TWA 8 hour(s) (internal Occupational Exposure Limit)

1.5 mg/m³ recommended STEL 15 minute(s) (internal Occupational Exposure Limit)

CHLORINE:

1 ppm (3 mg/m³) OSHA ceiling

0.5 ppm (1.5 mg/m³) OSHA TWA (vacated by 58 FR 35338, June 30, 1993)

1 ppm (3 mg/m³) OSHA STEL (vacated by 58 FR 35338, June 30, 1993)

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0.5 ppm ACGIH TWA

1 ppm ACGIH STEL

1 ppm (3 mg/m³) MEXICO TWA

3 ppm (9 mg/m³) MEXICO STEL

VENTILATION: Use only in well ventilated areas. Provide local exhaust ventilation where dust or mist may be generated. Ensure compliance with applicable exposure limits.

EYE PROTECTION: Wear chemical safety goggles. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

CLOTHING: Wear protective clothing to minimize skin contact. When potential for contact with dry material exists, wear disposable coveralls such as Tyvek(R). Contaminated clothing should be removed and laundered before reuse.

GLOVES: Wear suitable gloves.

PROTECTIVE MATERIAL TYPES:

Butyl rubber, latex, leather, natural rubber, neoprene, nitrile, polyvinyl chloride (PVC), Tyvek(R)

RESPIRATOR:

A NIOSH approved respirator with N95 (dust, fume, mist) filters may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits, or when symptoms have been observed that are indicative of overexposure. If chlorine is present, an acid gas cartridge is also required. A half facepiece air-purifying respirator may be used in concentrations up to 10X the acceptable exposure level and a full facepiece air-purifying respirator may be used in concentrations up to 50X the acceptable exposure level. Supplied air should be used when the level is expected to be above 50X the acceptable level, or when there is a potential for uncontrolled release. A respiratory protection program that meets 29 CFR 1910.134 must be followed whenever workplace conditions warrant use of a respirator.

Section 9 - Physical and Chemical Properties

PHYSICAL STATE: Solid

COLOR: white

PHYSICAL FORM: crystals, granules

ODOR: chlorine odor

MOLECULAR WEIGHT: 232.5

MOLECULAR FORMULA: C₃N₃O₃Cl₃

BOILING POINT: N/A

MELTING POINT: N/A

DECOMPOSITION POINT: 437-446 F (225-230 C)

VAPOR PRESSURE: N/A

VAPOR DENSITY: N/A

SPECIFIC GRAVITY (water=1): N/A

BULK DENSITY: 63-66 lbs/ft³ (loose)

WATER SOLUBILITY: 1.2 g/100 g @ 25 C

PH: 3-3.5 @ 25 C (1% solution)

VOLATILITY: N/A

ODOR THRESHOLD: N/A

EVAPORATION RATE: N/A

COEFFICIENT OF WATER/OIL DISTRIBUTION: N/A

Section 10 - Stability and Reactivity

REACTIVITY:

Stable at normal temperatures and pressure.

CONDITIONS TO AVOID:

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Do not get water inside container. Wet material may generate nitrogen trichloride, an explosion hazard. Avoid contact with easily oxidizable organic material.

INCOMPATIBILITIES:

Acids, ammonia, bases, floor sweeping compounds, calcium hypochlorite, reducing agents, organic solvents and compounds

HAZARDOUS DECOMPOSITION:

Thermal decomposition products or combustion: chlorine, nitrogen, nitrogen trichloride, cyanogen chloride, oxides of carbon, phosgene

POLYMERIZATION: Will not polymerize.

Section 11 - Toxicological Information

TOXICITY DATA

809 mg/kg oral-rat LD50; 7600 mg/kg skin-rabbit LD50

PRIMARY SKIN IRRITATION: Slightly Corrosive (rabbit, 24 hr); PRIMARY EYE

IRRITATION: Corrosive (rabbit, 24hr); DOT SKIN CORROSION: Not Corrosive (rabbit, 4 hr)

LOCAL EFFECTS

Corrosive: inhalation, skin, eye, ingestion

ACUTE TOXICITY LEVEL

Moderately Toxic: ingestion

Slightly Toxic: dermal absorption

HEALTH EFFECTS

Inhalation:

ACUTE EXPOSURE:

This material in the form as sold is not expected to produce respiratory effects. If ground or otherwise in a powdered form, effects similar to a corrosive substance may occur. May cause severe irritation of the respiratory tract with coughing, choking, pain and possibly burns of the mucous membranes. In some cases, pulmonary edema may develop, either immediately or more often within a period of 5-72 hours. The symptoms may include tightness in the chest, dyspnea, frothy sputum, cyanosis, and dizziness. Physical findings may include moist rales, low blood pressure and high pulse pressure. Severe cases may be fatal.

CHRONIC EXPOSURE:

Depending on the concentration and duration of exposure, repeated or prolonged exposure may cause inflammatory and ulcerative changes in the upper respiratory tract.

Skin Contact:

ACUTE EXPOSURE:

Direct contact with wet material or moist skin may cause severe irritation, pain, and possibly burns. This material is not considered to be skin sensitizer based on studies with guinea pigs.

CHRONIC EXPOSURE:

Effects depend on concentration and duration of exposure. Repeated or prolonged contact may result in dermatitis or effects similar to acute exposure.

Eye Contact:

ACUTE EXPOSURE:

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Direct contact may cause severe irritation, pain and burns, possibly severe, and permanent damage including

Blindness. The degree of injury depends on the concentration and duration of contact.

CHRONIC EXPOSURE:

Effects depend on concentration and duration of exposure. Repeated or prolonged contact may result in conjunctivitis or effects as in acute exposure.

Ingestion:

ACUTE EXPOSURE:

May cause immediate pain and severe burns of the mucous membranes. There may be discoloration of the tissues.

Swallowing and speech may be difficult at first and then almost impossible. The effects on the esophagus and

gastrointestinal tract may range from irritation to severe corrosion. Edema of the epiglottis and shock may occur.

CHRONIC EXPOSURE:

Depending on the concentration, repeated ingestion may cause effects as with acute ingestion.

Section 12 - Ecological Information

ECOTOXICITY DATA

FISH TOXICITY:

This material is believed to be highly toxic to aquatic life. 0.20-0.40 mg/L 96 hour(s) LC50

Bluegill Sunfish; 0.08-0.37 mg/L 96 hour(s) LC50 Rainbow Trout

INVERTEBRATE TOXICITY: 0.17-0.80 mg/L 48 hour(s) LC50 Water flea

ALGAL TOXICITY: <0.5 mg/L 3 hour(s) LC50 Green algae

BIODEGRADATION:

This material is subject to hydrolysis. Cyanuric acid produced by hydrolysis is biodegradable.

PERSISTENCE:

This material is believed not to persist in the environment. Hydrolysis reaction occurs in minutes.

None of the hydrolysis products are bioaccumulative or persistent. Photoreactivity of free available chlorine is 30 minutes (pH 7). Half-life increases to as much as 8 hours in the presence of Cyanuric acid.

BIOCONCENTRATION:

This material is believed not to bioaccumulate.

OTHER ECOLOGICAL INFORMATION:

1021-1891 mg/kg oral-Mallard duck LD50; 1674 - >2254 mg/kg oral-N. Bobwhite LD50;

>10,000 ppm inhalation-Mallard duck LC50; 7253 - >10,000 ppm inhalation-N. Bobwhite LC50

Section 13 - Disposal Considerations

Use or reuse if possible. This material is a registered pesticide. Dispose in accordance with all applicable regulations. Do not put product, spilled product, or filled or partially filled containers into the trash or waste compactor. Contact with incompatible materials could cause a reaction and

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fire. DO NOT transport wet or damp material. Damp material should be neutralized to a non-oxidizing state. Contact OxyChem for instructions for handling and disposal of damp material. See product label for container disposal information. May be subject to disposal regulations: Hazardous Waste Number(s): D003.

Section 14 - Transport Information

PROPER SHIPPING NAME: Trichloroisocyanuric acid, dry

ID NUMBER: UN2468

HAZARD CLASS OR DIVISION: 5.1

PACKING GROUP: II

LABELING REQUIREMENTS: 5.1

Section 15 - Regulatory Information

CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4): Not regulated.

SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR355.30):

Not regulated.

ACUTE: Yes

CHRONIC: No

FIRE: Yes

REACTIVE: Yes

SUDDEN RELEASE: No

Section 16 - Other Information

MSDS Creation Date: 2012 /6 /10

Revision #6 Date: 2015 /6 /9

DISCLAIMER

For R&D use only. Not for drug, household or other uses.

WARRANTY

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product.

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