





Material Safety Data Sheet

NFPA	HMIS	Personal Protective Equipment						
	<table><tr><td>Health Hazard</td><td>2</td></tr><tr><td>Fire Hazard</td><td>1</td></tr><tr><td>Reactivity</td><td>1</td></tr></table>	Health Hazard	2	Fire Hazard	1	Reactivity	1	<div></div> <div>See Section 15.</div>
Health Hazard	2							
Fire Hazard	1							
Reactivity	1							

Section 1. Chemical Product and Company Identification		Page Number: 1
Common Name/ Trade Name	Trichloroisocyanuric Acid	Catalog Number(s) T2050, YY1062
Manufacturer	SPECTRUM LABORATORY PRODUCTS INC. 14422 S. SAN PEDRO STREET GARDENA, CA 90248	CAS# 87-90-1
Commercial Name(s)	Fichlor 91; Symclosen; Symclosene	RTECS XZ1925000
Synonym	1,3,5-Triazine-2,4,6(1H,3H,5H)-trione, 1,3,5-trichloro-; 1,3,5-Trichloro-2,4,6-trioxohexahydro-s-triazine; 1,3,5-Trichloro-s-triazine-2,4,6(1H,3H,5H)-trione; 1,3,5-Trichloroisocyanuric acid; Trichlorinated isocyanuric acid; Trichloro-s-triazine-2,4,6(1H,3H,5H)-trione; Trichloro-s-triazinetriene; Trichlorocyanuric acid; Trichloroisocyanic acid; Trichloroisocyanurate; Trichloroisocyanuric acid	TSCA TSCA 8(b) inventory: Trichloroisocyanuric Acid
Chemical Name	s-Triazine-2,4,6(1H,3H,5H)-trione, 1,3,5-trichloro-	CI# Not available.
Chemical Family	Not available.	IN CASE OF EMERGENCY CHEMTREC (24hr) 800-424-9300 CALL (310) 516-8000
Chemical Formula	C3-Cl3-N3-O3	
Supplier	SPECTRUM LABORATORY PRODUCTS INC. 14422 S. SAN PEDRO STREET GARDENA, CA 90248	

Section 2. Composition and Information on Ingredients					
		Exposure Limits			
Name	CAS #	TWA (mg/m³)	STEL (mg/m³)	CEIL (mg/m³)	% by Weight
1) Trichloroisocyanuric Acid	87-90-1				100
Toxicological Data on Ingredients					
Trichloroisocyanuric Acid:					
ORAL (LD50): Acute: 406 mg/kg [Rat (Sax's Dangerous Properties of Industrial Materials, 10th ed., 2000).]					
DERMAL (LD50): Acute: 20000 mg/kg [Rabbit (Sax's Dangerous Properties of Industrial Materials, 10 ed., 2000)].					
DUST (LC50): Acute: >2000 mg/m³ 1 hours [Rat].					

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Section 3. Hazards Identification

Potential Acute Health Effects	Hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation (lung irritant). Slightly hazardous in case of skin contact (permeator), . Prolonged exposure may result in skin burns and ulcerations. Over-exposure by inhalation may cause respiratory irritation. Severe over-exposure can result in death.
Potential Chronic Health Effects	CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to kidneys, liver, upper respiratory tract, eyes. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Section 4. First Aid Measures

Eye Contact	Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. WARM water MUST be used. Get medical attention.
Skin Contact	In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.
Serious Skin Contact	Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.
Inhalation	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
Serious Inhalation	Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.
Ingestion	Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.
Serious Ingestion	Not available.

Section 5. Fire and Explosion Data

Flammability of the Product	May be combustible at high temperature.
Auto-Ignition Temperature	Not available.
Flash Points	Not available.
Flammable Limits	Not available.
Products of Combustion	Not available.
Fire Hazards in Presence of Various Substances	Slightly flammable to flammable in presence of heat, of combustible materials, of organic materials.
Explosion Hazards in Presence of Various Substances	Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available. Slightly explosive in presence of heat.
Fire Fighting Media and Instructions	Oxidizing material. Do not use water jet. Use flooding quantities of water. Avoid contact with organic materials.
Special Remarks on Fire Hazards	Powerful oxidizing agent; may ignite oxidizable materials. May ignite combustibles (wood, sawdust, floor sweepings, paper, oil, grease, clothing, etc.). Due to high reactivity (chlorination, oxidation), it may cause ignition by contact with organic substances that are easily chlorinated or oxidized.

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Special Remarks on Explosion Hazards	Reacts with small amounts of water, releasing chlorine gas and nitrogen trichloride, which is a highly explosive compound when concentrated. Reaction with ammonia or amines produces nitrogen trichloride. Reacts explosively with calcium hypochlorite + water.
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Section 6. Accidental Release Measures

Small Spill	Use appropriate tools to put the spilled solid in a convenient waste disposal container. If necessary: Neutralize the residue with a dilute solution of sodium carbonate.
Large Spill	Oxidizing material. Poisonous solid. Stop leak if without risk. Do not get water inside container. Avoid contact with a combustible material (wood, paper, oil, clothing...). Keep substance damp using water spray. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal. Neutralize the residue with a dilute solution of sodium carbonate.

Section 7. Handling and Storage

Precautions	Keep away from heat. Keep away from sources of ignition. Keep away from combustible material. Ground all equipment containing material. Do not ingest. Do not breathe dust. Wear suitable protective clothing. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as reducing agents, combustible materials, organic materials, acids, alkalis.
Storage	Keep container tightly closed. Keep container in a cool, well-ventilated area. Separate from acids, alkalies, reducing agents and combustibles. See NFPA 43A, Code for the Storage of Liquid and Solid Oxidizers.

Section 8. Exposure Controls/Personal Protection

Engineering Controls	Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.
Personal Protection	Splash goggles. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.
Personal Protection in Case of a Large Spill	Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.
Exposure Limits	Not available.

Section 9. Physical and Chemical Properties

Physical state and appearance	Solid. (Powdered solid.)	Odor	Chlorine (Strong.)
Molecular Weight	232.41 g/mole	Taste	Not available.
pH (1% soln/water)	2.7 - 3.3 [Acidic.]	Color	White.
Boiling Point	Not available.		
Melting Point	245°C (473°F) - 251 deg. C (with decomposition) Decomposition Temperature: 225 C.		
Critical Temperature	Not available.		
Specific Gravity	>1 (Water = 1)		
Vapor Pressure	Not applicable.		
Vapor Density	Not available.		
Volatility	Not available.		
Odor Threshold	Not available.		
Water/Oil Dist. Coeff.	Not available.		
Ionicity (in Water)	Not available.		
Dispersion Properties	Not available.		

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Solubility	Very slightly soluble in cold water. Soluble in chlorinated and highly polar solvents. Solubility in Water: 1 g/100 g @ 25 deg. C (Ullmann's Encyclopedia of Industrial Chemistry., 5th ed., Vol. A1, 1985 to present. Solubility in Water: 12 g/1liter @ 25 deg. C (Kirk-Othmer Encyclopedia of Chemical Technology, 3rd. ed., Volume 7, 1979) Solubility in Acetone: 35g/100g @ 30 deg. C
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Section 10. Stability and Reactivity Data

Stability	The product is stable.
Instability Temperature	Not available.
Conditions of Instability	Excess heat, incompatible materials, exposure to moist air or water, dust generation.
Incompatibility with various substances	Highly reactive with combustible materials, organic materials. Reactive with reducing agents, acids, alkalis. Slightly reactive to reactive with moisture.
Corrosivity	Not available.
Special Remarks on Reactivity	Reacts with small amounts of water, releasing chlorine gas and nitrogen trichloride, which is a highly explosive compound when concentrated. Reaction with ammonia or amines produces nitrogen trichloride. Reacts with most reducing agents. Reacts explosively with calcium hypochlorite + water. Also incompatible with mineral and non-oxidizing acids (Hydrochloric acid, Hydrofluoric acid, Phosphoric acid), mineral and oxidizing acids (Chromic acid, Hypochlorous acid, Nitric acid, Sulfuric acid), organic acids (Acetic acid, Benzoic acid, Formic acid, Methanoic acid, Oxalic acid. Contact with acids liberates toxic gases.
Special Remarks on Corrosivity	Not available.
Polymerization	Will not occur.

Section 11. Toxicological Information

Routes of Entry	Absorbed through skin. Inhalation. Ingestion.
Toxicity to Animals	WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 406 mg/kg [Rat (Sax's Dangerous Properties of Industrial Materials, 10th ed., 2000).] Acute dermal toxicity (LD50): 20000 mg/kg [Rabbit (Sax's Dangerous Properties of Industrial Materials, 10 ed., 2000)]. Acute toxicity of the dust (LC50): >2000 mg/m ³ 1 hours [Rat].
Chronic Effects on Humans	May cause damage to the following organs: kidneys, liver, upper respiratory tract, eyes.
Other Toxic Effects on Humans	Hazardous in case of skin contact (irritant), of ingestion, of inhalation (lung irritant). Slightly hazardous in case of skin contact (permeator), .
Special Remarks on Toxicity to Animals	Lowest Published Lethal Dose/Conc.: LDL [Human] - Route: Oral; Dose: 3570 mg/kg. LDL [Rabbit] - Route: Oral; Dose: 1900 mg/kg. LDL [Rabbit] - Route: Skin; 5010 mg/kg.
Special Remarks on Chronic Effects on Humans	Not available.
Special Remarks on other Toxic Effects on Humans	Acute Potential Health Effects: Causes moderate skin irritation. I may be absorbed through the skin and may affect behavior/central nervous system (somnolence), liver. Eyes: Causes severe eye irritation. May cause conjunctivitis. Inhalation: It can irritate the nose, throat, and lungs causing coughing, wheezing and/or shortness of breath. It may cause pulmonary edema, chemical pneumonitis, asphyxia/airway obstruction caused by edema. Ingestion: Harmful if swallowed. It may cause ulceration or bleeding from the stomach. It may cause nausea, vomiting, and diarrhea (possibly with blood). It may also affect behavior/central nervous system (somnolence, coma), liver, kidneys. Chronic Potential Health Effects: Ingestion: Prolonged or repeated ingestion may cause liver and kidney damage.

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Section 12. Ecological Information

Ecotoxicity	Not available.
BOD5 and COD	Not available.
Products of Biodegradation	Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.
Toxicity of the Products of Biodegradation	The products of degradation are less toxic than the product itself.
Special Remarks on the Products of Biodegradation	Not available.

Section 13. Disposal Considerations

Waste Disposal	Waste must be disposed of in accordance with federal, state and local environmental control regulations.
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Section 14. Transport Information

DOT Classification	CLASS 5.1: Oxidizing material.
Identification	: Trichloroisocyanuric acid, dry UNNA: 2468 PG: II
Special Provisions for Transport	Not available.
DOT (Pictograms)	

Section 15. Other Regulatory Information and Pictograms

Federal and State Regulations	Connecticut hazardous material survey.: Trichloroisocyanuric Acid Rhode Island RTK hazardous substances: Trichloroisocyanuric Acid Pennsylvania RTK: Trichloroisocyanuric Acid Massachusetts RTK: Trichloroisocyanuric Acid Massachusetts spill list: Trichloroisocyanuric Acid New Jersey: Trichloroisocyanuric Acid TSCA 8(b) inventory: Trichloroisocyanuric Acid	
California Proposition 65 Warnings	California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: No products were found. California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: No products were found.	
Other Regulations	OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances (EINECS No. 201-782-8). Canada: Listed on Canadian Domestic Substance List (DSL). China: Listed on National Inventory. Japan: Listed on National Inventory (ENCS). Korea: Listed on National Inventory (KECI). Philippines: Listed on National Inventory (PICCS). Australia: Listed on AICS.	
Other Classifications	WHMIS (Canada)	CLASS C: Oxidizing material. CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). CLASS D-2B: Material causing other toxic effects (TOXIC).

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DSCL (EEC)

R8- Contact with combustible material may cause fire.
 R22- Harmful if swallowed.
 R31- Contact with acids liberates toxic gas.
 R36/37- Irritating to eyes and respiratory system.
 R50/53- Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S8- Keep container dry.
 S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
 S41- In case of fire and/or explosion do not breathe fumes.
 S60- This material and its container must be disposed of as hazardous waste.
 S61- Avoid release to the environment. Refer to special instructions/Safety data sheets.

HMIS (U.S.A.)

Health Hazard	2
Fire Hazard	1
Reactivity	1
Personal Protection	E

National Fire Protection Association (U.S.A.)

Health	2	0	2	Flammability
	OXY			Reactivity
				Specific hazard

WHMIS (Canada) (Pictograms)

DSCL (Europe) (Pictograms)

TDG (Canada) (Pictograms)

ADR (Europe) (Pictograms)

Protective Equipment


Gloves.



Lab coat.



Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.



Splash goggles.

Section 16. Other Information**MSDS Code** YY162**References** Not available.**Other Special Considerations** Uses: Swimming pool sanitizer to reduce bacteria count; active ingredient in deodorants; used as a source of available chlorine in "dry type" bleaches, scouring powders, dishwashing compounds and sanitizing compounds.**Validated by Sonia Owen on 5/14/2007.****Verified by Sonia Owen.****Printed 5/23/2007.****CALL (310) 516-8000****Notice to Reader**

All chemicals may pose unknown hazards and should be used with caution. This Material Safety Data Sheet (MSDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this MSDS. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this MSDS is based on technical data judged to be reliable, Spectrum Quality Products, Inc. assumes no responsibility for the completeness or accuracy of the information contained herein.