CAMACHEM
www.camachem.com
Contact: sales@camachem.com

Material Safety Data Sheet (MSDS)

Section 1: Chemical Product and Company Identification

Product Name	Trichloroisocyanuric Acid 90% (TCCA 90%) / Tablets
CAS Number	87-90-1
Chemical Formula	C3 Cl3 N3 O3
Company Name	CAMACHEM (Part of CAMAL Group) 3F Jinlong East Beijing Station Road Chaoyang District, Beijing, China
Contact	sales@camachem.com
Company Website	www.camachem.com

Section 2: Composition and Information on Ingredients

Component	Trichloro-S-triazinetrione
Weight%	97

Section 3: Hazards Identification

Physical State
Powder Solid
Appearance
White
Odor
Odorless

Emergency Overview
May intensify fire; oxidizer. Harmful if swallowed. Causes serious eye irritation. May cause respiratory irritation. Very toxic to aquatic life with long lasting effects. Contact with acids liberates toxic gas. hygroscopic.

Classification of the substance or mixture	
Oxidizing solids	Category 2
Acute Oral Toxicity	Category 4
Serious Eye Damage/Eye Irritation	Category 2
Specific target organ toxicity - (single exposure)	Category 3

Acute aquatic toxicity	Category 1
Chronic aquatic toxicity	Category 1

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 P220 - Keep/Store away from clothing/ combustible materials

P221 - Take any precaution to avoid mixing with combustibles P261 - Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray

P264 - Wash face, hands and any exposed skin thoroughly after handling P270 - Do not eat, drink or smoke when using this product

P271 - Use only outdoors or in a well-ventilated area

P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection

Response

P304 + P340 - IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P312 - Call a POISON CENTER or doctor/ physician if you feel unwell P330 - Rinse mouth

P370 + P378 - In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction

Storage

P403 + P233 - Store in a well-ventilated place. Keep container tightly closed

Disposal

P501 - Dispose of contents/ container to an approved waste disposal plant

Physical and Chemical Hazards

Oxidizing. Contact with combustible material may cause fire. Contact with acids liberates toxic gas. Hygroscopic.

Health Hazards

Causes serious eye irritation. May cause respiratory irritation. Harmful if swallowed.

Environmental hazards

Very toxic to aquatic life with long lasting effects. Will likely be mobile in the environment due to its water

solubility. The product is water soluble, and may spread in water systems.

Section 4: First Aid Measures

Eye Contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Skin Contact

Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Obtain medical attention.

Take off contaminated clothing and shoes immediately.

Inhalation

Remove from exposure, lie down. Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Obtain medical attention.

Ingestion
Clean mouth with water. Get medical attention.

Most important symptoms and effects
No information available.

Self-Protection of the First Aider
Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

Notes to Physician
Treat symptomatically

Section 5: Fire and Explosion Data

Suitable Extinguishing Media
Water spray. Carbon dioxide (CO 2). Dry chemical. Chemical foam.

Extinguishing media which must not be used for safety reasons
No information available.

Specific Hazards Arising from the Chemical
Oxidizer: Contact with combustible/organic material may cause fire. May ignite combustibles (wood paper, oil, clothing, etc.). Do not allow run-off from fire fighting to enter drains or water courses.

Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or

equivalent) and full protective gear.

Section 6: Accidental Release Measures

Personal Precautions
Ensure adequate ventilation.

Environmental Precautions
Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.

Methods for Containment and Clean Up
Sweep up or vacuum up spillage and collect in suitable container for disposal. Do not let this chemical enter the environment. Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

Refer to protective measures listed in Sections 8 and 13.

Section 7: Handling and Storage

Handling
Avoid contact with skin and eyes. Do not breathe dust. Do not ingest. Keep away from clothing and other combustible materials.

Storage
Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Do not store near combustible materials. Store under an inert atmosphere.

Specific Use(s)
Use in laboratories

Section 8: Exposure Controls/Personal Protection

Control Parameters

Monitoring methods
BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents. MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust

Exposure Controls

Engineering Measures
Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location. Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source.

Personal protective equipment

Eye Protection Goggles (European standard - EN 166)

Hand Protection Protective gloves

Inspect gloves before use.
Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)
Ensure gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.
Remove gloves with care avoiding skin contamination.

Skin and body protection
Wear appropriate protective gloves and clothing to prevent skin exposure

Respiratory Protection
When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

Large scale/emergency use
Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced
Recommended Filter type: Particulates filter conforming to EN 143

Small scale/Laboratory use
Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
Recommended half mask:- Valve filtering: EN405; or; Half mask: EN140; plus filter, EN 141
When RPE is used a face piece Fit Test should be conducted

Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice.

Environmental exposure controls
Prevent product from entering drains. Do not allow material to contaminate ground water system. Local authorities should be advised if significant spillages cannot be contained.

Section 9: Physical and Chemical Properties

Appearance	White
Physical State	Powder Solid
Odor	Odorless
Odor Threshold	No data available

pH	3.0 1% aq.sol	
Melting Point/Range	245 - 251 °C / 473 - 483.8 °F	
Softening Point	No data available	
Boiling Point/Range	No information available	
Flash Point	No information available	Method-No information available
Evaporation Rate	Not applicable	Solid
Flammability (solid,gas)	No information available	
Explosion Limits	No data available	
Vapor Pressure	No data available	
Vapor Density	Not applicable	Solid
Specific Gravity / Density	No data available	
Bulk Density	No data available	
Water Solubility	12 g/L (25°C)	
Solubility in other solvents	No information available	Partition Coefficient (n-octanol/water)
Autoignition Temperature		
Decomposition Temperature	225 °C	
Viscosity	Not applicable	Solid
Explosive Properties	No information available	
Oxidizing Properties	Oxidizer	
Molecular Formula	C3 Cl3 N3 O3	
Molecular Weight	232.41	

Section 10: Stability and Reactivity Data

Stability	Stable under normal conditions. Hygroscopic. Oxidizer: Contact with combustible/organic material may cause fire.
Hazardous Reactions	No information available.
Hazardous Polymerization	No information available.
Conditions to Avoid	Incompatible products. Exposure to moist air or water. Excess heat. Combustible material.
Materials to avoid	Strong oxidizing agents. Strong bases. Strong reducing agents. Combustible material.
Hazardous Decomposition Products	Hydrogen chloride gas. Nitrogen oxides (NOx). Carbon monoxide (CO). Carbon dioxide (CO2).

Section 11: Toxicological Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Trichloro-S-triazinetrione	LD50 = 40	LD50 > 2000 mg/kg (Rabbit)	LC50 0.09 - 0.29 mg/L (Rat) 4

	6 mg /kg (R at)		

(a) skin corrosion/irritation; No data available
(b) serious eye damage/irritation; Category 2
(c) respiratory or skin sensitization;
Respiratory No data available
Skin No data available

(d) germ cell mutagenicity; No data available
(e) carcinogenicity; No data available

There are no known carcinogenic chemicals in this product
(f) reproductive toxicity; No data available
(g) STOT-single exposure; Category 3
(h) STOT-repeated exposure; No data available
Target Organs No information available.
(i) aspiration hazard; Not applicable Solid
Other Adverse Effects The toxicological properties have not been fully investigated. See actual entry in RTECS for complete information

Symptoms / effects,both acute and delayed

No information available

Section 12: Ecological Information

Ecotoxicity effects	The product contains following substances which are hazardous for the environment. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
Trichloro-S-triazinetrione	LC50: 0.13 - 0.5 mg/L, 96h static (Lepomis macrochirus) LC50: 0.06 - 0.11 mg/L, 96h static (Oncorhynchus mykiss)	EC50: 0.16 - 0.18 mg/L, 48h Static (Daphnia magna) EC50: = 0.21 mg/L, 48h (Daphnia		

		magna)		

Persistence and Degradability

Persistence

Soluble in water, Persistence is unlikely, based on information available.

Degradation in sewage treatment plant

Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants.

Bioaccumulative Potential

Bioaccumulation is unlikely

Mobility in soil

The product is water soluble, and may spread in water systems Will likely be mobile in the environment due to its water solubility Highly mobile in soils

Endocrine Disruptor Information

Persistent Organic Pollutant

This product does not contain any known or suspected substance

Ozone Depletion Potential

This product does not contain any known or suspected substance

Section 13: Disposal Considerations

Waste from Residues / Unused Products	Should not be released into the environment. Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.
Contaminated Packaging	Dispose of this container to hazardous or special waste collection point.
Other Information	Do not dispose of waste into sewer. Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains. Do not let this chemical enter the environment.

Section 14: Transport Information

Road and Rail Transport

UN-No	UN2468
Proper Shipping Name	TRICHLOROISOCYANURIC ACID, DRY
Hazard Class	5.1
Packing Group	II

IMDG/IMO

UN-No	UN2468

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Proper Shipping Name	TRICHLOROISOCYANURIC ACID, DRY
Hazard Class	5.1
Packing Group	II
IATA	
UN-No	UN2468
Proper Shipping Name	TRICHLOROISOCYANURIC ACID, DRY
Hazard Class	5.1
Packing Group	II
Special Precautions for User	No special precautions required

Section 15: Other Regulatory Information

International Inventories	X = listed
Component	Trichloro-S-triazinetrione
The Inventory of Hazardous Chemicals (2015 Edition)	X
List of dangero us goods GB 12268 - 2012	X
Taiwan Toxic Chemical Substances Inventor	X
IECSC	X
EINECS	201-782-8
TSCA	X
DSL	X
PICCS	X
ENCS	X
AICS	X
KECL	X

Section 16: Other Information

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall we m be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if we have been advised of the possibility of such damages.