

INDIGO CHEMICALS

44/1 PLOT NO.50, AT PO-BHATHA, VILLAGE-BHATHA,
TALUKA CHORASI, SURAT, GUJARAT-394510



SAFETY DATA SHEET: TCCA

SECTION 1: IDENTIFICATION OF THE PRODUCT/COMPANY/UNDERTAKING.

1.1) Identification of the Product.

Identified Product: **TRICHLOROISOCYANURIC ACID**
Synonym(S): Trichloro-S-Triazinetrione, TCCA.
CAS NO.: 87-90-1
EC NO.: 201-782-8

1.2) Product Uses

Pool water Treatment, Disinfectant, Sanitization, Algaecide.

1.3) Identification of The Company/Undertaking

Manufacturer/supplier

INDIGO CHEMICALS

44/1, PLOT NO.50, AT PO-BHATHA, VILLAGE-
BHATHA, TALUKA-CHORASI, Surat, Gujarat,
394510

1.4) Emergency Contact Details.

INDIGO CHEMICALS

Tel: +91 76009 55231, 76009 55568

Email: sales@indigochemicals.com

Website: www.indigochemicals.com

SECTION 2: HAZARD IDENTIFICATION

2.1) The product is identified as per dangerous by Globally Harmonized System of Classification and Labelling of Chemicals – GHS (REV.8) (2019)

2.1.1) Physical Hazard Classifications:

- **Oxidizing Solids** Category 2 May intensify fire; oxidizer

2.1.2) Health Hazard Classifications:

- **Acute Oral Toxicity.** Category 4 Harmful if swallowed
- **Acute Inhalation Toxicity** Category 4 Harmful If inhaled
- **Skin Corrosion/Irritation.** Category 2 Causes skin irritation
- **Serious Eye Damage/Eye Irritation.** Category 2A Causes serious eye irritation
- **Specific Target Organ Toxicity Single Exposure.** Category 3 Causes respiratory tract irritation (rti))

INDIGO CHEMICALS

44/1 PLOT NO.50, AT PO-BHATHA, VILLAGE-BHATHA,
TALUKA CHORASI, SURAT, GUJARAT-394510



SAFETY DATA SHEET: TCCA

2.1.3) Environmental Hazard Classifications:

- Short Term (Acute) Aquatic Hazards Category Acute 1 Very Toxic to Aquatic Life
- Long Term (Chronic) Aquatic Hazards Category Chronic 1 Very Toxic to Aquatic Life with Long Lasting Effects

2.2) Labelling in Accordance with – GHS (REV.8) (2019) standards

2.2.1) Hazard Pictograms:



2.2.2) Signal Word: DANGER

2.2.3) Codification of Physical, Health and Environmental Hazard Statements (H-codes)

H272	May intensify fire; oxidizer.
H302	Harmful if swallowed.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation. (<i>harmful if inhaled</i>)
H410	Very toxic to aquatic life with long lasting effects.

2.2.4) Codification of Precautionary Statements (P-codes)

P102	Keep Out of Reach of Children.
P210	Keep away from heat/sparks/open flames/hot surfaces. — No smoking.
P220	Keep away from clothing and other combustible materials.
P261	Avoid breathing dust and gas.
P264	Wash hands, eyes, face and any other contacted body part 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.

2.2.4.1) Responses

P301 + P317 + P330	IF SWALLOWED: Rinse mouth, if the problem persists get medical help.
P302 + P352	IF ON SKIN: Rinse skin, contacted area with plenty of water or shower.
P304 + P340	IF INHALED: Remove person to fresh air and keep 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.
P306 + P360	IF ON CLOTHING: Rinse immediately contaminated clothing and skin with plenty of water before removing clothes.
P337 + P317	IF eye irritation persists: Get medical help
P319	Get medical help if you feel unwell.
P370+P378	In case of fire: Use the presented firefighting measure in section 5 below for extinction.

INDIGO CHEMICALS

44/1 PLOT NO.50, AT PO-BHATHA, VILLAGE-BHATHA,
TALUKA CHORASI, SURAT, GUJARAT-394510



SAFETY DATA SHEET: TCCA

2.2.4.2) Storage

P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P420	Store separately.

2.2.4.3) Disposal

P501	Dispose of contents/container in accordance with local/ regional/ national/ international regulations.
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SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	: Trichloroisocyanuric Acid	Weight Proportion (%)	: > 95-100 %
Chemical Formula	: C3Cl3N3O3	CAS NO.	: 87-90-1
IUPAC Name	: 1,3,5-Trichloro-1,3,5-triazinane-2,4,6-trione	EC NO.	: 201-782-8

SECTION 4: FIRST-AID MEASURES

4.1) Description of Necessary First Aid Measures.

Upon Inhalation	Take the victim away from exposure to fresh air. Remove all the contaminated clothes. Take rest until fully recovered. If breathing is difficult seek medical advice immediately.
Upon Skin Contact	Upon contact with hair/skin thoroughly wash skin and hair in running water. Remove all the contaminated clothes. Seek medical assistance if skin irritation, blisters, redness or swelling occurs. Don't reuse the clothes before thoroughly washing.
Upon Eye Contact	Immediately rush to wash the eyes with running fresh water for 15 minutes. Expose entire eye - wash under the eyelids and clean thoroughly with water. Seek medical advice immediately.
Upon Ingestion	Thoroughly clean the mouth with water. Do not induce vomiting upon swallowing. Drink a few glasses of water and consult a doctor immediately.

4.2) Most Important Symptoms/Effects.

Upon Inhalation	Irritation in nose, coughing, runny nose, headache, breathing difficulties and sore throat.
Upon Skin Contact	Irritation, redness on contacted area. May cause dermatitis, blisters or swelling upon prolonged exposure.
Upon Eye Contact	Causes serious irritation, redness, burning sensation, pain, infection.
Upon Ingestion	Respiratory track irritation, sore throat, nausea, vomiting. May cause ulcers, inflammation and burning in esophagus or stomach.

4.3) Indication of immediate medical attention and special treatment needed, if necessary

Treat as per the visible symptoms.

SECTION 5: FIRE- FIGHTING MEASURES

5.1) Suitable extinguishing media.

INDIGO CHEMICALS

44/1 PLOT NO.50, AT PO-BHATHA, VILLAGE-BHATHA,
TALUKA CHORASI, SURAT, GUJARAT-394510



SAFETY DATA SHEET: TCCA

Spray large quantities of water, foam or dry powder for extinguishing fire.

5.2) Specific hazard arising from the chemicals.

It has very low fire hazards since the product's self-decomposition starts at 225 degree Celsius. Presence of the product may intensify fire and increase the burning rates of other materials. The product emits toxic fumes of chlorine gas. Upon decomposition, the product emits white fumes.

5.3) Special protective actions for fire-fighters.

Keep the safe/unharmed containers cool by spraying water on them. Take the intact containers away from the fire in open air. Upon rise in temperature, the product starts to decompose leading to expansion inside the container and may cause explosion. Avoid spraying water directly on exposed or damaged containers. Wear protective suits equipped with oxygen supply to avoid exposure to harmful decomposed gases, cover full body to avoid exposure to chemicals.

SECTION 6: ACCIDENTAL RELEASE MEASURE.

6.1) Personal Precautions, Protective Equipment and Emergency Procedure.

On accidental spills and release of the product, firstly avoid unprotected people away from the spill. Equip protective equipment as per guided in section 8 of safety data sheet. Do not let the product touch your eyes, skin and clothes. Avoid breathing the powdery dust/chlorine. Ensure adequate ventilation around the spill, do not smoke and keep the product away from any ignition source. For large accidental spills contact emergency services to act promptly.

6.2) Environmental Precautions.

Prevent the spill from getting into waterways, sewers and drains. Do not let water touch the spill. The material is very toxic to aquatic life and causes long lasting effects.

6.3) Methods and Materials for Containment and Cleaning Up.

- Dry spills: Use brush, plastic broom or plastic shovel to collect the spill in a separate HDPE container. Use non-sparking tools for cleaning. Avoid using metal container to collect the spill. Avoid mixing the spill with any other chemical, use soil as an absorbent to reduce the chemical effect.
- Wet spills: If the spill is wet, collect the spill carefully with protective equipment in separate open top HDPE containers and wait for the spill to neutralize for further disposal. The spill can also be neutralized by adding it into very large volume of water in a fibre tank. Use proper protective equipment to handle wet spills to avoid direct exposure.

SECTION 7: HANDLING AND STORAGE.

7.1) Precautions for safe handling.

Wear all the necessary personal protective equipment for safe handling of the product. Cover eyes, skin and mouth/nose for minimizing the exposure as advised in section 8. Handle the product using dry plastic tools. Don't add water into the product, add product to large quantities of water only. Do not mix it with any other chemicals. Eating, drinking, smoking is prohibited in the storage area. Thoroughly wash hands, eyes and contacted surface after use.

7.2) Conditions of Safe Storage, Including Any Incompatibilities.

Store it in cool, dry, well-ventilated place. Avoid direct sunlight. Keep out of the reach of children. Avoid storage around flammable chemicals and away from electrical equipment that can cause spark. Store only in original containers. Keep the container tightly closed to minimize the release of substance to the environment. Re-tie the liner bag inside the container after each use.

INDIGO CHEMICALS

44/1 PLOT NO.50, AT PO-BHATHA, VILLAGE-BHATHA,
TALUKA CHORASI, SURAT, GUJARAT-394510



SAFETY DATA SHEET: TCCA

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION.

8.1) Control parameters.

Regulatory exposure limits: Unavailable for TCCA. But, the liberation of chlorine from TCCA has the following exposure parameters:

NIOSH REL

C 0.5 ppm (1.45 mg/m³) [15-minute] (*Chlorine* | NIOSH | CDC, 2018).

The National Institute for Occupational Safety and Health standards helps to reduce the health hazards. It is requested to minimize the possible exposure limits for safety.

8.2) Appropriate engineering controls

Keep the storage area well-ventilated and open. Use local exhaust ventilation when high humidity or high temperature. Ensure that Eye-washer and safety shower are available.

8.3) Individual protection measures such as personal protective equipment (PPE).

Eye/face protection	: Protect eyes with protective chemical glasses that does not allow the air to pass. Keep safety eye-washer/safety shower for emergency usage.
Skin protection	: Wear full body protective clothing to minimize the contact with skin. Wear easily available industrial coveralls to avoid exposure of skin with the product. Wear impervious gloves to cover hand. Wear protective boots. Re-use everything after thoroughly washing it.
Respiratory protection	: Wear a N95 mask to cover the mouth and nose to avoid dust particles to enter the respiratory track. During emergency where fumes are produced
Thermal Hazard	: During emergency where fumes are produced, wear fire protective suit covering the whole body. Fire protective glasses and acid gas cartridges with N95 filters shall be used to cover to protect from toxic fume exposure. Wear protective boots.
Protection type	: PVC, Butyl or Natural rubber or Nitrile.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES AND SAFETY CHARACTERISTICS.

- **Physical State/ Appearance** : Granular solids
- **Colour** : White
- **Odour** : chlorine
- **Melting Point** : 225°C
- **Boiling Point** : Not available
- **Flammability** : Not available
- **Flammability Limit** : Not available
- **Flash Point** : Not available
- **Relative Vapour Density** : Not available
- **Auto-Ignition Temperature** : Not Available
- **Decomposition Temperature** : 225°C
- **pH** : 3 (1% Aq. solution)
- **Kinematic Viscosity** : Not Available
- **Solubility** : 12g/L in water
- **Partition Coefficient N-Octanol/Water (Log Value)** : Not available.
- **Vapour Pressure** : Not available
- **Density** : 2.19 ± 0.1 g/cm³
- **Particle Characteristics.** : Not available

SECTION 10: STABILITY AND REACTIVITY.

INDIGO CHEMICALS

44/1 PLOT NO.50, AT PO-BHATHA, VILLAGE-BHATHA,
TALUKA CHORASI, SURAT, GUJARAT-394510



SAFETY DATA SHEET: TCCA

10.1) Reactivity

Contact with acids liberates toxic gas. Contact with organic matter may cause fire.

10.2) Chemical Stability

Stable if stored as per Section 7 of SDS conditions.

10.3) Possibility of hazardous reactions

The product may intensify and support combustion. It is a strong oxidizing agent. The product emits toxic fumes of chlorine, oxides of chlorine gas. Upon decomposition, the product emits white fumes.

10.4) Conditions to avoid

Avoid contact with heat, flame, moisture, incompatible materials and source of spark or ignitions.

10.5) Incompatible materials

Keep away from acids, water, petroleum products or any combustible material. Keep away from sodium-hypochlorite, calcium-hypochlorite, alkali, reducing agents, nitrogen

10.6) Hazardous decomposition products.

Chlorine, Oxides of Chlorine, Trichlorides.

SECTION 11: TOXICOLOGY INFORMATION.

a) Acute toxicity:

Product: TCCA.

LD₅₀ Oral: 406 mg/kg (Rat)

LD₅₀ Dermal: LD₅₀ > 2000 mg/kg (Rabbit)

LC₅₀ Inhalation: LC₅₀ 0.09 - 0.29 mg/L (Rat) (4h)

Oral toxicity: (GHS category 4) Harmful if swallowed. Can cause Respiratory track irritation, sore throat, nausea, vomiting. May cause ulcers, inflammation and burning in esophagus or stomach.

Inhalation toxicity: (GHS category 4) Harmful if inhaled. Irritation in nose, coughing, runny nose, headache, breathing difficulties and sore throat.

b) Skin irritation: (GHS Category 2) It causes skin irritation, blisters, redness or swelling occurs.

c) Serious eye irritation: (GHS Category 2A) Causes eye irritation, burns in eye lids, conjunctivitis, corneal edema, redness, burning sensation, pain, infection.

d) Respiratory or skin sensitization: No data available.

e) Germ cell mutagenicity: No data available.

f) Carcinogenicity: No data available

g) Reproductive toxicity: No data available

h) STOT-single exposure: (GHS Category 3) May cause respiratory irritation. It is irritant to the mucous membranes of the respiratory tract.

i) STOT-repeated exposure: No data available

j) Aspiration hazard: No data available

SAFETY DATA SHEET: TCCA

SECTION 12: ECOLOGICAL INFORMATION.

The product is very toxic for aquatic life with long lasting effects. Irregular dosing/ spill releases chlorine upon mixing with water and harms aquatic life. The product may deteriorate in high temperatures releasing chlorine. The product is biodegradable by nature and does not persist in the open environment for long times. Chlorine dissipates in the environment and other components reacts rapidly in the environment to complete decomposition. Hydrolysis of the product produces chlorine and cyanuric acid; these are non-bio accumulative.

SECTION 13: DISPOSAL CONSIDERATIONS.

13.1) Disposal methods

Consult to the disposal methods of contents and containers with the local waste management authority. Comply the disposal norms in accordance with local/regional/international regulations. Discourage disposal of product in sewers, drains or water bodies. Wash and dry the container prior to disposing.

SECTION 14: TRANSPORT INFORMATION.

Air Transport Association (IATA).

UN-Number : UN2468
UN Proper Shipping Name : Trichloroisocyanuric Acid, Dry
Transportation Hazard Class : 5.1
Packing Group : II
Environmental Hazards : Marine pollutant (YES)

International Maritime Dangerous Goods Code/International Maritime Organization (IMDG/IMO).

UN-Number : UN2468
UN Proper Shipping Name : Trichloroisocyanuric Acid, Dry
Transportation Hazard Class : 5.1
Packing Group : II
Environmental Hazards : Marine pollutant (YES)

Department of Transportation (DOT).

UN-Number : UN2468
UN Proper Shipping Name : Trichloroisocyanuric acid, dry
Transportation Hazard Class : 5.1
Packing Group : II
Environmental Hazards : Marine pollutant (YES)

Transport of Dangerous Goods (TDG).

UN-Number : UN2468
UN Proper Shipping Name : Trichloroisocyanuric Acid, Dry
Transportation Hazard Class : 5.1
Packing Group : II
Environmental Hazards : Marine pollutant (YES)

SECTION 15: REGULATORY INFORMATION.

EU regulations:

INDIGO CHEMICALS

44/1 PLOT NO.50, AT PO-BHATHA, VILLAGE-BHATHA,
TALUKA CHORASI, SURAT, GUJARAT-394510



SAFETY DATA SHEET: TCCA

Chemical Name	CAS No.	EINECS	UN Number
Trichloroisocyanuric Acid	87-90-1	: 201-782-8	2468

(Refer SECTION 2 of SDS for Hazardous details)

USA Federal Regulations:

SARA 311/ SARA 312	Regulated as Hazardous substance Physical Hazard - Oxidizer (liquid, solid or gas) Health Hazard - Acute Toxin, Skin Corrosion or Irritation, Serious eye damage or eye irritation
SARA 313	Not Listed
Clean water act	Not Listed
Clean air act	Not Listed
OSHA (29 CFR 1910.1200)	Regulated as Hazardous substance.
TSCA	Listed
RCRA	Listed

Australian regulations:

Safe work Australia	Regulated as Hazardous substance
AICS	Listed

SECTION 16: OTHER INFORMATION.

Source of data: United Nations Publications. (2019). *Globally Harmonized System of Classification and Labelling of Chemicals (GHS)* (Eighth Revised ed.). United Nations.

Chlorine | NIOSH | CDC. (2018). <https://www.cdc.gov/niosh/topics/chlorine/>.

Disclaimer:

The safety data sheet is prepared by Indigo Chemicals to the best of its knowledge. All the information present in the SDS is obtained from verified technical sources and verified literature source to the best knowledge at the date of issue. Indigo Chemicals cannot control or foresee on how the product is used. Everyone accessing the product must be aware about the risks and take required precautions to use the material. Indigo Chemicals shall be responsible for damage caused to the consumer in terms to handling, storing, disposing and using the product. Contact Indigo Chemicals for any information regarding the SDS. The SDS applies to the direct users of the product. The SDS shall be considered valid if the product is used for mixing other substances or chemicals.

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END OF SDS