



SAFETY DATA SHEET

Chlorine Pac

According to Appendix D, OSHA Hazard Communication Standard 29 CFR §1910.1200

1. Identification

Product identifier

Product name Chlorine Pac
Chemical name Trichloro-s-triazinetriene; Trichloroisocyanuric Acid; TCCA; Trichlor; Trichloros- triazinetriene; Chloroisocyanurate
Synonyms; trade names Flippin' FROG® Replacement Chlorine Cartridge
EPA Registration Number 53735-2

Recommended use of the chemical and restrictions on use

Application Swimming pool sanitizer
Uses advised against Use only for intended applications.

Details of the supplier of the safety data sheet

Supplier King Technology, Inc.
6000 Clearwater Dr
Minnetonka, MN 55343
United States
1+ (952) 933-6118
sdsinfo@kingtechnology.com

Emergency telephone number

Emergency telephone CHEMTREC 800-424-9300 (24 hours)

2. Hazard(s) identification

Classification of the substance or mixture

OSHA Regulatory Status The below environmental hazard classification is non-mandatory under the OSHA Hazard Communication Standard. The environmental classification is according to the UN Globally Harmonized System of Classification and Labelling of Chemicals (GHS), 8th revised edition, 2019.

Physical hazards Ox. Sol. 2 - H272

Health hazards Acute Tox. 4 - H302 Acute Tox. 2 - H330 Skin Corr. 1C - H314 Eye Dam. 1 - H318 STOT SE 3 - H335

Environmental hazards Aquatic Acute 1 - H400 Aquatic Chronic 1 - H410

Label elements

Hazard symbols



Signal word

Danger

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Hazard statements	H272 May intensify fire; oxidizer. H302 Harmful if swallowed. H330 Fatal if inhaled. H314 Causes severe skin burns and eye damage. H335 May cause respiratory irritation. H410 Very toxic to aquatic life with long lasting effects.
Precautionary statements	P210 Keep away from heat, sparks, open flames and hot surfaces. No smoking. P220 Keep away from combustible materials. P221 Take any precaution to avoid mixing with combustibles. P260 Do not breathe dust. P261 Avoid breathing dust. P264 Wash contaminated 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. P273 Avoid release to the environment. P280 Wear protective gloves/ protective clothing/ eye protection/ face protection. P284 In case of inadequate ventilation wear respiratory protection. P301+P312 If swallowed: Call a poison center/ doctor if you feel unwell. P301+P330+P331 If swallowed: Rinse mouth. Do NOT induce vomiting. P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ 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. P310 Immediately call a poison center/ doctor. P320 Specific treatment is urgent (see medical advice on this label). P321 Specific treatment (see medical advice on this label). P363 Wash contaminated clothing before reuse. P370+P378 In case of fire: Use foam, carbon dioxide, dry powder or water fog to extinguish. P391 Collect spillage. P403+P233 Store in a well-ventilated place. Keep container tightly closed. P405 Store locked up. P501 Dispose of contents/ container in accordance with national regulations.
Precautionary statements	P101: If medical advice is needed, have product container or label at hand. P102: Keep out of reach of children. P103: Read label before use.
Contains	Trichloroisocyanuric acid
<u>Other hazards</u>	
Other	No additional hazards known. «46»% of the mixture consists of ingredient(s) of unknown acute toxicity.

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3. Composition/information on ingredients

Mixtures

Trichloroisocyanuric acid	96 - 100%
CAS number: 87-90-1	
M factor (Acute) = 1000	M factor (Chronic) = 100
Classification	
Ox. Sol. 2 - H272	
Acute Tox. 4 - H302	
Acute Tox. 2 - H330	
Skin Corr. 1C - H314	
Eye Dam. 1 - H318	
STOT SE 3 - H335	
Aquatic Acute 1 - H400	
Aquatic Chronic 1 - H410	

The full text for all hazard statements is displayed in Section 16.

4. First-aid measures

Description of first aid measures

General information	Get medical attention if any discomfort continues. Show this Safety Data Sheet to the medical personnel. Chemical burns must be treated by a physician.
Inhalation	Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Maintain an open airway. Loosen tight clothing such as collar, tie or belt. When breathing is difficult, properly trained personnel may assist affected person by administering oxygen. Get medical attention. Place unconscious person on their side in the recovery position and ensure breathing can take place.
Ingestion	Rinse mouth thoroughly with water. Give a few small glasses of water or milk to drink. Stop if the affected person feels sick as vomiting may be dangerous. Never give anything by mouth to an unconscious person. Place unconscious person on their side in the recovery position and ensure breathing can take place. Keep affected person under observation. Get medical attention if symptoms are severe or persist.
Skin Contact	It is important to remove the substance from the skin immediately. Rinse immediately with plenty of water. Continue to rinse for at least 15 minutes and get medical attention. Chemical burns must be treated by a physician.
Eye contact	Rinse immediately with plenty of water. Do not rub eye. Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 15 minutes and get medical attention.
Protection of first aiders	It may be dangerous for first aid personnel to carry out mouth-to-mouth resuscitation.

Most important symptoms and effects, both acute and delayed

General information	The severity of the symptoms described will vary dependent on the concentration and the length of exposure.
Inhalation	A single exposure may cause the following adverse effects: Difficulty in breathing. Unconsciousness, possibly death.
Ingestion	May cause chemical burns in mouth, esophagus and stomach. Symptoms following overexposure may include the following: Severe stomach pain. Nausea, vomiting.

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Skin contact Causes severe burns. Symptoms following overexposure may include the following: Pain or irritation. Redness. Blistering may occur.

Eye contact Causes serious eye damage. Symptoms following overexposure may include the following: Pain. Profuse watering of the eyes. Redness.

Indication of immediate medical attention and special treatment needed

Notes for the doctor Treat symptomatically. Probable mucosal damage may contraindicate the use of gastric lavage. Keep affected person under observation.

5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media Water. The product is not flammable.

Unsuitable extinguishing media Do not use the following: Dry chemicals. Carbon dioxide (CO₂). Ammonia. Halon replacement.

Special hazards arising from the substance or mixture

Specific hazards May cause or intensify fire; oxidizer. This product is toxic.

Hazardous combustion products Thermal decomposition or combustion products may include the following substances: Very toxic or corrosive gases or vapors. Chlorine. Hydrogen chloride (HCl). Nitrous gases (NO_x). Carbon monoxide (CO). Nitrogen trichloride.

Advice for firefighters

Protective actions during firefighting Avoid breathing fire gases or vapors. Evacuate area. Keep upwind to avoid inhalation of gases, vapors, fumes and smoke. Ventilate closed spaces before entering them. May cause or intensify fire; oxidizer. Cool containers exposed to heat with water spray and remove them from the fire area if it can be done without risk. Cool containers exposed to flames with water until well after the fire is out. Avoid discharge to the aquatic environment. Control run-off water by containing and keeping it out of sewers and watercourses. If risk of water pollution occurs, notify appropriate authorities.

Special protective equipment for firefighters Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing. Standard Firefighter's clothing including helmets, protective boots and gloves will provide a basic level of protection for chemical incidents.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions Wear protective clothing as described in Section 8 of this safety data sheet. No action shall be taken without appropriate training or involving any personal risk. Do not touch or walk into spilled material. Avoid inhalation of dust. Use suitable respiratory protection if ventilation is inadequate. Avoid contact with skin and eyes.

Environmental precautions

Environmental precautions Avoid discharge into drains or watercourses or onto the ground. Avoid discharge to the aquatic environment.

Methods and material for containment and cleaning up

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Methods for cleaning up Wear protective clothing as described in Section 8 of this safety data sheet. Clear up spills immediately and dispose of waste safely. Do not use sawdust or other combustible material. This product is corrosive. Provide adequate ventilation. Collect spillage with a shovel and broom, or similar and reuse, if possible. Collect and place in suitable waste disposal containers and seal securely. Flush contaminated area with plenty of water. Wash thoroughly after dealing with a spillage. Dangerous for the environment. Do not empty into drains. For waste disposal, see Section 13.

Reference to other sections For personal protection, see Section 8. See Section 11 for additional information on health hazards. See Section 12 for additional information on ecological hazards. For waste disposal, see Section 13.

7. Handling and storage

Precautions for safe handling

Usage precautions Keep out of the reach of children. Read and follow manufacturer's recommendations. This product is not to be used under conditions of poor ventilation. Wear protective clothing as described in Section 8 of this safety data sheet. Keep away from food, drink and animal feeding stuffs. Keep container tightly sealed when not in use. This product is toxic. This product is corrosive. Immediate first aid is imperative. Avoid discharge to the aquatic environment. Do not handle until all safety precautions have been read and understood. Do not handle broken packages without protective equipment. Do not reuse empty containers.

Advice on general occupational hygiene Wash promptly if skin becomes contaminated. Take off contaminated clothing and wash before reuse. Wash contaminated clothing before reuse.

Conditions for safe storage, including any incompatibilities

Storage precautions Store away from incompatible materials (see Section 10). Keep at temperature not exceeding 40°C/104°F. Store locked up. Keep away from heat, sparks and open flame. Keep away from flammable and combustible materials. Store in tightly-closed, original container in a dry, cool and well-ventilated place. Keep containers upright. Protect containers from damage.

Storage class Oxidizer storage.

Specific end uses(s)

Specific end use(s) The identified uses for this product are detailed in Section 1.

8. Exposure controls/Personal protection

Control parameters

Occupational exposure limits

OSHA Permissible Exposure Limit (PEL): TWA 15 mg/m³ (total dust)

OSHA Permissible Exposure Limit (PEL): TWA 5 mg/m³ (respirable dust)

Long-term Exposure Limit (8-hour TWA): ACGIH 3 mg/m³ respirable fraction

Long-term Exposure Limit (8-hour TWA): ACGIH 10 mg/m³ inhalable fraction

Exposure controls

Protective equipment



Appropriate engineering controls

Use process enclosures, local exhaust ventilation or other engineering controls as the primary means to minimize worker exposure. Ensure the ventilation system is regularly maintained and tested. In case of insufficient ventilation, wear suitable respiratory equipment. Observe any occupational exposure limits for the product or ingredients.

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Eye/face protection	Wear tight-fitting, chemical splash goggles or face shield. If inhalation hazards exist, a full-face respirator may be required instead.
Hand protection	Wear protective gloves. The most suitable glove should be chosen in consultation with the glove supplier/manufacturer, who can provide information about the breakthrough time of the glove material. To protect hands from chemicals, gloves should comply with OSHA 1910.138 and be demonstrated to be impervious to the chemical and resist degradation. Considering the data specified by the glove manufacturer, check during use that the gloves are retaining their protective properties and change them as soon as any deterioration is detected. Frequent changes are recommended.
Other skin and body protection	Wear appropriate clothing to prevent any possibility of skin contact.
Hygiene measures	Wash after use and before eating, smoking and using the toilet. Take off contaminated clothing and wash it before reuse. Do not eat, drink or smoke when using this product. Clean equipment and the work area every day.
Respiratory protection	Ensure all respiratory protective equipment is suitable for its intended use and is NIOSH approved. Check that the respirator fits tightly and the filter is changed regularly. Gas and combination filter cartridges should comply with OSHA 1910.134. Full face mask respirators with replaceable filter cartridges should comply with OSHA 1910.134. Half mask and quarter mask respirators with replaceable filter cartridges should comply with OSHA 1910.134. Acid gas filter.
Environmental exposure controls	Keep container tightly sealed when not in use. Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9. Physical and chemical properties

Information on basic physical and chemical properties

Appearance	White granules or tablet-formed product
Color	White.
Odor	Chlorine.
Odor threshold	No information available.
pH	pH (diluted solution): 2.7-2.9 1%
Melting point	225-230°C/437-446°F (decomposes)
Initial boiling point and range	Not applicable. (decomposes)
Flash point	Not applicable. (decomposes)
Evaporation rate	No information available.
Evaporation factor	No information available.
Flammability (solid, gas)	No information available.
Upper/lower flammability or explosive limits	No information available.
Other flammability	No information available.
Vapor pressure	No information available.
Vapor density	No information available.

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Relative density	> 1
Bulk density	Granular: 0.89-1.1 g/cm ³ Tablet: 1.16-1.9 g/cm ³
Solubility(ies)	1.2 g/100 g water @ 25°C
Partition coefficient	No information available.
Auto-ignition temperature	No information available.
Decomposition Temperature	~250°C/~482°F
Viscosity	No information available.

10. Stability and reactivity

Reactivity	See the other subsections of this section for further details.
Stability	Stable at normal ambient temperatures and when used as recommended. Stable under the prescribed storage conditions.
Possibility of hazardous reactions	Converted to Hypochlorous acid and Isocyanuric acid when dissolved in water.
Conditions to avoid	Avoid contact with water or moisture until ready for use. Avoid exposure to high temperatures or direct sunlight. Keep at temperature not exceeding 40°C/104°F.
Materials to avoid	Reducing agents. Acids. Flammable/combustible materials. Hydrocarbons. Grease. Organic cyanides (nitriles). Esters. Some metals. Ammonia. Alkalis. Oxidizing agents.
Hazardous decomposition products	Does not decompose when used and stored as recommended. Thermal decomposition or combustion products may include the following substances: Chlorine. Hydrogen chloride (HCl). Carbon monoxide (CO). Carbon dioxide (CO ₂). Nitrous gases (NO _x). Nitrogen trichloride.

11. Toxicological information

Information on toxicological effects

Acute toxicity - oral

Notes (oral LD₅₀) LD₅₀ 809 mg/kg, Oral, Rat
Acute Tox. 4 - H302 Harmful if swallowed.

ATE oral (mg/kg) 817.17

Acute toxicity - dermal

Notes (dermal LD₅₀) Based on available data the classification criteria are not met.
LD₅₀ > 2000 mg/kg, Dermal, Rabbit

Acute toxicity - inhalation

Summary

This material in the form as sold is not expected to produce respiratory effects. Particles of respirable size are generally not encountered. The respirable fraction is typically less than 0.1% by weight for the granular and extra granular grades. If ground or otherwise in a powdered form, effects similar to a corrosive substance may occur. Exposure to the solid product or to free chlorine evolving from the product may cause irritation, redness of upper and lower airways, coughing, laryngeospasm and edema, shortness of breath, bronchoconstriction, and possible pulmonary edema. The pulmonary edema may develop several hours after a severe acute exposure.

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Notes (inhalation LC₅₀)	Acute Tox. 2 - H330 Fatal if inhaled.
ATE inhalation (dusts/mists mg/l)	0.29
<u>Skin corrosion/irritation</u> Skin corrosion/irritation	Causes severe burns.
<u>Serious eye damage/irritation</u> Serious eye damage/irritation	Eye Dam. 1 - H318 Causes serious eye damage.
<u>Respiratory sensitization</u> Respiratory sensitization	Based on available data the classification criteria are not met.
<u>Skin sensitization</u> Skin sensitization	Based on available data the classification criteria are not met.
<u>Germ cell mutagenicity</u> Genotoxicity - in vitro	Based on available data the classification criteria are not met.
<u>Carcinogenicity</u> Carcinogenicity	Based on available data the classification criteria are not met.
IARC carcinogenicity	None of the ingredients are listed.
NTP carcinogenicity	None of the ingredients are listed.
OSHA Carcinogenicity	None of the ingredients are listed.
<u>Reproductive toxicity</u> Reproductive toxicity - fertility	Based on available data the classification criteria are not met.
Reproductive toxicity - development	Based on available data the classification criteria are not met.
<u>Specific target organ toxicity - single exposure</u> STOT - single exposure	STOT SE 3 - H335 May cause respiratory irritation.
Target organs	Respiratory system, lungs
<u>Specific target organ toxicity - repeated exposure</u> STOT - repeated exposure	Not classified as a specific target organ toxicant after repeated exposure.
<u>Aspiration hazard</u> Aspiration hazard	Not relevant. Solid.
General information	The severity of the symptoms described will vary dependent on the concentration and the length of exposure.
Inhalation	A single exposure may cause the following adverse effects: Drowsiness, dizziness, disorientation, vertigo. Unconsciousness. High concentrations may be fatal.
Ingestion	May cause irritation.
Skin Contact	Redness. Irritating to skin.
Eye contact	Causes serious eye damage. Symptoms following overexposure may include the following: Pain. Profuse watering of the eyes. Redness.
Route of exposure	Ingestion Inhalation Skin and/or eye contact
Target Organs	Respiratory system, lungs

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12. Ecological information

Toxicity Aquatic Acute 1 - H400 Very toxic to aquatic life. Aquatic Chronic 1 - H410 Very toxic to aquatic life with long lasting effects.

Acute aquatic toxicity

Acute toxicity - fish LC₅₀, 0.22 hours: 96 mg/l, Oryzias latipes (Red killifish)

Persistence and degradability

Persistence and degradability The degradability of the product is not known.

Bioaccumulative potential

Bio-Accumulative Potential The product is not bioaccumulating.

Partition coefficient No information available.

Mobility in soil

Mobility No data available.

Other adverse effects

Other adverse effects None known.

13. Disposal considerations

Waste treatment methods

General information The generation of waste should be minimized or avoided wherever possible. Reuse or recycle products wherever possible. This material and its container must be disposed of in a safe way. When handling waste, the safety precautions applying to handling of the product should be considered. Care should be taken when handling emptied containers that have not been thoroughly cleaned or rinsed out. Empty containers or liners may retain some product residues and hence be potentially hazardous.

Disposal methods Do not empty into drain without the following treatment. Dissolve product in large amounts of water and add reducing agent gradually. After decomposing residual chlorine, adjust pH to neutral. Then it can be discharged to water.
Do not dispose into garbage can or garbage dump: may cause fire. Dispose of surplus products and those that cannot be recycled via a licensed waste disposal contractor. Waste, residues, empty containers, discarded work clothes and contaminated cleaning materials should be collected in designated containers, labeled with their contents. Incineration or landfill should only be considered when recycling is not feasible.

14. Transport information

General This product, when packaged in quantities of 2.2 pounds or less and meeting all other packaging requirements in 49 CFR, may be shipped per 49 CFR 173.152 as Limited Quantity. Product packaged over 2.2 pounds will be fully regulated as defined below:

UN Number

UN No. (DOT) UN2468

UN proper shipping name

Proper shipping name (DOT) TRICHLOROISOCYANURIC ACID, DRY

Transport hazard class(es)

DOT hazard class 5.1

DOT hazard label 5.1

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DOT transport labels



Packing group

DOT packing group II

15. Regulatory information

United States FIFRA - Pesticide Labeling

This product is a US EPA FIFRA registered pesticide (EPA Reg. No.: 53735-2) and is subject to certain labeling requirements under federal pesticide law. These requirements may differ from the classification criteria and hazard information required for an OSHA GHS SDS. The following is the hazard information as required on the FIFRA label:

Signal Word

DANGER

Hazard Statements

- Corrosive. Causes irreversible eye damage and skin burns
- Harmful if swallowed or absorbed through skin
- May be fatal if inhaled
- Irritating to nose and throat
- STRONG OXIDIZING AGENT
- This pesticide is toxic to fish and aquatic organisms
- Keep out of reach of children

US Federal Regulations

SARA Section 302 Extremely Hazardous Substances Tier II Threshold Planning Quantities

Not applicable.

CERCLA/Superfund, Hazardous Substances/Reportable Quantities (EPA)

Not applicable.

SARA Extremely Hazardous Substances EPCRA Reportable Quantities

Not applicable.

SARA 313 Emission Reporting

87-90-1

CAA Accidental Release Prevention

Not applicable.

FDA - Essential Chemical

Not applicable.

FDA - Precursor Chemical

Not applicable.

SARA (311/312) Hazard Categories

Acute
Oxidizer (liquid, solid or gas)
Serious eye damage or eye irritation
Specific target organ toxicity (single or repeated exposure)

OSHA Highly Hazardous Chemicals

Not applicable.

US State Regulations

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California Proposition 65 Carcinogens and Reproductive Toxins

None of the ingredients are listed.

California Air Toxics "Hot Spots" (A-I)

Not applicable.

California Air Toxics "Hot Spots" (A-II)

Not applicable.

California Directors List of Hazardous Substances

The following ingredients are listed:
Trichloroisocyanuric acid

Massachusetts "Right To Know" List

87-90-1

Rhode Island "Right To Know" List

87-90-1

Minnesota "Right To Know" List

Not applicable.

New Jersey "Right To Know" List

87-90-1

Pennsylvania "Right To Know" List

87-90-1

Inventories

US - TSCA

All the ingredients are listed or exempt.

US - TSCA 12(b) Export Notification

Not applicable.

16. Other information

Abbreviations and acronyms used in the safety data sheet TDG: The transport of dangerous goods act

IATA: International air transport association.
ICAO: Technical instructions for the safe transport of dangerous goods by air.
IMDG: International maritime dangerous goods.
CAS: Chemical abstracts service.
ATE: Acute toxicity estimate.
LC₅₀: Lethal concentration to 50 % of a test population.
LD₅₀: Lethal dose to 50% of a test population (median lethal dose).
EC₅₀: 50% of maximal effective concentration.
PBT: Persistent, bioaccumulative and toxic substance.
vPvB: Very persistent and very bioaccumulative.

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Classification abbreviations and acronyms	Ox. Sol. = Oxidising solid Acute Tox. = Acute toxicity Eye Dam. = Serious eye damage Skin Corr. = Skin corrosion STOT SE = Specific target organ toxicity-single exposure Aquatic Acute = Hazardous to the aquatic environment (acute) Aquatic Chronic = Hazardous to the aquatic environment (chronic)
Revision date	10/24/2022
Revision	05
SDS No.	4828
Hazard statements in full	H272 May intensify fire; oxidizer. H302 Harmful if swallowed. H314 Causes severe skin burns and eye damage. H318 Causes serious eye damage. H330 Fatal if inhaled. H335 May cause respiratory irritation. H400 Very toxic to aquatic life. H410 Very toxic to aquatic life with long lasting effects.

The information provided on the SDS is correct to the best of our knowledge, information, and belief at the date of this publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal, and release, and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.