

**Product Name:** Flippin' Frog® Chlorine Cartridge  
**Revision Date:** May 22, 2015 **Revision:** 2  
**Supersedes:** Rev 1, 11/07/2014

## 1. Identification

**Product Identifier:** Flippin' Frog® Chlorine Cartridge

**Other Means of Identification:** Trichloro-s-triazinetriene; Trichloroisocyanuric Acid; TCCA; Trichlor; Trichloro-s-triazinetriene; Chloroisocyanurate

**Recommended Use:** Swimming pool sanitizer

**Supplier:** King Technology, Inc.  
530 11<sup>th</sup> Ave S, Hopkins, MN 55343, USA  
Phone (952) 933-6118

**EPA Registration Number:** 53735-2

**Emergency Telephone:** Chemtrec (800) 424-9300

## 2. Hazards Identification

**GHS Classification:** Eye Damage: Category 1  
Skin Irritation: Category 1  
Oxidizing Solids: Category 2  
Specific Target Organ Toxicity (Single Exposure): Category 3  
Acute Toxicity (Inhalation): Category 4  
Acute Toxicity (Oral): Category 4  
Acute Toxicity (Dermal): Category 4

**GHS Label Elements:**

– **Signal Word:** DANGER

– **Pictograms:**



– **Hazard Statements:** Causes severe skin burns and eye damage  
May intensify fire; oxidizer  
May cause respiratory irritation  
Harmful if inhaled  
Harmful if swallowed  
Harmful in contact with skin

– **Precautionary Statements:** Keep away from heat.  
Keep away from clothing or other combustible materials.  
Take any precaution to avoid mixing with combustibles.  
In case of fire: Use large amounts of water to extinguish.  
Do not breathe dusts or mists.  
Use only outdoors or in a well-ventilated area.  
Wear protective gloves, protective clothing, and eye and face protection.  
Wash exposed areas thoroughly after handling.  
Do not eat, drink or smoke when using this product.  
In in eyes: Rinse cautiously with water for several minutes. Remove contact



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lenses, if present and easy to do. Continue rinsing.  
If inhaled: Remove person to fresh air and keep comfortable for breathing.  
If swallowed: Rinse mouth. Do NOT induce vomiting.  
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water.  
Immediately call a poison center or doctor.  
Specific treatment (see First-aid Measures on this safety data sheet).  
Take off contaminated clothing and wash it before reuse.  
Store locked up in a well-ventilated place. Keep container tightly closed.  
Dispose of contents and container in accordance with local/regional/national/international regulations.

**Unclassified Hazards:** None

**Percentage of Ingredients with Unknown Toxicity:** Zero

### 3. Composition / Information on Ingredients

Components CAS	Weight %	ACGIH-TLV Data	OSHA (PEL) Data
Trichloroisocyanuric Acid 87-90-1	96-100	Not determined	Not determined
Dichloroisocyanuric Acid 2782-57-2	0-4	Not determined	Not determined

The specific percentages of composition have been withheld as trade secrets.

### 4. First-aid Measures

**Eye contact:** Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes then continue rinsing the eye. Immediately call a poison control center or doctor for treatment advice.

**Skin contact:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Immediately call a doctor for treatment advice.

**Inhalation:** Move person to fresh air. If person is not breathing call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if breathing is difficult, give oxygen. Immediately call a poison control center or doctor for further treatment advice.

**Ingestion:** Call poison control center or doctor immediately for treatment advice. Drink plenty of water in small gulps. Do not induce vomiting unless told to do so by the poison control center or doctor. Do not give anything by mouth to an unconscious person.

**Most Important Symptoms, Acute and Delayed:** Causes serious eye damage. Causes skin irritation. May cause respiratory irritation. Harmful if inhaled, swallowed, or in contact with skin.

**Immediate Medical Attention Required:** If in eyes, immediately call a poison center or doctor. Otherwise, get medical attention if you feel unwell.



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## 5. Fire-fighting Measures

**Flash point:** Not applicable

**Auto-ignition temperature:** Not applicable

**Suitable Extinguishing Media:** Water

**Unsuitable Extinguishing Media:** Do not use dry chemical extinguisher containing ammonia compounds.

**Special Protective Equipment and Precautions for Fire-fighters:** Fire fighters should wear full protective clothing and self-contained breathing apparatus (SCBA) in positive pressure mode. Cool containers with water spray. On small fires, use water spray or fog. On large fires, use heavy deluge or fog streams. Flooding amounts of water may be required before extinguishment can be accomplished.

**Specific Hazards Arising From the Chemical:** When heated to decomposition may release poisonous and corrosive fumes of nitrogen trichloride, chlorine, nitrous oxides, cyanates, carbon monoxide, and carbon dioxide.

## 6. Accidental Release Measures

**Personal Precautions:** For small spills in well ventilated areas wear a NIOSH approved half-face or full-face tight fitting respirator or a loose fitting powered air purifying respirator equipped with chlorine cartridges. Chemical goggles should be worn when using a half-face respirator. In addition to respiratory protection wear coveralls, chemical resistant gloves, chemical resistant footwear, and chemical resistant headgear for overhead exposure.

For cleanup of large spills, or small dry spills in confined areas, wear full-face respirator with chlorine cartridges or a positive pressure supplied air respirator. Additionally, body protection should be impervious clothing covering the entire body to prevent personal contact with the material.

CAUTION - protection concerns must also address the following: If this material becomes damp/wet or contaminated in a container, the formation of nitrogen trichloride gas may occur and an explosive condition may exist.

**Methods for Cleaning Up:** Hazardous concentrations in air may be found in local spill area and immediately downwind. If spill material is still dry, do not put water directly on this product as a gas evolution may occur.

CAUTION: Do not use floor sweeping compounds

– **Soil:** Do not contaminate spill material with any organic materials, ammonia, ammonium salts, or urea. Clean up all spill material with clean, dry dedicated equipment and place in a clean, dry container.

– **Water:** This material is heavier than water and soluble in water. Stop flow of material into water as soon as possible. Begin monitoring for available chlorine and pH immediately.

– **In Air:** Vapors may be suppressed by the use of water fog.



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## 7. Handling and Storage

**Handling:** Avoid bodily contact. Do not take internally. Upon contact with skin or eyes, wash off with water.

**Storage:** Store in a dry, cool, well-ventilated area away from incompatible materials (see "materials to avoid"). Product has an indefinite shelf-life limitation. Do not store at temperatures above 60°C/140°F. Available chlorine loss can be as little as 0.1% per year at ambient temperatures.

## 8. Exposure Controls / Personal Protection

**Exposure Limits:** None assigned

**Appropriate Engineering Controls:** Use local exhaust ventilation to minimize dust and chlorine levels where industrial use occurs. Otherwise, ensure good general ventilation.

**Personal protective equipment:**

- **Respiratory protection:** When dusty conditions are encountered, wear a NIOSH/OSHA full-face respirator with chlorine cartridges for protection against chlorine gas and dust/mist pre-filter
- **Hand protection:** Neoprene gloves
- **Eye protection:** Use chemical safety glasses to avoid eye contact
- **Skin and body protection:** Body covering clothes and boots

**Hygiene measures:** Avoid contact with skin, eyes, clothing

## 9. Physical and Chemical Properties

**Appearance:** White granules or tablet-formed product

**Odor:** Chlorine like bleach odor

**Odor threshold:** Not available

**Melting point / range:** 225-230°C (decomposes)

**Boiling point / range:** Not applicable (decomposes)

**Flash point:** Not available

**Evaporation rate:** Not available

**Flammability:** Not available

**Vapor pressure:** Not available

**Vapor density:** Not available

**Bulk density:** Granular 0.89 – 1.1 g/cc  
Tablet 1.16 – 1.9 g/cc

**Solubility in water:** 1.2 g/100ml at 25°C

**Specific gravity:** >1

**pH:** 2.7-2.9 (1% solution)

**Flammability limits:** Not available

**Partition coefficient:** Not available

**Auto-ignition temperature:** Not available

**Decomposition temperature:** 225°C (437°F)

**Viscosity:** Not available



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## 10. Stability and Reactivity

**Reactivity:** Not reactive under normal conditions.

**Stability:** Stable under normal conditions. Do not package in paper or cardboard. NOTE: contact with small amounts of water may result in exothermic reaction with the liberation of toxic fumes.

**Incompatible materials:** Organic materials, reducing agents, nitrogen containing materials, other oxidizers, acids, bases, oils, grease, sawdust, dry fire extinguishers containing monoammonium compounds.

**Conditions to avoid:** Heating above decomposition temperature, humidity

**Hazardous decomposition products:** Nitrogen trichloride, chlorine, nitrous oxides, cyanates, carbon monoxide, carbon dioxide.

**Possibility of hazardous reactions:** Will not occur

## 11. Toxicological Information

**Acute toxicity:**

- Rat oral LD50: 490 mg/kg
- Rabbit dermal LD50: >2000 mg/kg
- Eye irritation (rabbit): Corrosive
- Dermal irritation (rabbit): Corrosive
- Dermal sensitization (guinea pig): Not a sensitizer

**Chronic toxicity:** Prolonged exposure may cause damage to the respiratory system. Chronic inhalation exposure may cause impairment of lung function and permanent lung damage.

**Mutagenicity:** Not a mutagenic in five Salmonella strains and one E.coli strain with or without mammalian microsomal activation.

**Carcinogenicity:** Not classified by IARC, OSHA, EPA  
Not included in NTP 11<sup>th</sup> Report on Carcinogens

**Reproductive toxicity:** There are no known or reported effects on reproductive function or fetal development. Toxicological investigation indicates it does not affect reproductive function of fetal development.

## 12. Ecological Information

**Aquatic toxicity:**

- 96 Hour-LC50, Fish: 0.32 mg/l (Rainbow trout)
- 48 Hour-LC50, Daphnia magna: 0.30 mg/l (Bluegill sunfish)

**Avian toxicity:**

- Oral LD50, Mallard Duck: 1600 mg/kg
- Dietary LC50, Mallard Duck: >10,000 ppm



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– Dietary LC50, Bobwhite quail: 7422 ppm

Germany, water endangering classes (WGK): 3

## 13. Disposal Considerations

Use or reuse if possible. Do not put product, spilled product, or partially filled containers into the trash or waste compactor. See product label for container disposal information.

### Waste disposal:

Observe all federal, state, and local environmental regulations when disposing of this material. If this product becomes waste, it will be hazardous waste that is subject to the Land Disposal Restrictions under 40 CFR 268 and must be managed accordingly.

Care must be taken to prevent environmental contamination from the use of this material. The user of this material has the responsibility to dispose of unused material, residues, and containers in compliance with all relevant local, state, and federal laws and regulations regarding treatment, storage, and disposal of hazardous waste.

## 14. Transportation Information

**UN Number:** 2468

**DOT:** Proper shipping name: Trichloroisocyanuric Acid Dry  
Class: 5.1 – Oxidizing substances  
Label: OXIDIZER (5.1)  
Packing Group: II  
Emergency Guide No. 140

**IMO:** Proper shipping name: Trichloroisocyanuric Acid Dry  
Class: 5.1 – Oxidizing substances  
Label: OXIDIZING AGENT (5.1)  
Packing Group: II

**ICAO/IATA:** Label: OXIDIZER (5.1)  
Class: 5.1  
Packing Group: II

## 15. Regulatory information

### EPA FIFRA Information:

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

**DANGER**

Corrosive. If product is removed from its prefilled container, causes irreversible eye damage and skin burns. May be fatal if absorbed through skin. May be



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fatal if inhaled. Do not breathe dusts or spray mists. Irritating to nose and throat. Harmful if swallowed. Do not get in eyes, on skin or on clothing. Follow directions for use carefully. Wash thoroughly with soap and water after handling and before eating, drinking, or using tobacco or using the toilet. Remove contaminated clothing and wash before reuse.

- USA:** Reported in the EPA TSCA Inventory.
- Sara (311, 312) hazard class:** This product is categorized as an immediate health hazard, and fire and reactivity physical hazard. This product does not contain a chemical listed at or above de minimis concentrations.
- Massachusetts right-to-know list:** Listed
- New Jersey right-to-know list:** Listed
- Pennsylvania right-to-know list:** Listed
- Waste classifications:** If this product becomes a waste it meets the criteria of a hazardous waste as defined under 40 CFR 261 and would have the following EPA hazardous number: D001
- Workplace classification:** This product is considered hazardous under OSHA Hazard Communication Standard (29CFR 1910.1200)
- Canada:** Listed in DSL
- WHMIS hazard class:** C – oxidizing materials  
D1B – toxic materials  
D2B – toxic materials
- EU:** Reported in EINECS
- Japanese METI:** ENCS No: 5-1044
- Australia:** Listed in AICS
- China inventory:** Listed
- Korea:** KE-34101
- Philippines:** Listed in PICCS



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### 16. Other information

Date of preparation: May 22, 2015

The information in this Material Safety Data Sheet should be provided to all who use, handle, store, transport, or otherwise be exposed to this product. This information has been prepared for the guidance of plant engineering, operations and management, and for persons working with or handling this product. Additionally, if this Material Safety Data Sheet is more than three years old you should contact King Technology to make certain that this sheet is current.

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**Prepared by:** King Technology, Inc.  
530 11<sup>th</sup> Ave S  
Hopkins, MN 55343 USA  
Phone (952) 933-6118

**End of safety data sheet**