KING TECH

Material Safety Data Sheet

Product Name: **FROG® Leap Torpedo Pac**
Revision Date: **October 14, 2011** **Revision: 1**
Supersedes: **New MSDS**

1. Identification of the substance and company

Chemical Name: Trichloro-s-triazinetrione

Synonym(s): Trichloroisocyanuric Acid; TCCA; Trichlor; Trichloro-s-triazinetrione

Chemical Formula: $C_3 Cl_3 N_3 O_3$

Chemical Family: Chloroisocyanurate

Molecular weight: 232.41

Type of product: Swimming pool sanitizer

Supplier: King Technology, Inc
530 11th Ave S, Hopkins, MN 55343, USA
Phone (952) 933-6118

Emergency Telephone: Chemtrec (800) 424-9300

2. 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

3. Hazards identification

Emergency overview:

- White granules or tablet-form product
- Oxidizer
- Causes irreversible eye damage and skin burns
- May be fatal if inhaled
- May be fatal if absorbed through the skin

Potential environmental effects: Very toxic to aquatic organisms; may cause long-term adverse effects in the aquatic environment.

Potential Health Effects:

– Eye Contact: Severe irritation and/or burns can occur following eye exposure. Contact may cause impairment of vision and corneal damage.

– Skin Contact: Dermal exposure can cause severe irritation and/or burns characterized by redness, swelling, and scab formation. Repeated skin exposure may cause tissue destruction due to the corrosive nature of the product.

– Inhalation: Irritating to the nose, mouth, throat, and lungs. It may also cause burns to the respiratory tract with the production of lung edema that can result in shortness of breath, wheezing, choking, chest pain, and impairment of lung function. Inhalation of high concentrations can result in permanent lung damage from the corrosive action of the product.

– Ingestion: Irritation and/or burns can occur to the entire gastrointestinal tract, including

	the stomach and intestines, characterized by nausea, vomiting, diarrhea, abdominal pain, bleeding and/or tissue ulceration. Ingestion causes severe damage to the gastrointestinal tract with the potential to cause perforation.
NFPA Ratings (scale 0-4):	Health = 3, Fire = 0, Reactivity = 2 Special Hazard Warning: OXIDIZER
HMIS Ratings (scale 0-4):	Health = 3, Fire = 0, Reactivity = 2

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. 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. If irritation persists, 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 possible. Call a poison control center or doctor for further treatment advice.
Ingestion:	Call poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. 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.
Notes to physician:	Probable mucosal damage may contraindicate the use of gastric lavage.

5. Fire fighting measures

Flash point:	Not applicable
Auto-ignition temperature:	Not applicable
Suitable extinguishing media:	Water
Extinguishing media NOT to be used:	Do not use dry chemical extinguisher containing ammonia compounds.
Fire fighting procedure:	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.
Unusual fire and explosion hazards:	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.

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 are 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

Ventilation requirements:	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
Melting point / range: 225-230°C (decomposes)
Boiling point / range: Not applicable (decomposes)
Vapor pressure: Not applicable under standard conditions
Vapor density: Not applicable under standard conditions
Evaporation rate (ether = 1): Not applicable under standard conditions
Solubility:
– Solubility in water: 1.2 g/100ml at 25°C
Bulk density: Granular 0.89 – 1.1 g/cc
Tablet 1.16 – 1.9 g/cc
Specific gravity: >1
pH: 2.7-2.9 (1% solution)
Decomposition temperature: 225°C (437°F)

10. Stability and reactivity

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.

Materials to avoid: 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.

Hazardous polymerization: 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 11th 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
– 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

USA:	Reported in the EPA TSCA Inventory. This product is registered under FIFRA.
–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

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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End of safety data sheet