

**Product Name:** Aqua Smarte Plus Optimize  
**Revision Date:** December 5, 2011  
**Supersedes:** New MSDS  
**Revision:** 1

**1. Identification of the substance and company**

**Chemical Name:** Sodium dichloroisocyanurate  
**Synonym(s):** NaDCCA Dichlor; Sodium dichloro-s-triazinetriene  
**Chemical Formula:** C<sub>3</sub> Cl<sub>2</sub> N<sub>3</sub> O<sub>3</sub>,Na  
**Chemical Family:** Chloroisocyanurate  
**Type of product:** Swimming pools, spas, hot tubs disinfectant; spa and hot tub shock  
**Supplier:** King Technology, Inc  
530 11<sup>th</sup> Ave S, Hopkins, MN 55343, USA  
Phone (952) 933-6118  
**Emergency Telephone:** Chemtrec (800) 424-9300

**2. Composition / information on ingredients**

Components	Weight %
Sodium dichloroisocyanurate CAS No.2893-78-9	99.0
Inerts	1.0

**3. Hazards identification**

**Immediate hazards:**

- DANGER
- Corrosive: Causes irreversible eye damage
- May be fatal if inhaled
- May cause respiratory tract irritation
- Harmful if swallowed or absorbed through the skin

**Environmental hazards:** Toxic to aquatic organisms; may cause long-term adverse effects in the aquatic environment.

**Potential Health Effects:**

– **Eye Contact:** Causes: irreversible eye damage

– **Skin Contact:** May be harmful if absorbed through skin.

– **Inhalation:** May be fatal if inhaled. May cause respiratory tract irritation.

– **Ingestion:** Harmful if swallowed

**HMIS Classification (scale 0-4):** Health = 3, Fire = 1, Reactivity = 1, PPE = F  
Special Hazard Warning: OXIDIZER

**NFPA Ratings (scale 0-4):** Health = 3, Fire = 1, Reactivity = 1

**Carcinogenicity:** None of the components present in this material at concentrations equal or greater than 0.1% is listed by IARC, NTP, OSHA or ACGIH as a carcinogen



## Material Safety Data Sheet

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### 4. First-aid measures

**General information:** Remove contaminated clothing and shoes immediately, and launder thoroughly before reusing. Call a poison control center or doctor immediately for treatment advice.

**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 breathing is difficult, give oxygen. 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.

### 5. Firefighting measures

**Suitable extinguishing media:** Extinguish with large amounts of water.

**Extinguishing media NOT to be used:** For safety reasons DO NOT use dry chemical extinguisher containing, dry chemicals, carbon dioxide, halogenated agents.

**Special exposure hazards arising from the substance or preparation itself, its combustion products or from resulting gases:** In case of fires, hazardous combustion gases are formed; nitrogen; hydrogen chloride (HCl); Carbon monoxide and carbon dioxide; Fumes of metal oxides; nitrogen trichloride (explosion hazard!); Isocyanic acid; Chlorine (Cl<sub>2</sub>)

**Special protective equipment for firefighting:** As in any fire, wear self-contained breathing apparatus with pressure – demand, MSHA/NIOSH (approved or equivalent) and full protection clothing.

**Other information:** Containers close to fire should be transferred to a safe place. Heat causes increase in pressure and risk of bursting. Cool endangered containers with water spray jet. Run-off water from firefighting must not be discharged into drains or enter surface water.



## Material Safety Data Sheet

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### 6. Accidental release measures

- Personal precautions:** For small spills in well ventilated areas wear respiratory protection and wear clothing, 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.
- Environmental precautions:** This pesticide is toxic to fish and aquatic organisms. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of EPA.
- Methods for cleaning up:** Collect mechanically (preferably in dry condition). Send in suitable containers for recovery or disposal.

### 7. Handling and storage

- Safe handling:** Use with adequate ventilation of working area (local exhaust ventilation if necessary). Product inherent handling risks must be minimized taking the appropriate measures of protection and preventive actions. The working process should be designed to rule out the release of hazardous substances or skin contact as far it is possible by the state of the art. Avoid the formation and deposition of dust.
- Protection against fire and explosion:** Keep away from sources of ignition. Use explosion-proof equipment/fittings and non-sparking tools. Take precautionary measures against static charges. The product is explosive.
- Storage:** Prevent formation of dust. Keep container tightly closed when not in use. Protect from atmospheric moisture and water. Store in a cool, dry, well-ventilated area from heat sources.
- Containers which are opened must be carefully resealed and kept upright to prevent leakage. Always keep in containers of same material as the original one.
- Do not store together with: organic materials; combustible materials; Ammonia; Ammonium compounds; Alkalies; Oxidizing agents; Reducing agents; Acids

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**Revision:** 1

**8. Exposure Controls and Personal Protection**

**Exposure limit values – DUST**

LIMITS FOR AIR CONTAMINANTS (OSHA)

Particulates not otherwise regulated – total dust – TWA 15 mg/m<sup>3</sup>

LIMITS FOR AIR CONTAMINANTS (OSHA)

Particulates not otherwise regulated – Respirable fraction – TWA 5 mg/m<sup>3</sup>

LIMITS FOR AIR CONTAMINANTS (ACGIH)

Particulates (insoluble or poorly soluble) respirable particles – TWA 3 mg/m<sup>3</sup>

LIMITS FOR AIR CONTAMINANTS (ACGIH)

Particulates (insoluble or poorly soluble inhalable particles) – TWA 10 mg/m<sup>3</sup>

**Exposure controls:**

Set up ventilation to effectively remove and prevent buildup of any dust generated from the handling of this product.

**Personal protective equipment:**

**– Respiratory protection:**

If ventilation is not sufficient to effectively prevent buildup of dust, and workplace exposure limits are exceeded, a respirations protection approved for this particular job must be worn. In case of dust formation, take appropriate measures for breathing protection in the event workplace threshold values are not specified. A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use.

**– Hand protection:**

Glove permeation data does not exist for this material. The following glove(s) should be used for splash protection only.  
Appropriate Material – butyl rubber.

**– Eye protection:**

Use chemical splash goggles and face shield (ANSI Z87.1 or approved equivalent).

**– Skin and body protection:**

Prevent contact with skin & clothing by using protective garments.

**General protective and hygiene measures:**

Keep away from foodstuffs and beverages. Do not eat, drink or smoke during work time. Wash hands before breaks and after work. Avoid contact with eyes and skin. Do not inhale dust. Remove soiled or soaked clothing immediately. Provide eye wash fountain in work area.

**Product Name:** Aqua Smarte Plus Optimize  
**Revision Date:** December 5, 2011  
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**9. Physical and chemical properties**

**Color/Appearance:** White  
**Physical State:** Solid  
**Odor:** Chlorine odour

**Important health, safety and environmental information**

**Changes in physical state:**

-Melting point / range: 464 - 482 ° F (decomposition)  
-Flash point: Not applicable  
-Density: 16.69 lbs/gallon (reference temperature: 68 ° F)  
-Solubility in water: 0.055 lb / 0.22lb (reference temperature: 77 ° F)  
-pH value: approximately 6.6 (reference temperature: 68 ° F, in a 1% aqueous solution)

**10. Stability and reactivity**

**Conditions to avoid:** Heat, open flames and other sources of ignition. Protect against humidity. Exothermal reactions are possible in the event of contact with incompatible substances. Contact with acids liberates toxic gases.

**Materials to avoid:** Organic materials; combustible materials; ammonia; ammonium compounds; Alkali. Oxidizing agents; reducing agents; acids.

**Hazardous decomposition products:** Nitrogen; Hydrogen chloride (HCl); Chlorine. Isocyanic acid; Fumes of metal oxide. nitrogen trichloride.

**Thermal decomposition:** 464 - 482 ° F

**11. Toxicological information**

**Acute toxicity:**

-Acute oral toxicity: LD50 – 735 mg/kg  
Species: rate  
Source: IUCLID

**Acute dermal toxicity:**

-Acute dermal toxicity: LD50 > 5000 mg/kg  
Species: rate  
Source: IUCLID

**Experience in practice:** Harmful if swallowed. Contact of the product with skin or eyes may cause irritation.

**Product Name:** Aqua Smarte Plus Optimize  
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**12. Ecological information**

**Ecotoxicity:**

-Fish toxicity: LD50 0.28 mg/l  
Species: Lepomis macrochirus  
Duration of exposure: 96 H  
Source: IUCLID

-Daphnia toxicity: LD50 0.18 – 0.21 mg/l  
Species: Daphnia magna  
Duration of exposure: 48 H  
Source: IUCLID

**Other adverse effects:** Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment (manufacturer).

**Other information:** Product is not allowed to discharge into aquatic environment, drains or sewage treatment plants.

**13. Disposal considerations**

**Product:** Dispose in accordance with federal, state and local regulations. Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture or rinsate is a violation of federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency or the Hazardous Waste representative at the nearest EPA regional Office for guidance.

**14. Transportation information**

**US DOT:** Class: 5.1 – Oxidizing substances  
Packing Group: II  
Label: OXIDIZER (5.1)  
UN/NA number: UN2465  
Proper shipping name: Dichloroisocyanurate acid salts

**Transport IMDG:** Class: 5.1 – Oxidizing substances  
Packing Group: II  
UN/NA number: UN2465  
Proper shipping name: Dichloroisocyanurate acid salts  
EmS: F-A+S-Q  
Label: OXIDIZING AGENT (5.1)  
Marine pollutant mark: Symbol “fish and tree”

**Transport ICAO/IATA:** Class: 5.1  
Packing Group: II  
UN number: UN2465  
Proper shipping name: Dichloroisocyanurate acid salts  
Label: OXIDIZER (5.1)



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### 15. Regulatory information

#### US Federal Regulations:

- Toxic Substances Control Act (TSCA):** All components are listed on the TSCA inventory.
- Clean Water Act (CWA):** None of the ingredients is listed.
- OSHA:** Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200)  
CAS no. 2893-78-9
- SARA Section 302 (RQ):** None of the ingredients is listed.
- SARA 311/312:** Hazard category – Acute Health Hazards
- SARA Section 313:** None of the ingredients is listed.
- HAPS Hazardous Air Pollutants:** None of the ingredients is listed.
- Volatile organic compounds (VOC):** Value: 0 pound/g, allon
- HMIS Classification:** Health: 3  
Flammability: 1  
Reactivity: 1  
PPE: F
- NFPA Rating:** Health: 3  
Fire Hazard: 1  
Reactivity: 1

#### Carcinogenicity:

- IARC** None of the ingredients is listed in group 1, 2A or 2B.

#### US State Regulations:

- New Jersey Worker and Community Right to Know Act.:** The following ingredients are listed:  
CAS no. 2893-78-9
- California Proposition 65:** None of the ingredients is listed.
- Pennsylvania HAZARDOUS SUBSTANCE LIST:** Following ingredients are listed:  
CAS no. 2893-78-9

#### Canada Federal Regulations:

- WHMIS Classification:** DSL/NDSL  
Listed on DSL inventory.  
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations. Classification C, D2B



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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**