

MATERIAL SAFETY DATA SHEET

Product Name	CYANURIC ACID	
Product id	2011	
Revision date	17/09/2009	Revision: 4
Supersedes	09/11/2006	

1. Identification of the substance & the company

Chemical name	Cyanuric acid
Synonym(s)	Cyanuric Acid Powder, Cyanuric Acid Granular, Isocyanuric acid, Cyanuric acid
Chemical formula	$C_3H_3N_3O_3$
Chemical family	Isocyanurate
Molecular weight	129.08
Type of product and use	Chlorine stabilizer for swimming pool use.
Supplier	Clearon Corp. 95 MacCorkle Ave. SW, South Charleston, WV 25303 , USA Tel: (304) 746-3000
Emergency Telephone	Chemtrec (800)424-9300

2. Hazards identification

Emergency overview	<i>White granules or powder Irritant to eyes and respiratory system.</i>
Potential Health Effects:	
- Eye Contact	Contact with eyes may cause slight irritation consisting of redness, swelling and mucous discharge to the conjunctiva. No corneal damage or visual impairment.
- Skin contact	Skin contact may cause a mild irritation consisting of transient redness. This irritation effect would not be expected to result in permanent damage.
- Inhalation	No significant adverse effects to health would be expected to occur from inhalation with normal use of this product. However, if dust is created and inhaled, inhalation may cause mild irritation to the throat, mucous membranes and upper respiratory tract.
- Ingestion	Ingestion may cause gastrointestinal discomfort with any or all of the following symptoms: nausea, vomiting, lethargy or diarrhea.
NFPA Ratings (Scale 0-4)	Not established

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HMIS Ratings (Scale 0-4) Health = 1, Fire = 0, Reactivity = 0.

3. Composition / information on ingredients

Components	CAS No.	Weight %
Cyanuric acid	108-80-5	98-100

4. First-aid measures

Eye contact Holding the eyelids apart, flush eyes promptly with copious flowing water for at least 20 minutes. Get medical attention immediately.

Skin contact Remove contaminated clothing. Wash skin thoroughly with mild soap and plenty of water for at least 15 minutes. Wash clothing before re-use. Get medical attention if irritation occurs and persists.

Inhalation In case of dust inhalation or breathing fumes released from heated material, remove person to fresh air. Keep him quiet and warm. Apply artificial respiration if necessary and get medical attention immediately.

Ingestion If swallowed, wash mouth thoroughly with plenty of water and give water to drink. Get medical attention immediately.

NOTE: Never give an unconscious person anything to drink.

Note to physician Treat symptomatically and supportively.

5. Fire - fighting measures

Suitable extinguishing media Use extinguishing media appropriate to surrounding fire conditions.

Fire fighting procedure Cool containers with water spray. In closed stores, provide fire-fighters with self-contained breathing apparatus in positive pressure mode

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Unusual fire and explosion hazards When heated to decomposition, may release CO₂, CO, NH₃, NO_x and cyanic acid.

6. Accidental release measures

Personal precautions See section "Exposure controls/personal protection"

Methods for cleaning up Sweep up, place in a suitable container and hold for waste disposal. Ventilate area and wash spill site after material pickup is complete.

- **Soil** Keep spill materials dry and free of all foreign matter. Containerize in a clean, dry container.
- **Water** This material is heavier than water. This material is very slightly soluble in water.
- **In air** Not applicable

7. Handling and storage

Handling Do not take internally. Avoid contact with skin, eyes, and clothing. Upon contact with skin or eyes, wash off with water.

Storage Store in a dry, cool area Product has an indefinite shelf-life limitation. Do not store at temperatures above 60°C/140°F.

8. Exposure controls / personal protection

Exposure Limits :

Components	ACGIH-TLV Data	OSHA (PEL) Data
Cyanuric acid 108-80-5	Not determined	Not determined

Ventilation requirements Use local exhaust as necessary, especially under dusty conditions.

Personal protective equipment:

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- Respiratory protection** No respirator is required under normal conditions of use. A NIOSH approved respirator with N95 (dust, fume, mist) filters may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits, or when symptoms have been observed that are indicative of overexposure.
- Hand protection** Neoprene gloves
- Eye protection Chemical safety goggles
- Skin and body protection Body covering clothes and boots
- Hygiene measures** Do not eat, smoke or drink where material is handled, processed or stored. Wash hands carefully before eating or smoking.
Safety shower and eye bath should be provided.

9. Physical and chemical properties

Appearance White granules or powder
Odor None
Boiling point/range Not applicable
Melting point/range Sublimes @ 320-330°C (608-626°F)
Flash point Not applicable
Flammable/Explosion limits Not applicable
Auto-ignition temperature Not applicable
Vapour pressure Not applicable under standard conditions
Evaporation rate (ether=1) Not applicable under standard conditions
Vapor density Not applicable under standard conditions
Solubility:
- Solubility in water 0.27 g/100ml at 25°C
Decomposition temperature Not applicable

10. Stability and reactivity

Stability Stable under normal conditions
Materials to avoid Oxidizing agents
Conditions to avoid Heating above 330°C (626°F)
Hazardous decomposition products Cyanic acid, nitrogen oxides, carbon monoxide, carbon dioxide.
Hazardous polymerization Will not occur

11. Toxicological information

Acute toxicity:
- Rat oral LD50 >5000 mg/kg
- Rabbit dermal LD50 >2000 mg/kg
- Eye irritation (rabbit) Mild irritant

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- Dermal irritation (rabbit)

Mild irritant

Target organ effects

May cause mild skin and eye irritation.
Based on data from toxicological investigations, cyanuric acid does not result in direct target damage.
Damage to the kidneys and bladder has been observed in rats when these animals are provided a saturated solution (5375 ppm) of cyanuric acid for their drinking water. During excretion of high amounts by the kidney, stones of cyanuric acid can form (calculi) resulting in mechanical damage which is secondary to stone formation. There should be no risk to humans during manufacture of the product, its use as a swimming-pool disinfectant, or even by consumption of dilute solutions (1-10 ppm) of cyanuric acid.
Cyanuric acid is excreted unchanged rapidly via the kidneys. It lacks the potential to bioaccumulate in the body.

Chronic toxicity

There are no known or reported effects from chronic exposure except for effects similar to those experienced from single exposure.

Mutagenicity

Not known or reported to be mutagenic.
Cyanuric acid was demonstrated to be non-mutagenic in the Ames assay, both with or without metabolic activation.

Carcinogenicity

Cyanuric acid is not known to be a carcinogen.
Not classified by IARC, OSHA, EPA.
Not included in NTP 11th Report on Carcinogens
Sulfuric acid is not known or reported to be carcinogenic by any reference source. IARC evaluated several epidemiology studies where individuals in a variety of industries had been exposed to a mixture of strong inorganic acid mists is carcinogenic to humans.
Because cancer has not been observed in animals when they are exposed only to sulfuric acid mist, exposure to sulfuric acid by itself was not determined to be carcinogenic to humans.

Reproductive toxicity

There are no known or reported effects on reproductive function or fetal development.
Monosodium cyanurate (the sodium salt of cyanuric acid) has been tested by oral gavage in pregnant rats and rabbits.
No teratogenic effects were seen in the offspring of either species.
Sulfuric acid aerosol (95.7% purity) was tested in pregnant mice and rabbits exposed to the concentrations of 0, 5 and 20 mg/cubic meter by inhalation on gestational days 6-15 and 6-18, respectively.
No reproductive or developmental effects were seen in either species at any of the exposure concentrations utilized.

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12. Ecological information

Aquatic toxicity :

- 96 Hour-LC50, Fish >2,100 mg/l (Bluegill sunfish)
>2,100 mg/l (Fathead minnow)
>2,100 mg/l (Rainbow trout)
- 48 Hour-LC50, Daphnia magna 1,000 mg/l

Avian toxicity:

- Dietary LC50, Mallard duck >10,000 ppm
- Dietary LC50, Bobwhite quail >10,000 ppm

13. Disposal considerations

Waste disposal Observe all federal, state and local environmental regulations when disposing of this material

14. Transportation information

DOT Not regulated
IMO Not regulated
ICAO/IATA Not regulated

15. Regulatory information

USA
- SARA 313 Reported in the EPA TSCA Inventory
This mixture or trade name product contains a toxic chemical or chemicals subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR 372.(See section 2 for Composition)
Chemicals Listed are: Sulfuric acid

- SARA (311, 312) This product is categorized as an immediate health hazard, and fire and reactivity physical hazard

- Workplace Classification This product is considered hazardous under the OSHA Hazard Communication Standard (29CFR 1910.1200).

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EU	Reported in EINECS
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16. Other information

This data sheet contains changes from the previous version in section(s)
3, 5, 8

The information in this Material Safety Data Sheet should be provided to all who will 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 Clearon at the phone number listed below to make certain that this sheet is current.

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In an event of discrepancy between the contents of this MSDS and the English version of it, the English version shall prevail.

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End of safety data sheet