

6219
6201
6102
6116

0305

Material Safety Data Sheet

Hazard Rating:	NFPA	CODE TRANSLATION
Health:	3	0 = Minimal Hazard
Flammability:	1	1 = Slight Hazard
Reactivity:	2	2 = Moderate Hazard
Special:	OX	3 = Severe Hazard
		4 = Extreme Hazard

FORMULA 1598-G

SECTION I: IDENTIFICATION

Effective Date: 5/22/97
Name and Address:

Revised: JULY 31, 2003
Phone: (610) 280-0450

Emergency Phone: CHEMTREC (800) 424-9300

CONDOR TECHNOLOGIES, INC. 602 JEFFERS CIRCLE, SUITE 111EXTON, PA 19341-2539

Chemical Name: MIXTURE - SEE SECTION II

Formula: $C_3N_3O_3C_{12}Na + NaBr$

Synonyms: N.A. (Not Applicable)

Chemical Family: COOLING WATER BIOCIDES

D.O.T. Shipping Name: DICHLOROISOCYANURIC ACID, SALTS, MIXTURE

D.O.T. Hazard Class: 5.1

ID No.: UN-2465

Packing Group: PG-II

(ERG-45)

SECTION II: INGREDIENTS

A. Hazardous Ingredients	CAS NO.	%	TLV
<i>Cyanuric Acid</i> 1,3,5-TRIAZINE-2,4,6(1H, 3H, 5H)-TRIONE, 1,3-DICHLORO, SODIUM SALT	2893-78-9	88-90	NONE ESTAB.
B. Other Ingredients	CAS NO.	%	TLV
<i>hypobromous Acid</i> SODIUM BROMIDE	7647-15-6	6-8	NONE ESTAB.
WATER	7732-18-5	0.5-3.0	NONE ESTAB.
SODIUM CHLORIDE	7647-14-5	0.1-1.5	NONE ESTAB.

SECTION III: PHYSICAL PROPERTIES

Melting Point: 464-480°F (decomposes)

Loose Bulk Density: 61-65 lb/ft³

Percent Volatile (volume): <1

pH (1% solution @ 25°C): 6.0-7.0

Vapor Pressure (mm Hg): N.A.

Solubility in Water: 10%

Vapor Density (air=1): N.A.

Evaporation Rate (water=1): N.A.

Appearance and Odor: WHITE CRYSTALLINE SOLID WITH SLIGHT BROMINE ODOR

N.A. - Not Applicable

SECTION IV: FIRE AND EXPLOSION HAZARD DATA

A. Flash Point/Flammability:

Flash Point: N.A.

Autoignition Temperature: N.A.

Flammable Limits in Air, & By Volume:

Upper: N.A.

Lower: N.A.

THIS PRODUCT, IF HEATED BY AN OUTSIDE SOURCE TO TEMPERATURES ABOVE 240°C (464°F), WILL UNDERGO VIGOROUS SELF-SUSTAINING DECOMPOSITION WITH THE EVOLUTION OF HEAT AND DENSE NOXIOUS GASES. IN ADDITION, WHEN IN CONTACT WITH ANOTHER COMBUSTIBLE MATERIAL, THIS PRODUCT WILL INCREASE THE BURNING RATE OF THE COMBUSTIBLE MATERIAL. WHEN IGNITED, WILL BURN WITH THE EVOLUTION OF NOXIOUS CHLORINE CONTAINING GASES.

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- B. Extinguishing Media: IN CASE OF FIRE OR SMOKE, CALL THE FIRE DEPARTMENT. DO NOT ATTEMPT TO EXTINGUISH THE FIRE WITHOUT A SELF CONTAINED BREATHING APPARATUS (SCAB). DO NOT LET THE FIRE BURN. FLOOD WITH COPIOUS AMOUNTS OF WATER. **DO NOT** USE ABC OR OTHER DRY CHEMICAL EXTINGUISHERS SINCE THERE IS THE POTENTIAL FOR A VIOLENT REACTION.
- C. Special Fire Fighting Procedures: FIREFIGHTERS SHOULD WEAR FULL PROTECTIVE CLOTHING AND SELF-CONTAINED BREATHING APPARATUS (SCBA). USING A 10% SOLUTION OF SODIUM CARBONATE, THOROUGHLY DECONTAMINATE FIRE FIGHTING EQUIPMENT INCLUDING ALL FIRE FIGHTING WEARING APPAREL AFTER THE INCIDENT.
- D. Unusual Fire or Explosion Hazards: NITROGEN TRICHLORIDE CAN BE GENERATED SLOWLY BY THE REACTION OF SMALL QUANTITIES OF WATER WITH A HIGH CONCENTRATION OF THIS PRODUCT. NITROGEN TRICHLORIDE CAN PRESENT AN EXPLOSION HAZARD.

IMMEDIATELY AFTER A FIRE HAS BEEN EXTINGUISHED, CHECK FOR WET OR DAMP MATERIAL. ANY SPILLED MATERIAL FROM BURNED OR BROKEN CONTAINERS SHOULD BE ASSUMED CONTAMINATED. NEUTRALIZE TO A NON-OXIDIZING MATERIAL FOR SAFE DISPOSAL. DO NOT ATTEMPT TO RE-CLOSE BROKEN CONTAINERS, EVEN FOR MOVEMENT TO THE DISPOSAL AREA. THEY SHOULD BE LEFT OPEN TO DISPERSE ANY NITROGEN TRICHLORIDE THAT MAY FORM.

MATERIAL WHICH APPEARS UNDAMAGED EXCEPT FOR BEING DAMP ON THE OUTSIDE, SHOULD BE OPENED AND INSPECTED IMMEDIATELY. IF THE MATERIAL IS DAMP, THE MATERIAL SHOULD BE NEUTRALIZED TO A NON-OXIDIZING MATERIAL FOR SAFE DISPOSAL.

BULGING CONTAINERS REQUIRE EXTREME CARE. CONTACT THE FIRE DEPARTMENT.

SECTION V: HEALTH HAZARD INFORMATION

A. Emergency and First Aid Procedures:

1. Eyes: **OBJECT IS TO FLUSH MATERIAL OUT IMMEDIATELY THEN SEEK MEDICAL ATTENTION. IMMEDIATELY FLUSH EYES WITH LARGE AMOUNTS OF WATER FOR AT LEAST 15 MINUTES FORCIBLY HOLDING LIDS APART TO ENSURE COMPLETE IRRIGATION OF ALL EYE AND LID TISSUE. WASHING EYES WITHIN ONE (1) MINUTE IS ESSENTIAL TO ACHIEVE MAXIMUM EFFECTIVENESS. SEEK MEDICAL ATTENTION IMMEDIATELY.**
2. Skin: IMMEDIATELY BRUSH OFF EXCESS CHEMICAL AND FLUSH WITH PLENTY OF SOAP AND WATER. REMOVE CONTAMINATED CLOTHING. WASH CLOTHING BEFORE REUSE. **GET MEDICAL ATTENTION IF IRRITATION PERSISTS.**
3. Inhalation: REMOVE TO FRESH AIR. IF BREATHING IS DIFFICULT, HAVE TRAINED PERSON ADMINISTER OXYGEN. IF RESPIRATION STOPS, GIVE MOUTH-TO-MOUTH RESUSCITATION. **GET MEDICAL ATTENTION.**
4. Ingestion: **NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. IF SWALLOWED, DO NOT INDUCE VOMITING.** GIVE LARGE QUANTITIES OF WATER. (IF AVAILABLE, GIVE SEVERAL GLASSES OF MILK.) IF VOMITING OCCURS SPONTANEOUSLY, KEEP AIRWAY CLEAR AND GIVE MORE WATER. **GET MEDICAL ATTENTION IMMEDIATELY.**
5. Note to Physician: PROBABLE MUCOSAL DAMAGE MAY CONTRAINDICATE THE USE OF GASTRIC LAVAGE.

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B. Routes of Exposure:

1. Inhalation: BREATHING DUST OR FUMES IS EXPECTED TO BE A PRIMARY ROUTE OF EXPOSURE AND MAY PRODUCE THROAT AND RESPIRATORY TRACT IRRITATION.
2. SKIN: DERMAL CONTACT IS EXPECTED TO BE A PRIMARY ROUTE OF EXPOSURE AND CAN CAUSE SKIN IRRITATION WHICH MAY RESULT IN CORROSION IF NOT PROMPTLY REMOVED. NOT CONSIDERED A SENSITIZING AGENT.
3. Eye Contact: MAY RESULT IN CORROSION OF THE EYES. DUST OR VAPORS MAY CAUSE IRRITATION AND TEARING.
4. Ingestion: WILL RESULT IN BURNING OF MOUTH, THROAT AND ESOPHAGUS, ABDOMINAL DISTRESS AND SEVERE IRRITATION, POSSIBLE CORROSION OF THE DIGESTIVE TRACT. PROLONGED INGESTION OF LARGE AMOUNTS MAY CAUSE ADVERSE CENTRAL NERVOUS SYSTEM EFFECTS INCLUDING HEADACHE, IRRITABILITY, MUSCLE INCOORDINATION AND DIZZINESS.

C. Effects of Overexposure:

1. Acute: MAY BE SEVERELY IRRITATING OR CORROSIVE TO EYES AND SKIN AND MAY CAUSE RESPIRATORY AND GASTROINTESTINAL TRACT IRRITATION.
2. Chronic: EXPOSURE TO LARGE AMOUNTS MAY CAUSE DAMAGE TO THE LIVER AND KIDNEY. DUE TO SODIUM BROMIDE CONTENT, PROLONGED INGESTION OF LARGE AMOUNTS MAY CAUSE ADVERSE CENTRAL NERVOUS SYSTEM EFFECTS.
3. Toxicology Data: DATA FROM STUDIES ON A FORMULATION OF SODIUM DICHLOROISOCYANURATE AND THE SODIUM BROMIDE INDICATE THE FOLLOWING:

ORAL LD50	(RAT),	350 mg/kg	SLIGHTLY TOXIC
DERMAL LD50	(RABBIT),	>5000 mg/kg	PRACTICALLY NONTOXIC
PRIMARY EYE IRRITATION	(RABBIT, 24 hr)		CORROSIVE
PRIMARY SKIN IRRITATION	(RABBIT, 24 hr)		CORROSIVE
DOT SKIN CORROSION	(RABBIT, 4 hr)		NOT CORROSIVE

SODIUM DICHLOROISOCYANURATE: FOLLOWING REPEATED EXPOSURES (8-WEEKS) TO SODIUM DICHLOROISOCYANURATE IN THEIR DRINKING WATER RATS DEMONSTRATED DECREASES IN BODY WEIGHT GAIN, AND DRINKING WATER CONSUMPTION AND CHANGES IN URINE COMPOSITION AT DOSE LEVELS OF 4000 AND 8000 ppm WHICH PRODUCED SOME DEATHS. IN A 90-DAY FEEDING STUDY WITH RATS, THE TWO HIGHEST DOSE LEVELS OF 6000 AND 12,000 ppm CAUSED INCREASES OF THE RELATIVE KIDNEY AND LIVER WEIGHTS. SIGNS OF EYE AND NOSE IRRITATION AND CHANGES IN BODY WEIGHT, LIVER WEIGHT AND BLOOD CELL COMPOSITION WERE NOTED FOLLOWING REPEATED INHALATION (4-WEEKS) OF SODIUM DICHLOROISOCYANURATE DUST BY RATS. NO BIRTH DEFECTS WERE NOTED IN RATS GIVEN SODIUM DICHLOROISOCYANURATE ORALLY DURING THE PREGNANCY, EVEN AT AMOUNTS WHICH PRODUCED ADVERSE EFFECTS ON THE MOTHERS.

SODIUM BROMIDE: TOXIC EFFECTS REPORTED FOLLOWING INGESTION OF LARGE SINGLE DOSES OF BROMIDE INCLUDE STOMACH IRRITATION, NAUSEA, VOMITING, AND LETHARGY. REPEATED INGESTION OF SODIUM BROMIDE PRODUCES SEDATION AND CENTRAL NERVOUS SYSTEM (CNS) DEPRESSION WITH POSSIBLE EFFECTS SUCH AS HEADACHE, IRRITABILITY, VERTIGO, MEMORY LOSS, MUSCULAR INCOORDINATION AND INCREASED ACTION OF THE REFLEXES, DECREASED APPETITE, HALLUCINATIONS, ACNE-LIKE RASH, STUPOR AND COMA.

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FOLLOWING REPEATED EXPOSURES (4-12 WEEKS) TO SODIUM BROMIDE IN THEIR FEED, SIGNS OF MUSCULAR INCOORDINATION AND DEPRESSED GROOMING, CHANGES IN BODY WEIGHT AND BEHAVIOR, AND ENDOCRINE (HORMONE) SYSTEM EFFECTS WERE REPORTED IN LABORATORY ANIMALS. REDUCED FERTILITY AND VIABILITY OF OFFSPRING WERE NOTED IN RATS FED SODIUM BROMIDE FOR THREE SUCCESSIVE GENERATIONS. THESE EFFECTS ON THE ABILITY OF RATS TO REPRODUCE WERE REPORTED TO BE REVERSIBLE UPON WITHDRAWAL OF THE BROMIDE. RESULTS OF ANOTHER STUDY SUGGEST THAT LEARNING ABILITY WAS REDUCED IN OFFSPRING OF RATS GIVEN SODIUM BROMIDE DURING PREGNANCY.

SECTION VI: PERSONNEL PROTECTION DATA

- A. Ventilation Requirements: GENERAL ROOM VENTILATION PLUS LOCAL EXHAUST AT POINTS OF EMISSION TO MAINTAIN EXPOSURE BELOW IRRITANT LEVEL DUE TO DUST AND/OR VAPORS.
- B. Respiratory Protection: NIOSH/MSHA APPROVED RESPIRATOR, FOLLOWING MANUFACTURER'S RECOMMENDATIONS, SHOULD BE USED AS A PRECAUTIONARY MEASURE WHERE AIRBORNE CONTAMINANTS MAY OCCUR.
- C. Eye Protection: WEAR CHEMICAL SAFETY GOGGLES.
- D. Protective Gloves: WEAR CHEMICAL RESISTANT RUBBER GLOVES.
- E. Other Clothing and Equipment: EMERGENCY SHOWER AND EYEWASH FACILITIES SHOULD BE IN CLOSE PROXIMITY. WEAR CLOTHING DESIGNED TO MINIMIZE SKIN CONTACT. LAUNDRY CONTAMINATED CLOTHING AND CLEAN PROTECTIVE EQUIPMENT BEFORE REUSE.

SECTION VII: REACTIVITY DATA

- A. Incompatibility: THIS MATERIAL IS A STRONG OXIDIZING AGENT. THE PREPARATION OF CONCENTRATED SOLUTIONS OR SLURRIES (10% OR GREATER) IS NOT RECOMMENDED. AVOID CONTACT WITH WATER ON CONCENTRATED MATERIAL IN THE CONTAINER. ALSO AVOID CONTACT WITH EASILY OXIDIZABLE ORGANIC MATERIAL; AMMONIA, UREA, OR SIMILAR NITROGEN CONTAINING COMPOUNDS; INORGANIC REDUCING COMPOUNDS; FLOOR SWEEPING COMPOUNDS; CALCIUM HYPOCHLORITE; ALKALIS.
- B. Hazardous Decomposition Products: CHLORINE AND BROMINE CONTAINING GASES CAN BE PRODUCED.
- C. Conditions Contributing to Hazardous Polymerization: DOES NOT OCCUR.

SECTION VIII: ENVIRONMENTAL DATA

- A. Spill or Leak Procedures: REMOVE ALL SOURCES OF IGNITION. CONTAIN SPILLED MATERIAL. ANY SPILLAGE SHOULD BE CLEANED UP AS SOON AS POSSIBLE. **DO NOT** ADD WATER TO SPILLED MATERIAL. **DO NOT** USE FLOOR SWEEPING COMPOUNDS. USING CLEAN, DRY, DEDICATED EQUIPMENT, SCOOP AND SWEEP UP SPILLED MATERIAL, AND PLACE SWEEPINGS IN A CLEAN DRY CONTAINER AND ISOLATE THE CONTAINER OUTSIDE IN A WELL VENTILATED AREA. **DO NOT** SEAL THE CONTAINER. FLUSH THE AREA WITH COPIOUS QUANTITIES OF WATER, PREFERABLY TO A SANITARY SEWER OR WASTE TREATMENT FACILITY. **DO NOT** TRANSPORT DAMP OR WET MATERIAL.

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- B. Waste Product Disposal: DO NOT PUT PRODUCT, SPILLED MATERIAL, OR FILLED OR PARTIALLY FILLED CONTAINERS INTO THE TRASH OR WASTE COMPACTOR. CONTACT WITH INCOMPATIBLE MATERIALS COULD CAUSE A REACTION AND FIRE. DO NOT TRANSPORT DAMP OR WET MATERIAL. NEUTRALIZE MATERIALS TO A NON-OXIDIZING STATE FOR SAFE DISPOSAL. DISPOSE OF CONTAMINATED PRODUCT, EMPTY CONTAINERS AND MATERIALS USED IN CLEANING UP SPILLS IN A MANNER APPROVED FOR OXIDIZING MATERIALS. CONSULT APPROPRIATE FEDERAL, STATE AND LOCAL AUTHORITIES TO ASCERTAIN PROPER DISPOSAL PROCEDURES.
- C. Plastic Pail Disposal: TRIPLE RINSE (OR EQUIVALENT). THEN OFFER FOR RECYCLING OR RECONDITIONING, OR PUNCTURE AND DISPOSE OF IN A SANITARY LANDFILL, OR INCINERATION, OR, IF ALLOWED BY STATE AND LOCAL AUTHORITIES, BY BURNING. IF BURNED, STAY OUT OF SMOKE.
- D. Other Environmental Data: THIS PESTICIDE IS TOXIC TO FISH. DO NOT DISCHARGE EFFLUENT CONTAINING THIS PRODUCT INTO LAKES, STREAMS, PONDS, ESTUARIES, OCEANS, OR PUBLIC WATERS UNLESS THIS PRODUCT IS SPECIFICALLY IDENTIFIED AND ADDRESSED IN AN NPDES PERMIT. DO NOT DISCHARGE EFFLUENT CONTAINING THIS PRODUCT INTO SEWER SYSTEMS WITHOUT PREVIOUSLY NOTIFYING THE SEWAGE TREATMENT PLANT AUTHORITY. FOR GUIDANCE CONTACT YOUR STATE WATER BOARD OR REGIONAL OFFICE OF THE EPA.

ENVIRONMENTAL RELATED TOXICITY DATA FOR THIS PRODUCT ARE AS FOLLOWS:
SODIUM DICHLOORISOCYANURATE (PRINCIPLE ACTIVE INGREDIENT)

Bluegill sunfish	96-hr	LC ₅₀	0.43 mg/l
Rainbow trout	96-hr	LC ₅₀	0.37 mg/l
Mallard duck	Oral	LD ₅₀	1916 mg/l
Mallard duck	8-Day Dietary	LC ₅₀	>10000 ppm
Bobwhite quail	8-Day Dietary	LC ₅₀	>10000 ppm

FORMULA 1598-G, MIXTURE DICHLOORISOCYANURATE/SODIUM BROMIDE
ALGAE; SELENASTRUM

		EC ₅₀	0.6 mg/l
<u>INVERTEBRATES; DAPHNIA MAGNA</u>	(48 hr)	LC ₅₀	2.5 mg/l
<u>FISH; FATHEAD MINNOW</u>	(48 hr)	LC ₅₀	0.7 mg/l

SECTION IX: SPECIAL PRECAUTIONS

- A. Handling and Storage: STORE IN ORIGINAL CONTAINER AND IN A COOL DRY PLACE WHERE TEMPERATURES DO NOT EXCEED 125°F (52°C) FOR 24 HOURS. KEEP CONTAINERS TIGHTLY CLOSED AND DRY WHEN NOT IN USE. STORE AWAY FROM INCOMPATIBLE MATERIALS. (SEE SECTION VII.) VAPOR SPACE IN A CLOSED CONTAINER MAY CONTAIN A SLIGHT AMOUNT OF CHLORINE AND BROMINE GASES AND COMPOUNDS FROM DECOMPOSITION OF THE PRODUCT.

NOTE: FORMULA 1598-G IS A STRONG OXIDIZING AGENT. NEVER ADD WATER TO PRODUCT. ALWAYS ADD PRODUCT TO LARGE QUANTITIES OF WATER. USE **CLEAN, DRY**, DEDICATED UTENSILS AND EQUIPMENT. DO NOT ADD THIS PRODUCT TO ANY DISPENSING DEVICE CONTAINING REMNANTS OF ANY OTHER CHEMICAL PRODUCTS. SUCH USE MAY CAUSE A VIOLENT REACTION LEADING TO FIRE AND EXPLOSION. CONTAMINATION WITH MOISTURE, ORGANIC MATTER OR OTHER CHEMICALS MAY START A CHEMICAL REACTION WITH GENERATION OF HEAT, HAZARDOUS GASES AND POSSIBLE FIRE AND EXPLOSION. IN CASE OF CONTAMINATION OR DECOMPOSITION, DO NOT RESEAL CONTAINER. IF POSSIBLE, ISOLATE CONTAINER IN OPEN AIR OR WELL VENTILATED AREA. IF NECESSARY, FLOOD WITH LARGE VOLUMES OF WATER.

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B. Other Precautions: THIS PRODUCT HAS BEEN DESIGNED FOR USE AS A MICROBIOCIDE IN SPECIFIC TYPES OF COOLING WATER CIRCUITS AND SHOULD BE USED ONLY IN ACCORDANCE WITH THE PRODUCT LABEL AND PRODUCT FEEDING INSTRUCTIONS PROVIDED BY THE TECHNICAL REPRESENTATIVE SERVICING THE FACILITY. IT MAY NOT BE USED FOR THE TREATMENT OF POTABLE WATERS.

NOTE: IT IS A VIOLATION OF FEDERAL LAW TO USE THIS PRODUCT IN A MANNER INCONSISTENT WITH ITS LABELING. A COPY OF THE PRODUCT'S EPA APPROVED LABEL IS AVAILABLE UPON REQUEST.

The data contained in this Material Safety Data Sheet has been prepared based upon an evaluation of the ingredients contained in the product, their concentration in the product and potential interactions. The information is offered in good faith and is believed to be accurate. It is furnished to the customer who is urged to study it carefully to become aware of hazards, if any, in the storage, handling, use and disposal of the product; and to insure his employees are properly informed and advised of all safety precautions required. The information is furnished to comply with the "Occupational Safety and Health Act" (OSHA) hazard communication regulation [Rule 29 CFR 1910.1220 (g) (2)]. Use or dissemination of all or part of this information for any other purpose is not permitted.