

# M A T E R I A L   S A F E T Y   D A T A   S H E E T

QUICK REFERENCE:

**C S - 3 9**


**H - O - H Water Technology, Inc.**  
 500 South Vermont Street  
 Palatine, Illinois 60067

**EMERGENCY PHONE No's**

847 - 358 - 7400 ( H - O - H BUSINESS Hrs. )  
 800 - 424 - 9300 ( CHEMTREC - 24 Hrs. )

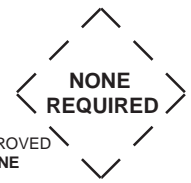
**H M I S:**

4 = EXTREME  
 3 = SEVERE  
 2 = MODERATE  
 1 = SLIGHT  
 0 = INSIGNIFICANT

HEALTH	1
FLAMMABILITY	0
REACTIVITY	1

**DOT:**

HAZARD LABELING



IN DOT APPROVED POLYETHYLENE CONTAINERS

PRODUCT IDENTIFICATION	PRODUCT NAME	CHEMICAL FAMILY	DATE	Rev. No.	SUPERSEDES	E P A - T P Q	BY
	<b>C S - 3 9</b>	CORROSION INHIBITOR	7 - 12 - 08	13	7 - 11 - 06	NA	

HAZARDOUS COMPONENTS	CHEMICAL NAME	COMMON NAME	C A S No.	PERCENT	OSHA PEL	ACGIH - TLV	OTHER
	SODIUM NITRITE ( Anhydrous )	SAME	7632 - 00 - 0	15.0	NA	NA	NOT APPLICABLE
	SODIUM TETRABORATE ( 5 H <sub>2</sub> O )	BORAX	1330 - 43 - 4	5.0	NA	10 mg/m <sup>3</sup>	NOT APPLICABLE
	SODIUM HYDROXIDE	LYE, CAUSTIC SODA	1310 - 73 - 2	2.0	2 mg/m <sup>3</sup>	2 mg/m <sup>3</sup>	NOT APPLICABLE

COMMENT
1. THIS PRODUCT SHOULD NOT BE USED BE MIXED WITH OR USED IN CONJUNCTION WITH STEAM CONDENSATE NEUTRALIZING AMINES. THE INTERACTION OF SUCH MIXING MAY PRODUCE CARCINOGENIC NITROSAMINES. 2. SODIUM NITRITE IS AN OXIDIZING AGENT. THIS PRODUCT SHOULD NOT BE ALLOWED TO CONTACT PAPER, CLOTH, OR OTHER COMBUSTIBLE MATERIALS AND BE ALLOWED TO DRY. WHEN DRY, ANY NITRITE PRESENT ON COMBUSTIBLE MATERIAL MAY SUPPLY OXYGEN WHICH MAY CAUSE, FIRE OR ACCELERATE ITS PROGRESS. ALWAYS RINSE CONTAMINATED COMBUSTIBLES WITH LARGE AMOUNTS OF WATER PRIOR TO DISPOSAL. 3. THIS PRODUCT CONTAINS A VERY LOW LEVEL OF FREE SODIUM HYDROXIDE, LESS THAN 1% AFTER INTERACTION WITH BORAX AND OTHER ALKALINE BUFFERS. WHILE THE AMOUNT OF FREE SODIUM HYDROXIDE PRESENT IS NOT CONSIDERED CORROSIVE, CARE SHOULD BE TAKEN TO MINIMIZE CONTACT AND TO PROMPTLY FLUSH ANY AREA OF CONTACT WITH LARGE AMOUNTS OF WATER.

PHYSICAL DATA	BOILING POINT (Degrees Fahrenheit)	221°	SOLUBILITY (in water)	COMPLETE	EVAPORATION RATE ( water = 1.0 )	< 1.0
	VAPOR PRESSURE (in millimeters of Mercury)	NA	SPECIFIC GRAVITY ( water = 1.0 )	1.177	pH	12.4
	VAPOR DENSITY ( air = 1.0 )	NA	PERCENT (%) VOLATILE (by volume)	NA		
	APPEARANCE and ODOR	CLEAR, RED LIQUID WITH VERY SLIGHT ORGANIC ODOR.				

FIRE AND EXPLOSION	FLASH POINT (Degrees Fahrenheit)	METHOD	FLAMMABLE LIMITS	LOWER EXPLOSIVE LIMIT	UPPER EXPLOSIVE LIMIT
	NONE	NA		NOT APPLICABLE	NOT APPLICABLE
	EXTINGUISHING MEDIA	SPECIAL FIRE FIGHTING PROCEDURES		UNUSUAL FIRE AND EXPLOSION HAZARDS	
	WATER  WATER, DRY CHEMICAL, WATER FOAM, OR CARBON DIOXIDE. COOL CONTAINERS TO PREVENT RUPTURE.	NONE  CONTAIN SPILLS TO PREVENT MIXING WITH HEATED BUILDING MATERIALS OR OTHER CHEMICALS.		NONE  DRY SODIUM NITRITE EXPLODES IF HEATED UP TO 1000°F. IF THIS PRODUCT CONTACTS ACIDIC CHEMICALS, GASEOUS, TOXIC NITROGEN OXIDES MAY BE PRODUCED. THESE GASES ARE ALSO OXIDIZING AGENTS.	

REACTIVITY DATA	STABILITY	CONDITIONS TO AVOID	NOT APPLICABLE	
	STABLE <input checked="" type="checkbox"/> UNSTABLE <input type="checkbox"/>			
	INCOMPATIBILITY (Materials to Avoid)	MINERAL ACIDS, REDUCING AGENTS, AMINES, COMBUSTIBLE MATERIALS, CYANIDES, AMMONIA, THIOCYANATES, THIOSULFATES, HYDRAZINE, STRONG OXIDIZERS. AVOID HEATING ABOVE 320°F.		
	HAZARDOUS DECOMPOSITION PRODUCTS	TOXIC, GASEOUS NITROGEN OXIDES (OXIDIZERS). LEAVES A CAUSTIC RESIDUE.		
HAZARDOUS POLYMERIZATION MAY WILL OCCUR <input type="checkbox"/> WON'T OCCUR <input checked="" type="checkbox"/>	CONDITIONS TO AVOID	NOT APPLICABLE		

SPECIAL PRECAUTIONS	STORAGE AND HANDLING	OTHER
	1. PROTECT CONTAINERS AGAINST PHYSICAL DAMAGE. 2. STORE IN A COOL, DARK, WELL-VENTILATED LOCATION AWAY FROM DIRECT SUNLIGHT AND OTHER SOURCES OF RADIANT HEAT. 3. KEEP CONTAINERS TIGHTLY CLOSED WHEN NOT IN USE. <b>NEVER</b> MOVE AN OPEN OR LOOSELY CLOSED CHEMICAL CONTAINER. 4. WEAR HAND AND FOOT PROTECTION WHEN MOVING HEAVY CONTAINERS. 5. DO NOT PERMIT ANY SPILLED MATERIAL TO DRY.	1. NOT TO BE TAKEN INTERNALLY. 2. NOT TO BE USED FOR OTHER THAN SPECIFIED PURPOSE. 3. KEEP AWAY FROM CHILDREN. 4. <b>NEVER</b> MIX THIS MATERIAL WITH ANY OTHER CHEMICAL UNLESS AT THE SPECIFIC DIRECTION OF H - O - H PERSONNEL. 5. TRIPLE RINSE EMPTY CONTAINERS BEFORE OFFERING FOR DISPOSAL OR SALVAGE. <b>NEVER</b> REUSE EMPTY CONTAINERS.

<b>HEALTH HAZARD DATA</b>	<b>THRESHOLD LIMIT VALUE</b>	66.7 mg/m <sup>3</sup> BASED ON A MIST OF CS -39 IN AIR RELATIVE TO ITS ACTIVE COMPONENTS. LD <sub>50</sub> (Oral - Rat) FOR PURE SODIUM NITRITE: 85 mg/kg (very toxic) TDLo (Oral - Human): 14 mg/kg. (pure NaNO <sub>2</sub> )	<b>CS-39</b>
	<b>ACUTE HEALTH HAZARDS</b>		<b>CHRONIC HEALTH HAZARDS</b>
	<b>IRRITANT</b>  MAY CAUSE SKIN IRRITATION. PROBABLY WILL CAUSE MODERATE TO SEVERE IRRITATION OF EYE TISSUE. NO INHALATION EFFECTS EXPECTED IN NORMAL USE DUE TO THE ABSENCE OF VOLATILE COMPONENTS. TOXIC IF INGESTED.		<b>NONE KNOWN</b>  <b>THE EFFECTS FROM CHRONIC EXPOSURE TO THE ACTIVE INGREDIENT IN THIS PRODUCT HAVE NOT BEEN FULLY EVALUATED. TESTS IN BOTH ANIMAL AND HUMAN SENSITIZATION HAVE PROVED NEGATIVE. IN VITRO MUTAGENICITY TESTS HAVE BEEN NAGATIVE. BIRTH DEFECTS ARE UNLIKELY.</b>

<b>EFFECTS OF EXPOSURE</b>	<b>SKIN AND EYES / TARGET ORGAN</b>	<b>INHALATION</b>	<b>INGESTION</b>
	<b>TISSUE IRRITATION</b>  MAY CAUSE EYE IRRITATION WITH REDNESS, THE DEGREE OF IRRITATION WILL DEPEND ON EXPOSURE TIME, CONCENTRATION, AND FIRST AID.  PROLONGED DERMAL CONTACT MAY PRODUCE ITCHING, DRY SKIN, OR POSSIBLE MILD IRRITATION.	<b>NON - VOLATILE COMPONENTS</b>  IF A MIST OR SPRAY IS DRAWN INTO THE BREATHING TRACT, IRRITATION OF BRONCHIAL TISSUE AND LUNGS MAY OCCUR. PROLONGED EXPOSURE COULD PRODUCE NASAL OR MUCOUS TISSUE SORES. INGESTED NITRITES ARE READILY ABSORBED BY LUNG TISSUE.	<b>IRRITANT - TOXIC</b>  MAY IRRITATE MOUTH, ESOPHAGUS, STOMACH, etc. ALTHOUGH SMALL AMOUNTS ARE USED IN FOOD (< 100 ppm), INGESTION OF LARGER AMOUNTS OF SODIUM NITRITE CAN RESULT IN ACUTE TOXIC EFFECTS: NAUSEA, CONVERSION OF HEMOGLOBIN TO METHEMOGLOBIN PRODUCING CYANOSIS (blue skin), SHOCK, COMA, DEATH.
<b>CONDITIONS AGGRAVATED</b>	DERMATITIS, BLISTERS, BURNS, OR ANY PRE-EXISTING SKIN IRRITATION IF CONTACT OCCURS.	IN NORMAL USE, NO EFFECT SHOULD BE NOTED.	IF INGESTION OCCURS, STOMACH ULCERS OR OTHER PRE - EXISTING DIGESTIVE CONDITIONS.

<b>EMERGENCY PROCEDURES</b>	<b>SKIN AND EYES</b>	<b>INHALATION</b>	<b>INGESTION</b>
	<b>EYES</b>  FLUSH EYES WITH WATER FOR 15 MINUTES. GET PROMPT MEDICAL ATTENTION.  <b>SKIN</b>  FLUSH WITH WATER AND WASH WITH SOAP AND WATER. REMOVE CONTAMINATED CLOTHING AND WASH WELL BEFORE REUSE. IF IRRITATION DEVELOPS, SEEK MEDICAL ADVICE.	<b>NON - VOLATILE COMPONENTS</b>  IF LIQUID OR CONCENTRATED SPRAY OR MIST IS INHALED, REMOVE SUBJECT TO FRESH AIR. HAVE THE SUBJECT COUGH AND ATTEMPT TO CLEAR ANY LIQUIDS FROM THE BREATHING TRACT.  IF BREATHING HAS STOPPED, GIVE ARTIFICIAL RESPIRATION, PREFERABLY MOUTH - TO - MOUTH. IF BREATHING IS DIFFICULT, GIVE OXYGEN, PROVIDED A QUALIFIED OPERATOR IS AVAILABLE.  GET PROMPT MEDICAL ATTENTION.	<b>INDUCE VOMITING</b>  RINSE MOUTH WITH COPIOUS AMOUNTS OF WATER OR MILK, FIRST. IF CONSCIOUS, IRRIGATE ESOPHAGUS. DILUTE INGESTED MATERIAL WITH 2 OR MORE GLASSES OF WATER OR MILK AND INDUCE VOMITING BY TOUCHING FINGER TO BACK OF THROAT. CONTINUE UNTIL VOMITED FLUID IS CLEAR.  NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS SUBJECT.  OBTAIN PROMPT MEDICAL ATTENTION.

<b>CARCINOGEN LISTING</b>	<b>NATIONAL TOXICOLOGY PROGRAM (NTP)</b>	<b>IARC MONOGRAPHS</b>	<b>O S H A REGULATED</b>
	NO	NO	YES (SODIUM HYDROXIDE)

<b>SPILL OR LEAK PROCEDURES</b>	<b>SPILLS AND RELEASES</b>	<b>WASTE DISPOSAL METHODS</b>
	REMOVE ALL IGNITION SOURCES. VENTILATE THE AREA. NOTIFY THE APPROPRIATE POLLUTION CONTROL (ESDA) AUTHORITIES IF LEAKAGE ENTERS A SEWER OR IN ANY OTHER WAY IS ESCAPING FROM THE PREMISES. DO NOT ALLOW SPILLED MATERIAL TO CONTACT PAPER, WOOD, OR CLOTH. COLLECT SPILLED MATERIAL INTO SUITABLE CONTAINERS FOR RECLAIM OR DISPOSAL. SODIUM NITRITE IS DECOMPOSED EVEN BY WEAK ACIDS WITH THE EVOLUTION OF BROWN FUMES OF N <sub>2</sub> O. SODIUM NITRITE IS SLOWLY OXIDIZED TO SODIUM NITRATE WHEN EXPOSED TO AIR.	CONSULT FEDERAL, STATE, AND LOCAL REGULATIONS PERTAINING TO WASTE DISPOSAL.

<b>CONTROL MEASURES</b>	<b>EYE PROTECTION</b>	SAFETY GLASSES WITH SIDE SHIELDS OR A FACE MASK.		
	<b>RESPIRATORY PROTECTION</b>	NOT REQUIRED FOR ORDINARY USE. DURING EMERGENCY CONDITIONS OR IF A SERIOUS SPILL OCCURS, AN AIR PURIFYING RESPIRATOR DESIGNED TO ABSORB FINE DUST, SMOKE, AND NITROGEN OXIDE GASES SHOULD BE USED.		
	<b>OTHER PROTECTIVE EQUIPMENT</b>	PROVIDE EYEWASH STATION AND WASHING FACILITIES NEAR USE OR HANDLING AREAS.		
	<b>LOCAL EXHAUST</b>	YES	<b>SPECIAL VENTILATION</b>	NOT REQUIRED FOR NORMAL USE.
	<b>MECHANICAL VENTILATION</b>	NOT REQUIRED FOR NORMAL USE.	<b>OTHER VENTILATION</b>	NOT REQUIRED FOR NORMAL USE.
	<b>PROTECTIVE GLOVES</b>	NON - SLIP VINYL OR RUBBER GLOVES.	<b>PROTECTIVE CLOTHING</b>	WATER REPELLENT APRON OR COVERALLS

<b>REFERENCES</b>	1. <i>Threshold Limit Values For Chemical Substances And Physical Agents In The Work Environment</i> ; ACGIH, 1989.
	2. <i>O S H A Safety and Health Standards</i> : 29CFR 1900 to 1910, July 1, 1988
	3. <i>Fifth Annual Report on Carcinogens</i> ; U. S. Dept. of Health and Human Services, National Toxicology Program, 1989 (Summary).
	4. M. Sittig, <i>Handbook of Toxic &amp; Hazardous Chemicals</i> , (Noyes Publications, Park Ridge, N. J., 1981).
	5. <i>Community Right - To - Know Manual</i> , (Thompson Publishing Group, Washington, D. C., 1990).
	6. <i>Right - To - Know/Chemical Manual</i> (ILLINOIS MANUFACTURES ASSOCIATION; Rooks, Pitts, and Poust, 1990).
	7. <i>Toxic and Hazardous Industrial Chemicals Safety Manual</i> (THE INTERNATIONAL TECHNICAL INFORMATION INSTITUTE, 1975).
	8. M. J. Lefevre, S. A. Conibear, <i>First Aid Manual for Chemical Accidents</i> , 2nd ed. (Van Nostrand Reinhold, New York, 1989).
	9. <i>Hazardous Materials Guide; Shipping, Materials Handling and Transportation</i> (J. J. KELLER & ASSOCIATES, Inc., Neenah, Wisconsin, Dec. 1990)
	10. <i>Hazard Communication Guide; Federal &amp; State Right to Know Standards</i> (J. J. KELLER & ASSOCIATES, Inc., Neenah, Wisconsin, Dec. 1990)

<b>REPORTABLE QUANTITY</b>	IF MORE THAN THE INDICATED QUANTITY IS DISCHARGED TO DRAINAGE (Sewer/surface water), AIR, OR SOIL, IMMEDIATELY REPORT AS INDICATED.		
	<b>CERCLA OR EPA</b> (Extremely Hazardous) NATIONAL RESPONSE CENTER (800 - 424 - 8802)	STATE EMERGENCY RELEASE NOTIFICATION ILLINOIS (Only) 800 - 782 - 7860 (Consult for others)	LOCAL EMERGENCY RESPONSE AUTHORITY Record Telephone No. of Local Response Authority
<b>WRITTEN REPORT MUST FOLLOW</b>	660 lbs. / 68 gals. (Sodium Nitrite)	NA	NA