

MATERIAL SAFETY DATA SHEET

QUICK REFERENCE:

CS-78



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

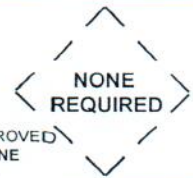
EMERGENCY PHONE No"s
 847 - 358 - 7400 (H - O - H BUSINESS Hrs.)
 800 - 424 - 9300 (CHEMTREC - 24 Hrs.)

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

HEALTH	1
FLAMMABILITY	0
REACTIVITY	0

DOT:

HAZARD LABELING



IN DOT APPROVED POLYETHYLENE CONTAINERS

PRODUCT IDENTIFICATION	PRODUCT NAME	CHEMICAL FAMILY	DATE	Rev.No.	SUPERSEDES	EPA - TPQ	BY
	CS - 78	CORROSION INHIBITOR	7 - 12 - 08	14	7 - 11 - 06	NA	

HAZARDOUS COMPONENTS	CHEMICAL NAME	COMMON NAME	CAS No.	PERCENT	OSHA PEL	ACGIH-TLV	OTHER
	SODIUM MOLYBDATE DIHYDRATE	SAME	7631 - 95 - 0	6.75	5 mg / m ³	5 mg / m ³	NOT APPLICABLE
	SODIUM TETRABORATE	BORAX	1330 - 43 - 4	1.87	NA	10 mg / m ³	NOT APPLICABLE

COMMENT	The TL ₅₀ is that level of concentration at which the designated exposure time produces a mortality rate of 50% in the test population. The "no effect" level is the highest concentration at which the mortality rate is zero over the exposure time.		Comparative Acute LD ₅₀ Toxicity of Sodium Molybdate and Sodium Dichromate.																		
	<p>TL₅₀ concentrations for sodium molybdate are quite high, ranging from 3,200 to over 10,000 ppm. Moreover, the "no effect" concentration levels of 1,800 to 7,500 ppm would generally classify sodium molybdate as <u>not a toxic substance</u>.</p> <p>Molybdenum has a low order of toxicity. Cellular toxicity to rats by injection was about 115 mg/kg of body weight. Oral toxicity was about the same, depending on the compound, being 125 mg/kg for the trioxide, 101 mg for calcium molybdate, and 333 mg for ammonium molybdate.</p>	<table border="1"> <thead> <tr> <th>Chemical</th> <th>Species</th> <th>Test Duration (Hrs.)</th> <th>LD₅₀ Concentration</th> </tr> </thead> <tbody> <tr> <td>Molybdate</td> <td>Rainbow Trout</td> <td>96</td> <td>7,340 ppm</td> </tr> <tr> <td>Chromate</td> <td>Rainbow Trout</td> <td>96</td> <td>285 ppm</td> </tr> <tr> <td>Molybdate</td> <td>Daphnia</td> <td>48</td> <td>3,220 ppm</td> </tr> <tr> <td>Chromate</td> <td>Daphnia</td> <td>48</td> <td>3 ppm</td> </tr> </tbody> </table>	Chemical	Species	Test Duration (Hrs.)	LD ₅₀ Concentration	Molybdate	Rainbow Trout	96	7,340 ppm	Chromate	Rainbow Trout	96	285 ppm	Molybdate	Daphnia	48	3,220 ppm	Chromate	Daphnia	48
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PHYSICAL DATA	BOILING POINT (Degrees Fahrenheit)	215°	SOLUBILITY (in water)	COMPLETE	EVAPORATION RATE (water = 1.0)	< 1.0
	VAPOR PRESSURE (in millimeters of Mercury)	WATER	SPECIFIC GRAVITY (water = 1.0)	1.075	pH	102
	VAPOR DENSITY (air = 1.0)	NA	PERCENT (%) VOLATILE (by volume)	NA		
	APPEARANCE and ODOR	CLEAR RED LIQUID.				

FIRE AND EXPLOSION	FLASH POINT (Degrees Fahrenheit)	NONE	METHOD	NA	FLAMMABLE LIMITS	NOT APPLICABLE	LOWER EXPLOSIVE LIMIT	NOT APPLICABLE	UPPER EXPLOSIVE LIMIT	NOT APPLICABLE
	EXTINGUISHING MEDIA	WATER		SPECIAL FIRE FIGHTING PROCEDURES		UNUSUAL FIRE AND EXPLOSION HAZARDS				
	COOL CONTAINERS TO PREVENT RUPTURE.		NONE		NONE					

REACTIVITY DATA	STABILITY	STABLE <input checked="" type="checkbox"/> UNSTABLE <input type="checkbox"/>	CONDITIONS TO AVOID	NOT APPLICABLE
	INCOMPATIBILITY (Materials to Avoid)	STRONG MINERAL ACIDS, OTHER CHEMICAL TREATMENT FORMULATIONS.		
	HAZARDOUS DECOMPOSITION PRODUCTS	NONE UNDER ORDINARY CIRCUMSTANCES. UNDER EXTREME HEATING SUCH AS IN A FIRE, DECOMPOSITION MAY OCCUR, OXYGEN MAY BE PRODUCED.		
	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
	<ol style="list-style-type: none"> PROTECT CONTAINERS AGAINST PHYSICAL DAMAGE STORE IN A COOL, DARK, WELL-VENTILATED LOCATION AWAY FROM DIRECT SUNLIGHT AND OTHER SOURCES OF RADIANT HEAT. KEEP CONTAINERS TIGHTLY CLOSED WHEN NOT IN USE. NEVER MOVE AN OPEN OR LOOSELY CLOSED CHEMICAL CONTAINER. WEAR HAND AND FOOT PROTECTION WHEN MOVING HEAVY CONTAINERS. 	<ol style="list-style-type: none"> NOT TO BE TAKEN INTERNALLY. NOT TO BE USED FOR OTHER THAN SPECIFIED PURPOSE. KEEP AWAY FROM CHILDREN NEVER MIX THIS MATERIAL WITH ANY OTHER CHEMICAL UNLESS AT THE SPECIFIC DIRECTION OF H - O - H PERSONNEL. TRIPLE RINSE EMPTY CONTAINERS BEFORE OFFERING FOR DISPOSAL OR SALVAGE. NEVER REUSE EMPTY CONTAINERS.

HEALTH HAZARD DATA	THRESHOLD LIMIT VALUE	74 mg/m ³ (AIR) BASED ON A MIST OF CS-78 IN AIR, RELATIVE TO SODIUM MOLYBDATE.	CS-78
	ACUTE HEALTH HAZARDS		CHRONIC HEALTH HAZARDS
	MILD IRRITANT		NONE KNOWN

EFFECTS OF EXPOSURE	SKIN AND EYES / TARGET ORGAN	INHALATION	INGESTION
	TISSUE IRRITATION MAY CAUSE EYE IRRITATION AND POSSIBLE CONJUNCTIVITIS. PROLONGED EXPOSURE MAY DAMAGE EYE TISSUE.	NON - VOLATILE IF A MIST OR SPRAY IS DRAWN INTO THE BREATHING TRACT, IRRITATION OF BRONCHIAL TISSUE AND LUNGS MAY OCCUR. PROLONGED EXPOSURE MAY PRODUCE NASAL SORES AND MUCOUS TISSUE BURNS.	MILD IRRITANT MAY CAUSE IRRITATION OF THE DIGESTIVE TRACT.
CONDITIONS AGGRAVATED	DERMATITIS, BLISTERS, BURNS, OR ANY PRE-EXISTING SKIN IRRITATION IF CONTACT OCCURS.	IN NORMAL USE, NO EFFECT SHOULD BE NOTED SINCE NO HAZARDOUS VOLATILES ARE PRESENT.	IF INGESTION OCCURS, STOMACH ULCERS OR OTHER PRE-EXISTING DIGESTIVE CONDITIONS.

EMERGENCY PROCEDURES	SKIN AND EYES	INHALATION	INGESTION
	EYES FLUSH EYES WITH WATER FOR 15 MINUTES. SEEK MEDICAL ATTENTION IF IRRITATION DEVELOPS. SKIN FLUSH WITH WATER AND WASH WITH SOAP AND WATER. REMOVE CONTAMINATED CLOTHING AND WASH WELL BEFORE REUSE. IF IRRITATION DEVELOPS, GET MEDICAL ATTENTION.	NON - VOLATILE IF LIQUID OR CONCENTRATED SPRAY OR MIST IS INHALED, REMOVE SUBJECT TO FRESH AIR. GET PROMPT MEDICAL ATTENTION.	INDUCE VOMITING IF CONSCIOUS, DILUTE INGESTED MATERIAL WITH 2 OR MORE GLASSES OF WATER OR MILK BEFORE ANY ATTEMPT TO INDUCE VOMITING. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. MEDICAL ATTENTION IS REQUIRED.

CARCINOGEN LISTING	NATIONAL TOXICOLOGY PROGRAM (NTP)	IARC MONOGRAPHS	OSHA REGULATED
	NO	NO	NO

SPILL OR LEAK PROCEDURES	SPILLS AND RELEASES	WASTE DISPOSAL METHODS
	CONTAIN SPILLED MATERIAL AND COLLECT INTO SUITABLE CONTAINER FOR DISPOSAL.	CONSULT FEDERAL, STATE, AND LOCAL REGULATIONS PERTAINING TO WASTE DISPOSAL.

CONTROL MEASURES	EYE PROTECTION	SAFETY GLASSES WITH SIDE SHIELDS.		
	RESPIRATORY PROTECTION	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 ACIDIC VAPORS SHOULD BE USED.		
	OTHER PROTECTIVE EQUIPMENT	IMPERMEABLE CLOTHING. AN EYEWASH FOUNTAIN IS ADVISABLE IN THE AREA OF USE.		
	LOCAL EXHAUST	YES	SPECIAL VENTILATION	NOT REQUIRED FOR NORMAL USE.
	MECHANICAL VENTILATION	NOT REQUIRED FOR NORMAL USE	OTHER VENTILATION	NOT REQUIRED FOR NORMAL USE.
	PROTECTIVE GLOVES	NON-SLIP VINYL OR RUBBER GLOVES.	PROTECTIVE CLOTHING	APRON OR COVERALLS

REFERENCES	1. <i>Threshold Limit Values For Chemical Substances And Physical Agents In The Work Environment</i> , ACGIH, 1989.
	2. OSHA Safety and Health Standards: 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 & 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 & State Right to Know Standards</i> (J. J. KELLER & ASSOCIATES, Inc., Neenah, Wisconsin, Dec. 1990).

REPORTABLE QUANTITY	IF MORE THAN THE INDICATED QUANTITY IS DISCHARGED TO DRAINAGE (Sewer/surface water), AIR, OR SOIL, IMMEDIATELY REPORT AS INDICATED.		
	CERCLA OR EPA (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
WRITTEN REPORT MUST FOLLOW	NA	NA	NA