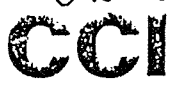


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 N11810M, N11820M, KM483M

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Columbus Chemical Industries, Inc. / Route 2, Box 187-B / Columbus, Wisconsin 53925 / 414-623-2140

MATERIAL SAFETY DATA SHEET

APR 20 1995

CHEMICAL NAME	Manganese Dioxide HP	CAS #1313-13-9	EMERGENCY PHONE NUMBER (301)789-8800
SYNONYMS			
FORMULA	MnO ₂ HP		DATE FORM ISSUED July 1979

I. HAZARDOUS INGREDIENTS

MATERIAL	TLV (UNITS)	%	MATERIAL	TLV (UNITS)	%

II. PHYSICAL DATA

BOILING POINT 60 mm Hg	None	FREEZING POINT	535° C.
SPECIFIC GRAVITY (H ₂ O = 1)	5.028	VAPOR PRESSURE AT 20° C	-
RELATIVE DENSITY (AIR = 1)	-	SOLUBILITY IN WATER % BY WT. AT 20° C.	Insoluble
PERCENT VOLATILES BY VOLUME	-	EVAPORATION RATE (BUTYL ACETATE = 1)	-
APPEARANCE	Silver Metallic Powder	ODOR	None

III. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (TEST METHOD)	None	FLAMMABLE LIMITS IN AIR (% BY VOLUME)	UPPER	-
AUTOIGNITION TEMPERATURE	None		LOWER	-
EXTINGUISHING MEDIA				
SPECIAL FIREFIGHTING PROCEDURES	Normally use CO ₂ , dry cell, or H ₂ O extinguishers.			
UNUSUAL FIRE AND EXPLOSION HAZARDS	Moderate fire hazard by chemical reaction; a powerful oxidizer. It must not be heated or rubbed in contact with easily oxidizable matter. Moderately dangerous explosion hazard; keep away from heat and flammable materials. Especially important to keep away from grease and oil.			

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IV. HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE	TLV-is 5 mg/m ³
EFFECTS OF OVEREXPOSURE	Although the probability of contracting manganese poisoning is low, the effects are severe if poisoning occurs. Symptoms are similar to Parkinson's syndrome and include weakness of the legs, difficulty in walking downhill, instability and weakness while doing heavy work.
EMERGENCY AND FIRST AID PROCEDURES	

V. REACTIVITY DATA

4. STABILITY <input type="checkbox"/> UNSTABLE <input type="checkbox"/> STABLE	CONDITIONS TO AVOID	
INCOMPATIBILITY (MATERIALS TO AVOID)	Easily oxidizable matter.	
HAZARDOUS DECOMPOSITION PRODUCTS	None	
HAZARDOUS POLYMERIZATION <input type="checkbox"/> MAY OCCUR <input type="checkbox"/> WILL NOT OCCUR	CONDITIONS TO AVOID	

VI. SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED	Does not present any unusual hazard.
WASTE DISPOSAL METHOD	No special methods.

VII. SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION	Respirator should be worn when dust is noticeable.				
VENTILATIONS	LOCAL EXHAUST		SPECIAL		
	MECHANICAL		OTHER		
PROTECTIVE GLOVES	Yes	EYE PROTECTION	Goggles	OTHER PROTECTIVE EQUIPMENT	None

VIII. SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	Store in clean, dry area that is well ventilated. Keep away from grease, oil, and other oxidizable materials.
OTHER PRECAUTIONS	