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

SECTION 1. - - - - - CHEMICAL IDENTIFICATION- - - - -

CATALOG #: M3634
NAME: MANGANESE CHLORIDE TETRAHYDRATE

SECTION 2. - - - - - COMPOSITION/INFORMATION ON INGREDIENTS - - - - -

CAS #: 13446-34-9
MF: CL2MN

SYNONYMS

MANGANESE DICHLORIDE TETRAHYDRATE * MANGANOUS CHLORIDE TETRAHYDRATE *

SECTION 3. - - - - - HAZARDS IDENTIFICATION - - - - -

LABEL PRECAUTIONARY STATEMENTS

HARMFUL
HARMFUL IF SWALLOWED.
IRRITATING TO EYES, RESPIRATORY SYSTEM AND SKIN.
POSSIBLE RISK OF IRREVERSIBLE EFFECTS.
TARGET ORGAN(S):

NERVES
LUNGS

IN CASE OF CONTACT WITH EYES, RINSE IMMEDIATELY WITH PLENTY OF WATER AND SEEK MEDICAL ADVICE.
WEAR SUITABLE PROTECTIVE CLOTHING.

SECTION 4. - - - - - FIRST-AID MEASURES- - - - -

IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES.
IN CASE OF CONTACT, IMMEDIATELY WASH SKIN WITH SOAP AND COPIOUS AMOUNTS OF WATER.
IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN.
IF SWALLOWED, WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONSCIOUS. CALL A PHYSICIAN.
WASH CONTAMINATED CLOTHING BEFORE REUSE.

SECTION 5. - - - - - FIRE FIGHTING MEASURES - - - - -

EXTINGUISHING MEDIA
NONCOMBUSTIBLE.

USE EXTINGUISHING MEDIA APPROPRIATE TO SURROUNDING FIRE CONDITIONS.

SPECIAL FIREFIGHTING PROCEDURES

WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING TO PREVENT CONTACT WITH SKIN AND EYES.

UNUSUAL FIRE AND EXPLOSIONS HAZARDS

EMITS TOXIC FUMES UNDER FIRE CONDITIONS.

SECTION 6. - - - - - ACCIDENTAL RELEASE MEASURES- - - - -

WEAR SELF-CONTAINED BREATHING APPARATUS, RUBBER BOOTS AND HEAVY RUBBER GLOVES.

SWEEP UP, PLACE IN A BAG AND HOLD FOR WASTE DISPOSAL.

AVOID RAISING DUST.

VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL PICKUP IS COMPLETE.

SECTION 7. - - - - - HANDLING AND STORAGE- - - - -

REFER TO SECTION 8.

SECTION 8. - - - - - EXPOSURE CONTROLS/PERSONAL PROTECTION- - - - -

WEAR APPROPRIATE NIOSH/MSHA-APPROVED RESPIRATOR, CHEMICAL-RESISTANT GLOVES, SAFETY GOGGLES, OTHER PROTECTIVE CLOTHING.
SAFETY SHOWER AND EYE BATH.

USE ONLY IN A CHEMICAL FUME HOOD.
DO NOT BREATHE DUST.
DO NOT GET IN EYES, ON SKIN, ON CLOTHING.
AVOID PROLONGED OR REPEATED EXPOSURE.
WASH THOROUGHLY AFTER HANDLING.
KEEP TIGHTLY CLOSED.

SECTION 9. - - - - - PHYSICAL AND CHEMICAL PROPERTIES - - - - -

APPEARANCE AND ODOR

PINK CRYSTALS

PHYSICAL PROPERTIES

MELTING POINT: 58 C

SPECIFIC GRAVITY: 2.010

SECTION 10. - - - - - STABILITY AND REACTIVITY - - - - -

STABILITY

STABLE.

INCOMPATIBILITIES

STRONG ACIDS

REACTS VIOLENTLY WITH:

SODIUM

POTASSIUM

ZINC

PROTECT FROM MOISTURE.

HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS

HYDROGEN CHLORIDE GAS

HAZARDOUS POLYMERIZATION

WILL NOT OCCUR.

SECTION 11. - - - - - TOXICOLOGICAL INFORMATION - - - - -

ACUTE EFFECTS

HARMFUL IF SWALLOWED.

MAY BE HARMFUL IF INHALED.

MAY BE HARMFUL IF ABSORBED THROUGH THE SKIN.

CAUSES EYE AND SKIN IRRITATION.

MATERIAL IS IRRITATING TO MUCOUS MEMBRANES AND UPPER
RESPIRATORY TRACT.

CHRONIC EFFECTS

LABORATORY EXPERIMENTS HAVE SHOWN MUTAGENIC EFFECTS.

MEN EXPOSED TO MANGANESE DUSTS SHOWED A DECREASE IN FERTILITY.

CHRONIC MANGANESE POISONING PRIMARILY INVOLVES THE CENTRAL NERVOUS

SYSTEM. EARLY SYMPTOMS INCLUDE LANGUOR, SLEEPINESS AND WEAKNESS IN

THE LEGS. A STOLID MASK-LIKE APPEARANCE OF THE FACE, EMOTIONAL

DISTURBANCES SUCH AS UNCONTROLLABLE LAUGHTER AND A SPASTIC GAIT WITH

TENDENCY TO FALL IN WALKING ARE FINDINGS IN MORE ADVANCED CASES. HIGH

INCIDENCE OF PNEUMONIA HAS BEEN FOUND IN WORKERS EXPOSED TO THE DUST

OR FUME OF SOME MANGANESE COMPOUNDS.

TARGET ORGAN(S):

CENTRAL NERVOUS SYSTEM

LUNGS

TO THE BEST OF OUR KNOWLEDGE, THE CHEMICAL, PHYSICAL, AND
TOXICOLOGICAL PROPERTIES HAVE NOT BEEN THOROUGHLY INVESTIGATED.

RTECS #: 009650000

MANGANESE(II) CHLORIDE, TETRAHYDRATE

TOXICITY DATA

ORL-RAT LD50:1484 MG/KG

EVHPAZ 10,95,1975

IPR-RAT LD50:138 MG/KG

EVHPAZ 10,95,1975

PAR-RAT LD50:225 MG/KG

JINCAO 41,1507,1979

IPR-MUS LD50:144 MG/KG

TXAPA9 63,461,1982

SCU-MUS LD50:320 MG/KG

TOLED5 69,45,1993

TARGET ORGAN DATA

PATERNAL EFFECTS (TESTES, EPIDIDYMIS, SPERM DUCT)

MATERNAL EFFECTS (OTHER EFFECTS ON FEMALE)

EFFECTS ON FERTILITY (POST-IMPLANTATION MORTALITY)

EFFECTS ON EMBRYO OR FETUS (FETOTOXICITY)

SPECIFIC DEVELOPMENTAL ABNORMALITIES (MUSCULOSKELETAL SYSTEM)

ONLY SELECTED REGISTRY OF TOXIC EFFECTS OF CHEMICAL SUBSTANCES

(RTECS) DATA IS PRESENTED HERE. SEE ACTUAL ENTRY IN RTECS FOR

COMPLETE INFORMATION.

SECTION 12. - - - - - ECOLOGICAL INFORMATION - - - - -
DATA NOT YET AVAILABLE.

SECTION 13. - - - - - DISPOSAL CONSIDERATIONS - - - - -
THE MATERIAL SHOULD BE DISSOLVED IN 1) WATER; 2) ACID SOLUTION OR 3)
OXIDIZED TO A WATER-SOLUBLE STATE. PRECIPITATE THE MATERIAL AS THE
SULFIDE, ADJUSTING THE PH OF THE SOLUTION TO 7 TO COMPLETE PRE-
CIPITATION. FILTER THE INSOLUBLES AND DISPOSE OF THEM IN A HAZARDOUS-
WASTE SITE. DESTROY ANY EXCESS SULFIDE WITH SODIUM HYPOCHLORITE.
NEUTRALIZE THE SOLUTION BEFORE FLUSHING DOWN THE DRAIN.
OBSERVE ALL FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS.

SECTION 14. - - - - - TRANSPORT INFORMATION - - - - -
CONTACT SIGMA CHEMICAL COMPANY FOR TRANSPORTATION INFORMATION.

SECTION 15. - - - - - REGULATORY INFORMATION - - - - -
EUROPEAN INFORMATION

CAUTION: SUBSTANCE NOT YET FULLY TESTED.

HARMFUL

R 22

HARMFUL IF SWALLOWED.

R 36/37/38

IRRITATING TO EYES, RESPIRATORY SYSTEM AND SKIN.

R 40

POSSIBLE RISK OF IRREVERSIBLE EFFECTS.

S 26

IN CASE OF CONTACT WITH EYES, RINSE IMMEDIATELY WITH PLENTY OF
WATER AND SEEK MEDICAL ADVICE.

S 36

WEAR SUITABLE PROTECTIVE CLOTHING.

REVIEWS, STANDARDS, AND REGULATIONS

OEL=MAK

ACGIH TLV-TWA 0.2 MG(MN)/M3

DTLVS* TLV/BEI,1997

MSHA STANDARD-AIR:CL 5 MG(MN)/M3

DTLVS* 3,149,1971

OSHA PEL (GEN INDU):CL 5 MG(MN)/M3

CFRGBR 29,1910.1000,1994

OSHA PEL (CONSTRUC):CL 5 MG(MN)/M3

CFRGBR 29,1926.55,1994

OSHA PEL (SHIPYARD):CL 5 MG(MN)/M3

CFRGBR 29,1915.1000,1993

OSHA PEL (FED CONT):CL 5 MG(MN)/M3

CFRGBR 41,50-204.50,1994

OEL-AUSTRALIA:TWA 5 MG(MN)/M3 JAN 1993

OEL-BELGIUM:TWA 5 MG(MN)/M3 JAN 1993

OEL-DENMARK:TWA 2.5 MG(MN)/M3 JAN 1993

OEL-FINLAND:TWA 2.5 MG(MN)/M3 JAN 1993

OEL-HUNGARY:TWA 0.3 MG(MN)/M3;STEL 0.6 MG(MN)/M3 JAN 1993

OEL-JAPAN:TWA 0.3 MG(MN)/M3 JAN 1993

OEL-THE NETHERLANDS:TWA 1 MG(MN)/M3 JAN 1993

OEL-POLAND:TWA 0.3 MG(MN)/M3 JAN 1993

OEL-SWEDEN:TWA 1 MG(MN)/M3;STEL 2.5 MG(MN)/M3 (RESP. DUST) JAN 1993

OEL-SWEDEN:TWA 2.5 MG(MN)/M3;STEL 5 MG(MN)/M3 (TOTAL DUST) JAN 1993

OEL-UNITED KINGDOM:TWA 5 MG(MN)/M3 JAN 1993

OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA CHECK ACGIH TLV

OEL IN NEW ZEALAND, SINGAPORE, VIETNAM CHECK ACGIH TLV

NOES 1983: HZD X4985; NIS 3; TNF 110; NOS 5; TNE 3297; TFE 1033

EPA GENETOX PROGRAM 1988, POSITIVE: CELL TRANSFORM.-RLV F344 RAT EMBRYO

U.S. INFORMATION

THIS PRODUCT IS SUBJECT TO SARA SECTION 313 REPORTING REQUIREMENTS -
MANGANESE COMPOUNDS.

SECTION 16. - - - - - OTHER INFORMATION - - - - -

THE ABOVE INFORMATION IS BELIEVED TO BE CORRECT BUT DOES NOT PURPORT TO
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