



**SIGMA-ALDRICH**

ALDRICH CHEMICAL COMPANY, INC.  
P.O. BOX 355  
MILWAUKEE, WISCONSIN 53201, USA

ATTN: SAFETY DIRECTOR  
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DATE 09/29/97  
CUST#: 250120  
PO#: 69112

M A T E R I A L S A F E T Y D A T A S H E E T PAGE 1

SECTION 1. CHEMICAL IDENTIFICATION

CATALOG #: 27045-8  
NAME: 1-METHYL-2-PYRROLIDINONE, 99+%,  
HPLC GRADE

SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS

CAS #: 872-50-4  
MF: C5H9NO  
EC NO: 212-828-1

SYNONYMS

N-METHYLPYRROLIDINONE \* N-METHYL-2-PYRROLIDINONE \* 1-METHYL-2-PYRROLIDINONE \* 1-METHYL-5-PYRROLIDINONE \* N-METHYLPYRROLIDONE \* N-METHYL-ALPHA-PYRROLIDONE \* N-METHYL-2-PYRROLIDONE \* 1-METHYL-2-PYRROLIDONE \* M-PYROL \* NMP \*

SECTION 3. HAZARDS IDENTIFICATION

LABEL PRECAUTIONARY STATEMENTS

HARMFUL  
HARMFUL BY INHALATION, IN CONTACT WITH SKIN AND IF SWALLOWED.  
IRRITATING TO EYES, RESPIRATORY SYSTEM AND SKIN.  
POSSIBLE RISK OF HARM TO THE UNBORN CHILD.  
TARGET ORGAN(S):  
BONE MARROW  
THYMUS  
LYMPHATIC SYSTEM  
COMBUSTIBLE.  
IN CASE OF CONTACT WITH EYES, RINSE IMMEDIATELY WITH PLENTY OF WATER AND SEEK MEDICAL ADVICE.  
IN CASE OF FIRE AND/OR EXPLOSION DO NOT BREATHE FUMES.  
WEAR SUITABLE PROTECTIVE CLOTHING, GLOVES AND EYE/FACE PROTECTION.  
HYGROSCOPIC  
STORE UNDER NITROGEN.

SECTION 4. FIRST-AID MEASURES

IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES OR SKIN WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES WHILE REMOVING CONTAMINATED CLOTHING AND SHOES.  
ASSURE ADEQUATE FLUSHING OF THE EYES BY SEPARATING THE EYELIDS WITH FINGERS.  
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.  
REMOVE AND WASH CONTAMINATED CLOTHING PROMPTLY.

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DISCARD CONTAMINATED SHOES.

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

EXTINGUISHING MEDIA

WATER SPRAY.  
CARBON DIOXIDE, DRY CHEMICAL POWDER OR APPROPRIATE FOAM.

SPECIAL FIREFIGHTING PROCEDURES

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

UNUSUAL FIRE AND EXPLOSIONS HAZARDS

EMITS TOXIC FUMES UNDER FIRE CONDITIONS.

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

EVACUATE AREA.  
WEAR SELF-CONTAINED BREATHING APPARATUS, RUBBER BOOTS AND HEAVY RUBBER GLOVES.  
ABSORB ON SAND OR VERMICULITE AND PLACE IN CLOSED CONTAINERS FOR DISPOSAL.  
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 - - - - -

CHEMICAL SAFETY GOGGLES.  
SAFETY SHOWER AND EYE BATH.  
NIOSH/MSHA-APPROVED RESPIRATOR.  
USE ONLY IN A CHEMICAL FUME HOOD.  
WEAR HEAVY RUBBER GLOVES.  
DO NOT BREATHE VAPOR.  
AVOID CONTACT WITH EYES, SKIN AND CLOTHING.  
SKIN ABSORPTION MAY OCCUR.  
WASH THOROUGHLY AFTER HANDLING.  
HARMFUL LIQUID.  
IRRITANT.  
POSSIBLE TERATOGEN.  
KEEP TIGHTLY CLOSED.  
KEEP AWAY FROM HEAT AND OPEN FLAME.  
STORE IN A COOL DRY PLACE.

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

APPEARANCE AND ODOR  
COLORLESS LIQUID

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PHYSICAL PROPERTIES

BOILING POINT: 81 C TO 82 C/10MM.  
MELTING POINT: -24 C  
FLASHPOINT: 187 F  
86C

EXPLOSION LIMITS IN AIR:

UPPER  
LOWER

AUTOIGNITION TEMPERATURE: 518 F  
VAPOR PRESSURE: 0.29MM 20 C 0.99MM 40 C 269C  
SPECIFIC GRAVITY: 1.033  
VAPOR DENSITY: 3.4

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

INCOMPATIBILITIES

STRONG ACIDS  
STRONG OXIDIZING AGENTS  
PROTECT FROM MOISTURE.

HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS

THERMAL DECOMPOSITION MAY PRODUCE CARBON MONOXIDE, CARBON DIOXIDE,  
AND NITROGEN OXIDES.

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

ACUTE EFFECTS

HARMFUL IF SWALLOWED, INHALED, OR ABSORBED THROUGH SKIN.  
VAPOR OR MIST IS IRRITATING TO THE EYES, MUCOUS MEMBRANES AND UPPER  
RESPIRATORY TRACT.  
CAUSES SKIN IRRITATION.  
PROLONGED EXPOSURE CAN CAUSE:  
STOMACH PAINS, VOMITING, DIARRHEA.

CHRONIC EFFECTS

OVEREXPOSURE MAY CAUSE REPRODUCTIVE DISORDER(S) BASED ON TESTS WITH  
LABORATORY ANIMALS.  
TARGET ORGAN(S):  
BONE MARROW  
THYMUS  
SPLEEN  
LYMPHATIC SYSTEM

ADDITIONAL INFORMATION

RATS EXPOSED TO 1-METHYL-2-PYRROLIDINONE AT A CONCENTRATION OF 1 MG/L  
AS AN AEROSOL FOR 10 DAYS SHOWED DEPLETION OF HEMATOPOIETIC CELLS IN  
THE BONE MARROW AND ATROPHY OF THE LYMPHOID TISSUES OF THE THYMUS,  
SPLEEN AND LYMPH NODES.

RTECS #: UY5790000

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2-PYRROLIDINONE, 1-METHYL-

IRRITATION DATA  
EYE-RBT 100 MG MOD

FCTOD7 26,475,1988

TOXICITY DATA

ORL-RAT LD50:3914 MG/KG  
IPR-RAT LD50:2472 MG/KG  
IVN-RAT LD50:80500 UG/KG  
UNR-RAT LD50:7 GM/KG  
ORL-MUS LD50:5130 MG/KG  
IPR-MUS LD50:3050 MG/KG  
IVN-MUS LD50:54500 UG/KG  
IVN-DOG LD50:63300 UG/KG  
SKN-RBT LD50:8 GM/KG

ARZNAD 26,1581,1976  
ARZNAD 26,1581,1976  
IYKEDH 18,922,1987  
34ZIAG - 408,1969  
EPASR\* 8EHO-1087-0695  
EPASR\* 8EHO-1087-0695  
IYKEDH 18,922,1987  
IYKEDH 18,922,1987  
NPRI\* 1,84,1974

TARGET ORGAN DATA

EFFECTS ON FERTILITY (POST-IMPLANTATION MORTALITY)  
SPECIFIC DEVELOPMENTAL ABNORMALITIES (CENTRAL NERVOUS SYSTEM)  
SPECIFIC DEVELOPMENTAL ABNORMALITIES (MUSCULOSKELETAL SYSTEM)  
EFFECTS ON NEWBORN (GROWTH STATISTICS)  
EFFECTS ON NEWBORN (DELAYED EFFECTS)  
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 - - - - -

THIS COMBUSTIBLE MATERIAL MAY BE BURNED IN A CHEMICAL INCINERATOR  
EQUIPPED WITH AN AFTERBURNER AND SCRUBBER.  
OBSERVE ALL FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS.

SECTION 14. - - - - - TRANSPORT INFORMATION - - - - -

CONTACT ALDRICH CHEMICAL COMPANY FOR TRANSPORTATION INFORMATION.

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

EUROPEAN INFORMATION

EC INDEX NO: 606-021-00-7

HARMFUL  
R 36/38

IRRITATING TO EYES AND SKIN.

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IN CASE OF FIRE AND/OR EXPLOSION DO NOT BREATHE FUMES.

REVIEWS, STANDARDS, AND REGULATIONS

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NAME: 1-METHYL-2-PYRROLIDINONE, 99+%,  
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OEL=MAK  
OEL-DENMARK:TWA 100 PPM (400 MG/M3) JAN 1993  
OEL-GERMANY:TWA 100 PPM (400 MG/M3) JAN 1993  
OEL-THE NETHERLANDS:TWA 100 PPM (400 MG/M3) JAN 1993  
OEL-RUSSIA:STEL 100 MG/M3 JAN 1993  
OEL-SWITZERLAND:TWA 200 PPM (400 MG/M3) JAN 1993  
OEL-UNITED KINGDOM:TWA 100 PPM (400 MG/M3) JAN 1993  
NOHS 1974: HZD M1569; NIS 30; TNF 2458; NOS 43; TNE 25255  
NOES 1983: HZD M1569; NIS 63; TNF 3902; NOS 73; TNE 85169; TFE 23478  
EPA TSCA SECTION 8(B) CHEMICAL INVENTORY  
EPA TSCA SECTION 8(D) UNPUBLISHED HEALTH/SAFETY STUDIES  
EPA TSCA TEST SUBMISSION (TSCATS) DATA BASE, APRIL 1997

U.S. INFORMATION

THIS PRODUCT IS SUBJECT TO SARA SECTION 313 REPORTING REQUIREMENTS.

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

THE ABOVE INFORMATION IS BELIEVED TO BE CORRECT BUT DOES NOT PURPORT TO BE ALL INCLUSIVE AND SHALL BE USED ONLY AS A GUIDE. ALDRICH SHALL NOT BE HELD LIABLE FOR ANY DAMAGE RESULTING FROM HANDLING OR FROM CONTACT WITH THE ABOVE PRODUCT. SEE REVERSE SIDE OF INVOICE OR PACKING SLIP FOR ADDITIONAL TERMS AND CONDITIONS OF SALE.

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