Material Safety Data Sheet

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BASF CORPORATION
3000 CONTINENTAL DRIVE NORTH

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EMERGENCY TELEPHONE: (800) 424-9300 CHEMTREC
(800) 832-HELP (BASF Hotline)
BOTH NUMBERS ARE AVAILABLE DAYS, NIGHTS, WEEKENDS, & HOLIDAYS.

SECTION 1 - PRODUCT INFORMATION

N-METHYLPYRROLIDONE VALUE GRADE
Product ID: NCI 556994
Common Chemical Name:
N-METHYLPYRROLIDONE
Synonyms:
N-METHYLPYRROLIDONE
Molecular Formula:
C(5)H(9)NO
Chemical Family: None
Molecular Wt.: 99.1

SECTION 2 - INGREDIENTS

Chemical Name:	CAS	Amount	
2(3H)-FURANONE, DIHYDRO- PEL/TLV NOT ESTABLISHED	96-48-0	2.0	%
2-PYRROLIDINONE, 1-METHYL PEL/TLV NOT ESTABLISHED	872-50-4	97.0	%
WATER PEL/TLV NOT ESTABLISHED	7732-18-5	1.0	%

SECTION 3 - PHYSICAL PROPERTIES

Color: Clear
Form/Appearance: Liquid
Odor: Amine
Odor Intensity: Mild

	Typical	Low/High	U.O.M.			
Specific Gravity:	1.028			@	25	DEG C

pH: NOT AVAILABLE

	Typical	Low/High	Deg.	@	Pressure
Boiling Pt:	204.3		C	760	MM HG
Freezing Pt:	-23.6		C	760	MM HG

Decomp. Tmp: NOT AVAILABLE
Solubility in Water Description: Complete
Vapor Pressure: < 0.32 MILLIBARS X 20 DEG. C XX

SECTION 4 - FIRE AND EXPLOSION DATA

	Typical	Low/High	Deg.	Method
Flash Point:	91		C	ASTM D9373
Autoignition:	270		C	DIN 51794
Flam. Limits:		1.3 - 9.5	%	

Extinguishing Media:

Use water, dry extinguishing media, carbon dioxide (CO2) or foam.

Fire Fighting Procedures:

Firefighters should be equipped with self-contained breathing apparatus and turn out gear.

Unusual Hazards:

There are no known unusual fire or explosion hazards.

SECTION 5 - HEALTH EFFECTS

Routes of entry for solids and liquids include eye and skin contact, ingestion and inhalation. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquified gases.

Toxicology Test Data:

Rat, Oral LD50 - 4990 MG/KG
Moderately Toxic
Mouse, Oral LD50 - 5270 MG/KG
Slightly Toxic
Rat, Inhalation Safety Screen, 8 hr - SLIGHTLY IRRITATING
No deaths after 8 hour exposure
Rat, 4 hr Inhalation LC50 - > 5.1 MG/L
Moderately Toxic
Rabbit, Primary Skin Irritation - MARKEDLY IRRITATING
TOX TEST RATING NOT FOUND
Rabbit, Eye Irritation - MARKEDLY IRRITATING
TOX TEST RATING NOT FOUND
Rat, 28 day oral study - 257 - 2056 MG/KG
Testicular effects in highest dose group
Rat, 28-Day Feeding Study - NOAEL: 429 MG/KG/DAY
Decreased body weights at high doses
Mouse, 28 day dietary study - NOAEL: 820 MG/KG/DAY
Target organ: kidney
Rat,90 day feeding & neurotoxicity study - @ 169 - 1344 MG/KG/DAY
NOAEL: Low Dose
Mouse, 3 month oral toxicity, dietary - @ 277 - 1931 MG/KG/DAY
NOAEL: Low Dose
Rat, 90 day Inhalation with Recovery - 0, 0.5, 1, 3 MG/L
Testicular effects in highest dose group
Ames Salmonella Assay with or without S9 - NEGATIVE
No increase in mutation frequency
Mouse Lymphoma Assay with or without S-9 - NEGATIVE
No increase in mutation frequency
Mouse Micronucleus Test: Bone Marrow - NEGATIVE
No clastogenic effects reported
Rat, oral 2 year oncogenicity study - @ 66.4 - 939 MG/KG/DAY
Not carcinogenic in rats

Rat, Inhalation Oncogenicity Study - @ 0.04 & 0.4 MG/L
No evidence of carcinogenicity
Rat, Oral 2-Gen Reproduction Study - NOAEL: 160 MG/KG/DAY
Reduced fertility & pup survival @ 500
Rat, Oral Developmental Toxicity Study - @ 332 & 997 MG/KG/DAY
Embryotoxic and teratogenic at high dose
Mouse, Oral Developmental Toxicity Study - @ 263 & 1055 MG/KG/DAY
Embryotoxic and teratogenic at high dose
Rat dermal teratology range finding test - NOEL: 500 MG/KG/DAY
Maternal toxicity and embryolethality
Rat, Dermal Developmental Toxicity Study - NOEL: 237 MG/KG/DAY
Maternal toxicity and embryolethality
Rat, Inhalation Developmental Toxicity - @ 0.1 & 0.36 MG/L
No maternal or developmental toxicity
Rat, Inhalation Developmental/Repro Test - 10, 50, 116 PPM
No repro effects; Smaller pups @ 116 ppm
Mouse, 18 month oral oncogenicity study - @ 89 - 1399 MG/KG/DAY
Increased liver tumors at high dose only

Acute Overexposure Effects:

Contact with the liquid can result in irritation. Skin contact should be avoided. Prolonged skin contact may result in redness and dermatitis.

Acute exposure to gamma butyrolactone may produce eye irritation. Repeated dermal administration in rats at 10 mg/kg has been known to produce mild metabolic acidosis. Repeated exposure at low doses (100 & 200 mg/kg) have been known to produce biphasic activity in rats (an initial reduction in activity followed by a period of hyper-activity). Increased blood pressure has also been known to occur in experimental animals after IV administration, however, this is not considered a relevant route of exposure.

NMP is moderately toxic by all routes of exposure; however, due to its low vapor pressure, dermal exposure represents the primary hazard in most settings. Contact with the liquid results in moderate eye irritation and may cause temporary corneal clouding. Skin contact results in mild irritation; prolonged skin contact may cause redness and dermatitis. Inhalation of the vapors of NMP may result in respiratory irritation. Accidental ingestion of the liquid causes gastric disturbances and may result in nausea and vomiting.

Chronic Overexposure Effects:

In animal studies NMP was embryotoxic by the oral, dermal and intra-peritoneal routes, but only after repeated high doses that approached the LD50 or were maternally toxic. Embryotoxicity without maternal toxicity was observed at a high concentration in one rat inhalation study, but not in others. Testicular effects in rats were noted after repeated, high-dose oral and inhalation exposures. NMP was not carcinogenic in rats receiving lifetime exposures via inhalation (100 ppm) or the diet. This product contains a chemical known to the state of California to cause birth defects or other reproductive harm. In a mouse cancer study, high doses of NMP produced liver carcinomas & adenomas in males (1089 Mg/kg) and liver adenomas in females (1399 mg/kg). Middle doses caused liver hypertrophy in males (173 mg/kg) but not females (221 mg/kg). No effects were

SECTION 5 - HEALTH EFFECTS (cont)

noted at low doses in either males (89 mg/kg) or females (115 mg/kg).

First Aid Procedures - Skin:
Wash affected areas with soap and water. Remove and launder contaminated clothing before reuse. If irritation develops, get medical attention.

First Aid Procedures - Eyes:
Immediately rinse eyes with running water for 15 minutes. If irritation develops, get medical attention.

First Aid Procedures - Ingestion:
If swallowed, dilute with water and immediately induce vomiting. Never give fluids or induce vomiting if the victim is unconscious or having convulsions. Get immediate medical attention.

First Aid Procedures - Inhalation:
Move to fresh air. Aid in breathing, if necessary, and get immediate medical attention.

First Aid Procedures - Notes to Physicians:
Not applicable.

First Aid Procedures - Aggravated Medical Conditions:
No data is available which addresses medical conditions that are generally recognized as being aggravated by exposure to this product. Please refer to the effects of overexposure section for effects (if any) observed in animals.

First Aid Procedures - Special Precautions:
Not applicable.

SECTION 6 - REACTIVITY DATA

Stability Data:
Stable

Incompatability:
No data available.

Conditions/Hazards to Avoid:
See Reactivity - Incompatibility section.

Hazardous Decomposition/Polymerization:
Hazardous decomposition products: CO, CO2 and NOx.

Corrosive Properties:
Not corrosive.

Oxidizer Properties:
Not an oxidizer

SECTION 7 - PERSONAL PROTECTION

Clothing:
Butyl rubber gloves, coveralls, apron, boots as necessary to minimize contact.

Eyes:
Chemical goggles; also wear a face shield if splashing hazard exists.

Respiration:
If vapors or mists are generated, wear a NIOSH/MSHA approved organic vapor/mist respirator or an air-supplied respirator as appropriate.

Ventilation:
Use local exhaust to control to recommended P.E.L.

SECTION 7 - PERSONAL PROTECTION (cont)

Explosion Proofing:
See Section 4 - Fire and Explosion Data.
Other Personal Protection Data:
Eyewash fountains and safety showers must be easily accessible.
Shower after handling.

SECTION 8 - SPILL-LEAK/ENVIRONMENTAL

General:
Spills should be contained, solidifed, and placed in suitable containers for disposal in a licensed facility. This material is not regulated by RCRA or CERCLA ("Superfund"). Wear appropriate respiratory protection and protective clothing and provide adequate ventilation during clean-up.
Waste Disposal:
Incinerate in a licensed facility. Do not discharge into waterways or sewer systems.
Container Disposal:
Dispose of in a licensed facility. Recommend crushing or other means to prevent unauthorized reuse.
Environmental Toxicity Test Data:
Elimination (method not specified) - > 90 PERCENT
Readily Biodegradable
Biological Oxygen Demand, 5 day - 1100 MG/L
Readily Biodegradable
Chemical Oxygen Demand - 1600 MG/L
Readily Biodegradable
Golden Orfe, static 96 hr LC50 - 4000 MG/L
Insignificant Hazard
Daphnia Magna, 24 hr EC/LC50 - > 1000 MG/L
Insignificant Hazard
Acute Algal Toxicity, 72 hr. EC/LC50 - > 500 MG/L
Practically Nontoxic
Toxicity to Bacteria - > 9000 MG/L
Insignificant Hazard

SECTION 9 - STORAGE AND HANDLING

General:
Avoid exposure to moisture; this product is hygroscopic.
Keep containers closed.
Other Storage and Handling Data:
Consult other sections of this MSDS for information on reactivity and flammability.

SECTION 10 - REGULATORY INFORMATION

TSCA Inventory Status
Listed on Inventory: YES

RCRA Haz. Waste No .: NA
CERCLA: NO Reportable Qty.: (If YES)
NMP is subject to the reporting requirements of SARA Title III, Section 313 and 40CFR372.

SECTION 10 - REGULATORY INFORMATION (cont)

State Regulatory Information: (By Component) NJ/PA/MA RTK

CAS: 96-48-0 NO
NAME: 2(3H)-FURANONE, DIHYDRO-
CAS: 872-50-4 NO
NAME: 2-PYRROLIDINONE, 1-METHYL
CAS: 7732-18-5 NO
NAME: WATER

This product contains one or more chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

Hazard Ratings:

	Health:	Fire:	Reactivity:	Special:
HMIS	2	2	0	NA
NFPA	2	2	0	NA

SECTION 11 - TRANSPORTATION INFORMATION

DOT Proper Shipping Name:
SEE BELOW
DOT Technical Name:
SEE BELOW
DOT Primary Hazard Class:
SEE BELOW
DOT Secondary Hazard Class:
SEE BELOW
DOT Label Required:
SEE BELOW
DOT Placard Required:
SEE BELOW
DOT Poison Constituent:
SEE BELOW
BASF Commodity Codes: NA NA UN/NA Code: NONE E/R Guide:
Bill of Lading Description:
<119 GALLONS NOT REGULATED BY THE DEPARTMENT OF TRANSPORTATION
>119 GALLONS, COMBUSTIBLE LIQUID, NOS (N-METHYL PYRROLIDONE), NA1993, PGIII

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