

FISHER SCIENTIFIC -- N,N-DIMETHYLFORMAMIDE, 99%, D119 -- 6810-00-890-1888

===== Product Identification =====

Product ID:N,N-DIMETHYLFORMAMIDE, 99%, D119

MSDS Date:12/12/1997

FSC:6810

NIIN:00-890-1888

MSDS Number: CJQPC

=== Responsible Party ===

Company Name:FISHER SCIENTIFIC

Address:1 REAGENT LANE

City:FAIRLAWN

State:NJ

ZIP:07410

Country:US

Info Phone Num:201-796-7100

Emergency Phone Num:(800)424-9300

Chemtrec Ind/Phone:(800)424-9300

CAGE:1B464

=== Contractor Identification ===

Company Name:FISHER SCIENTIFIC CO. CHEMICAL MFG DIV

Address:1 REAGENT LANE

Box:City:FAIRLAWN

State:NJ

ZIP:07410-2802

Country:US

Phone:201-796-7100

CAGE:1B464

===== Composition/Information on Ingredients =====

Ingred Name:N,N-DIMETHYLFORMAMIDE LD50: (ORAL, RAT) 2800 MG/KG

CAS:68-12-2

RTECS #:LQ2100000

= Wt:100.

OSHA PEL:30 MG/M3;10 PPM

ACGIH TLV:30 MG/M3;10 PPM

EPA Rpt Qty:1 LB

DOT Rpt Qty:1 L

===== Hazards Identification =====

LD50 LC50 Mixture:SEE INGREDIENT

Routes of Entry: Inhalation:YES Skin:YES Ingestion:YES

Reports of Carcinogenicity:NTP:NO IARC:YES OSHA:NO

Health Hazards Acute and Chronic:EYE: CAUSES SEVERE EYE IRRITATION.

VAPORS MAY CAUSE EYE IRRITATION. SKIN: PROLONGED AND/OR REPEATED CONTACT MAY CAUSE IRRITATION AND/OR DERMATITIS. SUBSTANCE IS RAPIDLY ABSORBED THROUGH THE SKIN. IF ABSORBED, CAUSES SYMPTOMS SIMILAR

TO INHALATION. STRONG IRRITANT OF THE SKIN. INGESTION: MAY CAUSE IRRITATION OF THE DIGESTIVE TRACT. MAY CAUSE EFFECTS SIMILAR TO THOSE FOR INHALATION EXPOSURE. INHALATION: MAY CAUSE RESPIRATORY TRACT IRRITATION. MAY CAUSE KIDNEY DAMAGE. MAY BE HARMFUL IF INHALED. INHALATION MAY PRODUCE NAUSEA, VOMITING, ANOREXIA, COLIC, HIGH BLOOD PRESSURE, HEPATOMEGALY, JAUNDICE AND (EFFECTS OF OVEREXPOSURE)

Explanation of Carcinogenicity:DIMETHYLFORMAMIDE: IARC MONOGRAPHS ON EVAL

UATION OF CARCINOGENIC RISK OF CHEMICALS TO MAN, VOLUME 47, PAGE 171, 1989:GROUP 2B.

Effects of Overexposure:HEALTH HAZARDS: ALTERED LIVER FUNCTION.

CHRONIC: POSSIBLE CANCER HAZARD BASED ON TESTS WITH LABORATORY ANIMALS. PROLONGED OR REPEATED SKIN CONTACT MAY CAUSE DERMATITIS.

===== First Aid Measures =====

First Aid:EYES: IMMEDIATELY FLUSH EYES W/PLENTY OF WATER FOR AT LEAST 15 MINUTES, OCCASIONALLY LIFTING UPPER & LOWER LIDS. GET MEDICAL AID IMMEDIATELY. SKIN: GET MEDICAL AID IMMEDIATELY. IMMEDIATELY FLUSH SKIN W/PLENTY OF SOAP & WATER FOR AT LEAST 15 MINUTES WHILE REMOVING CONTAMINATED CLOTHING & SHOES. INGEST: IF VICTIM IS CONSCIOUS & ALERT, GIVE 2-4 CUPFULS OF MILK OR WATER. NEVER GIVE ANYTHING BY MOUTH TO UNCONSCIOUS PERSON. GET MEDICAL AID IMMEDIATELY. INHAL: GET MEDICAL AID IMMEDIATELY. REMOVE FROM EXPOSURE TO FRESH AIR IMMEDIATELY. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. IF BREATHING

IS DIFFICULT, GIVE OXYGEN.

NOTES TO MD: NONE.

===== Fire Fighting Measures =====

Flash Point:=-58.C, 136.4F

Autoignition Temp:=-445.C, 833.F

Lower Limits:2.2%

Upper Limits:15.2%

Extinguishing Media:FOR SMALL FIRES, USE DRY CHEM, CARBON DIOXIDE, WATER SPRAY OR ALCOHOL-RESIST FOAM. USE WATER SPRAY TO COOL FIRE-EXPOSED CONTNRS. WATER MAY BE INEFFECTIVE. FOR LARGE FIRES, USE (SUPDAT)

Fire Fighting Procedures:USE NIOSH APPROVED SCBA AND FULL PROTECTIVE

EQUIPMENT . CONTACT PROFESSIONAL FIRE-FIGHTERS IMMEDIATELY. COOL CONTAINERS W/FLOODING QUANTITIES OF WATER UNTIL WELL AFTER FIRE IS OUT. NFPA RATING: HEALTH-1; FLAMMABILITY-2; REACTIVITY-0.

Unusual Fire/Explosion Hazard:VAPORS CAN TRAVEL TO SOURCE OF IGNITION & FLASH BACK. USE WATER SPRAY TO KEEP FIRE-EXPOSED CONTAINERS COOL. FLAMMABLE LIQUID. VAPORS MAY BE HEAVIER THAN AIR. THEY CAN SPREAD ALONG GROUND & COLLECT IN LOW OR CONFINED AREAS. VAPORS MAY FORM AN EXPLOSIVE MIXTURE W/AIR. CONTAINERS MAY EXPLODE WHEN HEATED.

===== Accidental Release Measures =====

Spill Release Procedures:USE PROPER PERSONAL PROTECTIVE EQUIPMENT AS INDICATED IN EXPOSURE CONTROLS, PERSONAL PROTECTION. ABSORB SPILL W/INERT MATERIAL (EG, DRY SAND OR EARTH), THEN PLACE INTO CHEMICAL WASTE CONTAINER. DO NOT FLUSH INTO A SEWER. REMOVE ALL SOURCES OF IGNIT. A VAPOR SUPPRESSING FOAM MAY BE USED TO REDUCE VAPORS. WATER SPRAY MAY REDUCE VAPOR BUT MAY NOT PREVENT IGNITION IN CLOSED SPACES.

===== Handling and Storage =====

Handling and Storage Precautions:KEEP AWAY FROM HEAT, SPARKS & FLAME. KEEP AWAY FROM SOURCES OF IGNIT. STORE IN TIGHTLY CLOSED CNTNR. KEEP FROM CONTACT W/OXIDIZING MATLS. STORE IN A COOL, DRY, WELL-VENTD AREA AWAY FROM INCOMPATIBLE SUBSTANCES. WASH THOROUGHLY AFTER HNDLG. REMOVE CONTAM CLTHG & WASH BEFORE REUSE. USE W/ADEQ VENT.

Other Precautions:GROUND & BOND CNTNRS WHEN TRANSFERRING MATL. AVOID CNTCT W/EYES, SKIN & CLTHG. EMPTY CNTNRS RETAIN PROD RESIDUE (LIQ &/OR VAP) & CAN BE DANGEROUS. KEEP CNTNR TIGHTLY CLSD. AVOID CNTCT W/HEAT, SPKS & FLAME. AVOID INGEST & INHAL. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND/EXPOSE EMPTY CNTNRS TO (SUPDAT)

===== Exposure Controls/Personal Protection =====

Respiratory Protection:FOLLOW THE OSHA RESPIRATOR REGULATIONS FOUND IN 29 CFR 1910.134 OR E

UROPEAN STANDARD EN 149. ALWAYS USE A NIOSH OR
EUROPEAN STANDARD EN 149 APPROVED RESPIRATOR WHEN NECESSARY.
Ventilation:USE ADEQUATE GENERAL OR LOCAL EXHAUST VENTILATION TO KEEP
AIRBORNE CONCENTRATIONS BELOW THE PERMISSIBLE EXPOSURE LIMITS.
Protective Gloves:IMPERVIOUS GLOVES .
Eye Protection:ANSI APPROVED CHEMICAL WORKERS GOGGLES .
Other Protective Equipment:ANSI APPROVED EYE WASH AND DELUGE SHOWER .
WEAR APPROPRIATE PROTECTIVE CLOTHING TO MINIMIZE CONTACT WITH SKIN.
Work Hygienic P
ractices:WASH THOROUGHLY AFTER HANDLING. REMOVE
CONTAMINATED CLOTHES AND WASH BEFORE REUSE.
Supplemental Safety and Health
EXTING MEDIA: WATER SPRAY, FOG OR ALCOHOL-RESISTANT FOAM. DO NOT USE
STRAIGHT STREAMS OF WATER. OTHER PRECS: SPKS/OPEN FLAMES. EXPOS
LIMITS: N,N-DIMETHYLFORMAMIDE - ACGIH: 10 PPM; 30 MG/M3; SKIN-POTNT
L FOR CUTANEOUS ABSORPTION. NIOSH: 10 PPM TWA; 30 MG/M3 TWA 500 PPM
IDLH. OSHA-FINAL PELs: 10 PPM TWA; 30 MG/M3 TWA.

===== Physical/Chemical
Properties =====

Boiling Pt:B.P. Text:153760C
Melt/Freeze Pt:=-61.C, -77.8F
Decomp Temp:=-350.C, 662.F
Vapor Pres:3.725 MM HG
Vapor Density:2.5(AIR=1)
Spec Gravity:0.9450
pH:6.7
Viscosity:0.8 MPAS 20 DEG
Solubility in Water:SOLUBLE
Appearance and Odor:CLEAR, COLORLESS TO PALE YELLOW LIQUID - CLEAR;
AMINE-LIKE ODOR.

===== Stability and Reactivity Data =====

Stability Indicator/Materials to Avoid:YES
ACIDS (MINERAL, NON-OXIDIZING, EG HYDROCHLORIC ACID,
HYDROFLUORIC ACID,
MURIATIC ACID, PHOSOPHORIC ACID), ACIDS (MINERAL, OXIDIZING, EG
CHROMIC ACID, HYPOCHLOROUS ACID, NITRIC ACID, SULFURIC ACID),
METALS (ALKALI & ALKALINE
Stability Condition to Avoid:INCOMPATIBLE MATERIALS, IGNITION SOURCES,
STRONG OXIDANTS.
Hazardous Decomposition Products:CARBON MONOXIDE, OXIDES OF NITROGEN,
CARBON DIOXIDE.

===== Toxicological Information =====

Toxicological Information:CAS # 68-12-2. LD50/LC50: INHALATION, M

OUSE:

LC50 = 9400 MG/M3/2H; ORAL, MOUSE: LD50 = 3700 MG/KG; SKIN, RABBIT:
LD50 = 4720 MG/KG. CARCINOGENICITY: ACGIH: A4 - NOT CLASSIFIABLE AS
HUMAN CARCINOGEN. OSHA: POSSIBLE SELECT CARCINOGEN. IARC:GROUP 2B
CARCINOGEN. EPIDEMIOLOGY: A SIGNIFICANT EXCESS OF PROSTATE CANCER
WAS OBSERVED AMONG WORKERS EXPOSED TO DMF AND ACRYLONITRILE.
TERATOGENICITY: EXPERIMENTAL TERATOGEN EFFECTS HAVE BEEN REPORTED.
REPRODUCTIVE EFFECTS: EXPERIMENTAL REPRODUCTIVE EFFECTS HAVE BEEN

REPORTED. NEUROTOXICITY: NO DATA AVAILABLE. MUTAGENICITY: HUMAN
MUTATION DATA REPORTED. OTHER STUDIES: NO DATA AVAILABLE.

===== Ecological Information =====

Ecological:EXOTOXICITY: NOT AVAIL. ENVIRONMENTAL FATE: SUBSTANCE
EXPECTED TO BIODEGRADE RAPIDLY IN ENVIRONMENT & SHOULD BE HIGHLY
MOBILE IN SOIL. PHYSICAL/CHEM:NOT AVAIL. OTHER:NOT AVAIL. --FED REG
INFO:POLLUTANTS UNDER CWA. NONE OF CHEMS IN PROD CONSIDERED HIGHLY
HAZ BY OSHA. EUROPEAN

INTERNATIONAL REGS - EUROPEAN LABELING I/A/W
EC DIRECTIVES. HAZ SYMBOLS: T. RISK PHRASES: R 20/21 HARMFUL BY
INHAL & IN CONTACT WITH SKIN. R 36 IRRIT TO EYES. R 61 MAY CAUSE HARM
TO UNBORN CHILD. SAFETY PHRASES: S 45 IN CASE OF ACCIDENT/IF YOU FEEL
UNWELL, SEEK MED ADVICE IMMEDIATE (SHOW LABEL WHERE POSS). S 53 AVOID
EXPOS - OBTAIN SPECIAL INSTRUCTIONS (TRANSPORT INFO)

===== Disposal Considerations =====

Waste Disposal Methods:DISPOSE OF IN A MANNER
CONSISTENT WITH FEDERAL,
STATE AND LOCAL REGULATIONS. RCRA D-SERIES MAXIMUM CONCENTRATION OF
CONTAMINANTS: NONE LISTED. RCRA D-SERIES CHRONIC TOXICITY REFERENCE
LEVELS: NONE LISTED. RCRA F-SERIES: NONE LISTED. RCRA P-SERIES:
NONE LISTED. RCRA U-SERIES: NONE LISTED.

===== MSDS Transport Information =====

Transport Information:SHIPPING NAME - US DOT: N,N-DIMETHYLFORMAMIDE,
IATA:NO INFO AVAILABLE, RID/ADR:NO INFO AVAILABLE, IMO:NO INFO AVAILABLE,
CANADA

TDG: N,N-DIMETHYLFORMAMIDE. HAZ CLASS - US DOT:3; CANADA
TDG:3. UN NUMBER: US DOT:UN 2265; CANADA TDG:UN2265. PACKING
GROUP-US DOT:III; CANADA TDG:III. ADDNL INFO: CANADA TDG: FL PT
58C. --ECOLOGICAL INFO: BEFORE USE. WGK (WATER DANGER/PROT) - CAS
#68-12-2:1. CANADA - CAS #68-12-2 LISTED ON CANADA'S DSL/NDL
LIST. PROD HAS WHMIS CLASSIFICATION OF B3, D2B. NOT LISTED ON
CANADA'S INGRED DISCLOSURE LIST. EXPOS LIMS: CAS #68-12-2:
OEL-AUSTRALIA:TWA 10PPM (30MG/M3); SKIN
OEL-BELGIUM: TWA 10PPM
(30MG/M3); (SARA REG INFO)

===== Regulatory Information =====

SARA Title III Information:SECTION 302 (RQ):NONE OF THE CHEMS IN MATL
HAVE RQ. SECTION 302 (TPQ):NONE OF CHEMS IN PROD HAVE TPQ. SARA
CODES CAS #68-12-2; ACUTE, FLAM. SECTION 313: MATL CONTAINS
N,N-DIMETHYLFORMAMIDE (CAS #68-12-2, 100%), WHICH IS SUBJECT TO
REPORTINGREQS OF SECTION 313 OF SARA TITLE III & 40 CFR PART 373.
--TRANSPORT INFO: SKIN OEL-CZ

ECHOSLOVAKIA:TWA 30MG/M3; STEL 60
MG/M3 OEL-DENMARK:TWA 10PPM (30MG/M3); SKIN OEL-FINLAND:TWA 10PPM
(30MG/M3); STEL 20PPM (60MG/M3); SKIN OEL-FRANCE:TWA 10PPM
(30MG/M3); SKIN OEL-GERMANY:TWA 20PPM (60MG/M3); SKIN
OEL-HUNGARY:TWA 10MG/M3; STEL 20MG/M3; SKIN OEL-JAPAN:TWA 10PPM
(30MG/M3); SKIN OEL- (STATE REG INFO)

Federal Regulatory Information:CAS #68-12-2 - LISTED ON THE TSCA
INVENTORY. HLTH & SAFETY REPORTING LIST: EFFECTIVE DATE: APRIL
13,1989; SUNSET DATE: 12/19/19

95. CHEM TEST RULES:NONE OF CHEMS IN
PROD ARE UNDER CHEM TEST RULE. NONE OF CHEMS ARE LISTED UNDER TSCA
SECTION 12B. NONE OF CHEMS IN MATL HAVE SNUR UNDER TSCA. CLEAN AIR
ACT: #68-12-2 IS LISTED AS HAZ AIR POLLUTANT. THIS MATL DOES NOT
CONTN ANY CLASS 1 OZONE DEPLETORS. MATL DOES NOT CONTN ANY CLASS 2
OZONE DEPLETORS. CLEAN WATER ACT: NONE OF CHEMS IN PROD ARE LISTED
AS HAZ SUBSTANCES UNDER CWA. NONE OF CHEMS ARE LISTED AS PRIORITY
POLLUTANTS UNDER CWA. NONE OF CHEMS
IN PROD LISTED AS TOXIC
(ECOLOGICAL INFO)

State Regulatory Information:CAS #68-12-2 CAN BE FOUND ON FOLLOWING
STATE RIGHT TO KNOW LISTS: CA, NJ, FL, PA, MN, MA. CA NO
SIGNIFICANT RISK LEVEL:NONE OF CHEMS IN PROD LISTED. --SARA TITLE
III: NETHERLANDS:TWA 10PPM (30MG/M3); SKIN OEL-PHILLIPPINES:TWA
10PPM (30MG/M3); SKIN OEL-POLAND:TWA 10MG/M3 OEL-RUSSIA:TWA 10PPM;
STEL 10MG/M3; SKIN OEL-SWEDEN:TWA 10PPM (30MG/M3); STEL 15PPM
(45MG/M3); SKIN OEL-SWITZERLAND:TWA 10PPM 93

0 MG/M3); STEL 20PPM;
SKIN OEL-TURKEY:TWA 10PPM (30MG/M3); SKIN OEL-UNITED KINGDOM:TWA
10PPM (30MG/M3) ; STEL 20PPM; SKIN OEL BULGARIA, COLOMBIA, JORDAN,
KOREA CHECK ACGIH TLV. OEL NEW ZEALAND, SINGAPORE, VIETNAM CHECK
ACGIH TLV.

===== Other Information =====

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