

SAFETY DATA SHEET

Chem-Impex International Inc.

Tel: (630) 766-2112
E-mail: sales@chemimpex.com
Shipping and Correspondence:
935 Dillon Drive
Wood Dale, IL 60191 USA

Fax: (630) 766-2218
Web site: www.chemimpex.com
Manufacturing site:
825 Dillon Drive
Wood Dale, IL 60191 USA

SECTION 1. CHEMICAL IDENTIFICATION

CATALOG #: 30143
NAME: *N,N*-Dimethylformamide
SYNONYMS: *N*-Formyldimethylamine
24 HOUR EMERGENCY TELEPHONE: (800) 535-5053(USA)
352-323-3500 (INTERNATIONAL)
TO REQUEST AN MSDS: (800) 869-9290
CUSTOMER SERVICE: (630) 766-2112

SECTION 2. HAZARDS IDENTIFICATION

CLASSIFICATION OF THE SUBSTANCE OR MIXTURE

GHS CLASSIFICATION IN ACCORDANCE WITH 29 CFR 1910 (OSHA HCS)
FLAMMABLE LIQUIDS (CATEGORY 3), H226
ACUTE TOXICITY, INHALATION (CATEGORY 4), H332
ACUTE TOXICITY, DERMAL (CATEGORY 4), H312
EYE IRRITATION (CATEGORY 2A), H319

CARCINOGENICITY (CATEGORY 1B), H350
REPRODUCTIVE TOXICITY (CATEGORY 1B), H360

FOR THE FULL TEXT OF THE H-STATEMENTS MENTIONED IN THIS SECTION, SEE SECTION 16.

**GHS LABEL ELEMENTS, INCLUDING PRECAUTIONARY STATEMENTS
PICTOGRAM**



SIGNAL WORD DANGER

HAZARD STATEMENT(S)

H226 FLAMMABLE LIQUID AND VAPOUR.
H312 + H332 HARMFUL IN CONTACT WITH SKIN OR IF INHALED
H319 CAUSES SERIOUS EYE IRRITATION.
H350 MAY CAUSE CANCER.
H360 MAY DAMAGE FERTILITY OR THE UNBORN CHILD.

PRECAUTIONARY STATEMENT(S)

P201 OBTAIN SPECIAL INSTRUCTIONS BEFORE USE.
P202 DO NOT HANDLE UNTIL ALL SAFETY PRECAUTIONS HAVE BEEN READ AND UNDERSTOOD.
P210 KEEP AWAY FROM HEAT/SPARKS/OPEN FLAMES/HOT SURFACES. - NO SMOKING.
P233 KEEP CONTAINER TIGHTLY CLOSED.
P240 GROUND/BOND CONTAINER AND RECEIVING EQUIPMENT.
P241 USE EXPLOSION-PROOF ELECTRICAL/ VENTILATING/ LIGHTING/ EQUIPMENT.
P242 USE ONLY NON-SPARKING TOOLS.
P243 TAKE PRECAUTIONARY MEASURES AGAINST STATIC DISCHARGE.
P261 AVOID BREATHING DUST/ FUME/ GAS/ MIST/ VAPOURS/ SPRAY.
P264 WASH SKIN THOROUGHLY AFTER HANDLING.
P271 USE ONLY OUTDOORS OR IN A WELL-VENTILATED AREA.
P280 WEAR PROTECTIVE GLOVES/ PROTECTIVE CLOTHING/ EYE PROTECTION/ FACE PROTECTION.
P303 + P361 + P353 IF ON SKIN (OR HAIR): REMOVE/ TAKE OFF IMMEDIATELY ALL CONTAMINATED CLOTHING. RINSE SKIN WITH WATER/ SHOWER.
P304 + P340 + P312 IF INHALED: REMOVE PERSON TO FRESH AIR AND KEEP COMFORTABLE FOR BREATHING. CALL A POISON CENTER/DOCTOR IF YOU FEEL UNWELL.
P305 + P351 + P338 IF IN EYES: RINSE CAUTIOUSLY WITH WATER FOR SEVERAL MINUTES. REMOVE CONTACT LENSES, IF PRESENT AND EASY TO DO. CONTINUE RINSING.
P308 + P313 IF EXPOSED OR CONCERNED: GET MEDICAL ADVICE/ ATTENTION.
P337 + P313 IF EYE IRRITATION PERSISTS: GET MEDICAL ADVICE/ ATTENTION.
P363 WASH CONTAMINATED CLOTHING BEFORE REUSE.
P370 + P378 IN CASE OF FIRE: USE DRY SAND, DRY CHEMICAL OR ALCOHOL-RESISTANT FOAM TO EXTINGUISH.

P403 + P235
P405
P501

STORE IN A WELL-VENTILATED PLACE. KEEP COOL.
STORE LOCKED UP.
DISPOSE OF CONTENTS/ CONTAINER TO AN APPROVED
WASTE DISPOSAL PLANT.

**HAZARDS NOT
OTHERWISE
CLASSIFIED (HNOC)
OR NOT COVERED
BY GHS**

RAPIDLY ABSORBED THROUGH SKIN.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

MF: C₃H₇NO
MW: 73.1
CAS-NO. 68-12-2
PURITY: ≥ 99.8% (GC)

HAZARDOUS COMPONENTS

COMPONENT	CLASSIFICATION	CONCENTRATION
<i>N,N</i> -Dimethylformamide		
	FLAM. LIQ. 3; ACUTE TOX. 4; EYE IRRIT. 2A; CARC. 1B; REPR. 1B; H226, H332, H312, H319, H350, H360	≤ 100 %

FOR THE FULL TEXT OF THE H-STATEMENTS MENTIONED IN THIS SECTION, SEE SECTION 16.

SECTION 4. FIRST-AID MEASURES

DESCRIPTION OF FIRST AID MEASURES

GENERAL ADVICE CONSULT A PHYSICIAN. SHOW THIS SAFETY DATA SHEET TO THE DOCTOR IN ATTENDANCE.MOVE OUT OF DANGEROUS AREA.

IF INHALED FRESH AIR. IMMEDIATELY CALL IN PHYSICIAN. IF BREATHING STOPS: IMMEDIATELY APPLY ARTIFICIAL RESPIRATION, IF NECESSARY ALSO OXYGEN.

IN CASE OF SKIN CONTACT TAKE OFF IMMEDIATELY ALL CONTAMINATED CLOTHING. RINSE SKIN WITH WATER/ SHOWER. CONSULT A PHYSICIAN.

IN CASE OF EYE CONTACT	RINSE OUT WITH PLENTY OF WATER. CALL IN OPHTHALMOLOGIST. REMOVE CONTACT LENSES.
IF SWALLOWED	IMMEDIATELY MAKE VICTIM DRINK WATER (TWO GLASSES AT MOST). CONSULT A PHYSICIAN.
MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED	THE MOST IMPORTANT KNOWN SYMPTOMS AND EFFECTS ARE DESCRIBED IN THE LABELLING (SEE SECTION 2.2) AND/OR IN SECTION 11
INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED	NO DATA AVAILABLE

SECTION 5. FIRE AND EXPLOSION DATA

EXTINGUISHING MEDIA

SUITABLE EXTINGUISHING MEDIA	SUITABLE EXTINGUISHING MEDIA WATER FOAM CARBON DIOXIDE (CO ₂) DRY POWDER
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UNSUITABLE EXTINGUISHING MEDIA
FOR THIS SUBSTANCE/MIXTURE NO LIMITATIONS OF EXTINGUISHING AGENTS ARE GIVEN.

SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE

CARBON OXIDES
NITROGEN OXIDES (NO_x)
COMBUSTIBLE.
VAPORS ARE HEAVIER THAN AIR AND MAY SPREAD ALONG FLOORS.
FORMS EXPLOSIVE MIXTURES WITH AIR AT ELEVATED TEMPERATURES.
DEVELOPMENT OF HAZARDOUS COMBUSTION GASES OR VAPOURS POSSIBLE IN THE EVENT OF FIRE.

ADVICE FOR FIREFIGHTERS

STAY IN DANGER AREA ONLY WITH SELF-CONTAINED BREATHING APPARATUS. PREVENT SKIN CONTACT BY KEEPING A SAFE DISTANCE OR BY WEARING SUITABLE PROTECTIVE CLOTHING.

FURTHER INFORMATION

REMOVE CONTAINER FROM DANGER ZONE AND COOL WITH WATER. SUPPRESS (KNOCK DOWN) GASES/VAPORS/MISTS WITH A WATER SPRAY JET. PREVENT FIRE EXTINGUISHING WATER FROM CONTAMINATING SURFACE WATER OR THE GROUND WATER SYSTEM.

SECTION 6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES	ADVICE FOR NON-EMERGENCY PERSONNEL: DO NOT BREATHE VAPORS, AEROSOLS. AVOID SUBSTANCE CONTACT. ENSURE ADEQUATE VENTILATION. KEEP AWAY FROM HEAT AND SOURCES OF IGNITION. EVACUATE THE DANGER AREA, OBSERVE EMERGENCY PROCEDURES, CONSULT AN EXPERT. FOR PERSONAL PROTECTION SEE SECTION 8.
ENVIRONMENTAL PRECAUTIONS	DO NOT LET PRODUCT ENTER DRAINS. RISK OF EXPLOSION.
METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING UP	COVER DRAINS. COLLECT, BIND, AND PUMP OFF SPILLS. OBSERVE POSSIBLE MATERIAL RESTRICTIONS (SEE SECTIONS 7 AND 10). TAKE UP CAREFULLY WITH LIQUID-ABSORBENT MATERIAL. DISPOSE OF PROPERLY. CLEAN UP AFFECTED AREA.
REFERENCE TO OTHER SECTIONS	FOR DISPOSAL SEE SECTION 13.

SECTION 7. HANDLING AND STORAGE

PRECAUTIONS FOR SAFE HANDLING	WORK UNDER HOOD. DO NOT INHALE SUBSTANCE/MIXTURE. AVOID GENERATION OF VAPOURS/AEROSOLS. KEEP AWAY FROM OPEN FLAMES, HOT SURFACES AND SOURCES OF IGNITION. TAKE PRECAUTIONARY MEASURES AGAINST STATIC DISCHARGE. IMMEDIATELY CHANGE CONTAMINATED CLOTHING. APPLY PREVENTIVE SKIN PROTECTION. WASH HANDS AND FACE AFTER WORKING WITH SUBSTANCE. FOR PRECAUTIONS SEE SECTION 2.2.
CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES	KEEP CONTAINER TIGHTLY CLOSED IN A DRY AND WELL-VENTILATED PLACE. KEEP AWAY FROM HEAT AND SOURCES OF IGNITION. KEEP LOCKED UP OR IN AN AREA ACCESSIBLE ONLY TO QUALIFIED OR AUTHORIZED PERSONS. HANDLE AND STORE UNDER INERT GAS. Store at RT
SPECIFIC END USE(S)	APART FROM THE USES MENTIONED IN SECTION 1.2 NO OTHER SPECIFIC USES ARE STIPULATED

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

CONTROL PARAMETERS

COMPONENTS WITH WORKPLACE CONTROL PARAMETERS

COMPONENT	CAS-NO.	VALUE	CONTROL PARAMETERS	BASIS
<i>N,N</i> -Dimethylformamide	68-12-2	TWA	5 PPM	USA. ACGIH THRESHOLD LIMIT VALUES (TLV)
	REMARKS	CONFIRMED ANIMAL CARCINOGEN WITH UNKNOWN RELEVANCE TO HUMANS DANGER OF CUTANEOUS ABSORPTION		
		TWA	10 PPM 30 MG/M3	USA. NIOSH RECOMMENDED EXPOSURE LIMITS
		POTENTIAL FOR DERMAL ABSORPTION		
		TWA	10 PPM 30 MG/M3	USA. OCCUPATIONAL EXPOSURE LIMITS (OSHA) - TABLE Z-1 LIMITS FOR AIR CONTAMINANTS
		SKIN DESIGNATION		
		PEL	10 PPM 30 MG/M3	CALIFORNIA PERMISSIBLE EXPOSURE LIMITS FOR CHEMICAL CONTAMINANTS
		SKIN		

BIOLOGICAL OCCUPATIONAL EXPOSURE LIMITS

COMPONENT	CAS-NO.	PARAMETERS	VALUE	BIOLOGICAL SPECIMEN	BASIS
<i>N,N</i> -Dimethylformamide	68-12-2	TOTAL NMETHYLFORMAMIDE	30 MG/L	URINE	ACGIH - BIOLOGICAL EXPOSURE INDICES (BEI)
	REMARKS	END OF SHIFT (AS SOON AS POSSIBLE AFTER EXPOSURE CEASES)			
		N-ACETYL-S-(NMETHYLCARBAMOYL) CYSTEINE	30 MG/L	URINE	ACGIH - BIOLOGICAL EXPOSURE INDICES (BEI)
		END OF SHIFT AT END OF WORKWEEK			

DERIVED NO EFFECT LEVEL (DNEL)

APPLICATION AREA	EXPOSURE ROUTES	HEALTH EFFECT	VALUE
WORKERS	SKIN CONTACT	ACUTE SYSTEMIC EFFECTS	26.3MG/KG BW/D
WORKERS	INHALATION	ACUTE SYSTEMIC EFFECTS	30 MG/M3
WORKERS	SKIN CONTACT	LONG-TERM SYSTEMIC EFFECTS	3.31MG/KG BW/D
WORKERS	INHALATION	LONG-TERM SYSTEMIC EFFECTS	15 MG/M3
WORKERS	INHALATION	LONG-TERM LOCAL EFFECTS	15 MG/M3
WORKERS	INHALATION	ACUTE LOCAL EFFECTS	30 MG/M3

PREDICTED NO EFFECT CONCENTRATION (PNEC)

COMPARTMENT	VALUE
WATER	30 MG/L
SOIL	16.235 MG/KG
MARINE WATER	3 MG/KG
FRESH WATER	30 MG/L
FRESH WATER SEDIMENT	25.05 MG/KG
ONSITE SEWAGE TREATMENT PLANT	123 MG/L

EXPOSURE CONTROLS**APPROPRIATE ENGINEERING CONTROLS**

IMMEDIATELY CHANGE CONTAMINATED CLOTHING.
APPLY PREVENTIVE SKIN PROTECTION. WASH
HANDS AND FACE AFTER WORKING WITH
SUBSTANCE.

PERSONAL PROTECTIVE EQUIPMENT**EYE/FACE PROTECTION**

USE EQUIPMENT FOR EYE PROTECTION TESTED
AND APPROVED UNDER APPROPRIATE
GOVERNMENT STANDARDS SUCH AS NIOSH (US) OR
EN 166(EU). SAFETY GLASSES

SKIN PROTECTION

HANDLE WITH GLOVES. GLOVES MUST BE INSPECTED PRIOR TO USE. USE PROPER GLOVE REMOVAL TECHNIQUE (WITHOUT TOUCHING GLOVE'S OUTER SURFACE) TO AVOID SKIN CONTACT WITH THIS PRODUCT. DISPOSE OF CONTAMINATED GLOVES AFTER USE IN ACCORDANCE WITH APPLICABLE LAWS AND GOOD LABORATORY PRACTICES. WASH AND DRY HANDS.

FULL CONTACT

MATERIAL: BUTYL-RUBBER
MINIMUM LAYER THICKNESS: 0.7 MM
BREAK THROUGH TIME: 480 MIN
MATERIAL TESTED: BUTOJECT (KCL 898)

SPLASH CONTACT

MATERIAL: VITON
MINIMUM LAYER THICKNESS: 0.7 MM
BREAK THROUGH TIME: 240 MIN
MATERIAL TESTED: VITOJECT (KCL 890 / ALDRICH Z677698, SIZE M)

IF USED IN SOLUTION, OR MIXED WITH OTHER SUBSTANCES, AND UNDER CONDITIONS WHICH DIFFER FROM EN 374, CONTACT THE SUPPLIER OF THE CE APPROVED GLOVES. THIS RECOMMENDATION IS ADVISORY ONLY AND MUST BE EVALUATED BY AN INDUSTRIAL HYGIENIST AND SAFETY OFFICER FAMILIAR WITH THE SPECIFIC SITUATION OF ANTICIPATED USE BY OUR CUSTOMERS. IT SHOULD NOT BE CONSTRUED AS OFFERING AN APPROVAL FOR ANY SPECIFIC USE SCENARIO.

BODY PROTECTION

COMPLETE SUIT PROTECTING AGAINST CHEMICALS, FLAME RETARDANT ANTISTATIC PROTECTIVE CLOTHING. THE TYPE OF PROTECTIVE EQUIPMENT MUST BE SELECTED ACCORDING TO THE CONCENTRATION AND AMOUNT OF THE DANGEROUS SUBSTANCE AT THE SPECIFIC WORKPLACE.

RESPIRATORY PROTECTION

WHERE RISK ASSESSMENT SHOWS AIR-PURIFYING RESPIRATORS ARE APPROPRIATE USE A FULL-FACE RESPIRATOR WITH MULTIPURPOSE COMBINATION (US) OR TYPE ABEK (EN 14387) RESPIRATOR CARTRIDGES AS A BACKUP TO ENGINEERING CONTROLS. IF THE RESPIRATOR IS THE SOLE MEANS OF PROTECTION, USE A FULL-FACE SUPPLIED AIR RESPIRATOR. USE RESPIRATORS AND COMPONENTS TESTED AND APPROVED UNDER APPROPRIATE GOVERNMENT STANDARDS SUCH AS NIOSH (US) OR CEN (EU)

CONTROL OF ENVIRONMENTAL EXPOSURE DO NOT LET PRODUCT ENTER DRAINS. RISK OF EXPLOSION.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE	Clear colorless to slightly yellow liquid
ODOUR	AMINE-LIKE
ODOUR THRESHOLD	0.329 PPM
PH	7 AT 200 G/L AT 20 C
MELTING POINT/FREEZING POINT	
INITIAL BOILING POINT AND BOILING RANGE	152 - 154 °C
FLASH POINT	
EVAPORATION RATE	NO DATA AVAILABLE
FLAMMABILITY (SOLID, GAS)	NO DATA AVAILABLE
UPPER/LOWER FLAMMABILITY OR EXPLOSIVE LIMITS	UPPER EXPLOSION LIMIT: 16 %(V) LOWER EXPLOSION LIMIT: 2.2 %(V)
VAPOUR PRESSURE	3.77 HPA AT 20 C
VAPOUR DENSITY	2.52 - (AIR = 1.0)
RELATIVE DENSITY	0.94
WATER SOLUBILITY	1,000 G/L AT 20 C - COMPLETELY MISCIBLE
PARTITION COEFFICIENT: N- OCTANOL/WATER	LOG POW: -0.85 AT 25 C - BIOACCUMULATION IS NOT EXPECTED.
AUTO-IGNITION TEMPERATURE	435 C AT 1,013 HPA
DECOMPOSITION TEMPERATURE	> 350 C
VISCOSITY	NO DATA AVAILABLE
EXPLOSIVE PROPERTIES	NO DATA AVAILABLE
OXIDIZING PROPERTIES	NONE

OTHER SAFETY INFORMATION

RELATIVE VAPOUR DENSITY	2.52 - (AIR = 1.0)
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SECTION 10. STABILITY AND REACTIVITY

REACTIVITY	VAPOR/AIR-MIXTURES ARE EXPLOSIVE AT INTENSE WARMING.
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CHEMICAL STABILITY	THE PRODUCT IS CHEMICALLY STABLE UNDER STANDARD AMBIENT CONDITIONS (ROOM TEMPERATURE).
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**POSSIBILITY OF
HAZARDOUS
REACTIONS**

VIOLENT REACTIONS POSSIBLE WITH:
ALKALI METALS
HALOGENS
HALIDES
REDUCING AGENTS
TRIETHYLALUMINIUM
NITRATES
METALLIC OXIDES
NONMETALLIC OXIDES
HALOGENATED HYDROCARBON
ISOCYANATES
SODIUM
SODIUM BOROHYDRIDE
HYDRIDES
OXIDIZING AGENTS
OXIDES OF PHOSPHORUS
TIN
STRONG OXIDIZING AGENTS
RUBBER
COPPER
COPPER ALLOYS
VARIOUS METALS
A RISK OF EXPLOSION AND/OR OF TOXIC GAS
FORMATION EXISTS WITH THE FOLLOWING
SUBSTANCES: AZIDES
BROMINE
CHLORINE
CHROMIUM(VI) OXIDE
POTASSIUM PERMANGANATE
TRIETHYLALUMINIUM
CHLORATES
HALOGENATED HYDROCARBON WITH IRON

CONDITIONS TO AVOID

HEATING.

**INCOMPATIBLE
MATERIALS**

VARIOUS PLASTICS, COPPER, COPPER ALLOYS, TIN,
STRONG OXIDIZING AGENTS

**HAZARDOUS
DECOMPOSITION
PRODUCTS**

IN THE EVENT OF FIRE: SEE SECTION 5

SECTION 11. TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

ACUTE TOXICITY

LD50 ORAL - RAT - MALE AND FEMALE - 3,010 MG/KG

ACUTE TOXICITY ESTIMATE INHALATION - 4 H - 11.1
MG/L VAPOR (EXPERT JUDGMENT)

REMARKS: (REGULATION (EC) NO 1272/2008, ANNEX
VI)

LD50 DERMAL - RABBIT - 1,500 MG/KG REMARKS:
(REGULATION (EC) NO 1272/2008, ANNEX VI)
(IUCLID)

NO DATA AVAILABLE

**SKIN
CORROSION/IRRITATION**

SKIN RABBIT
RESULT: NO SKIN IRRITATION - 20 H
REMARKS: (ECHA)

**SERIOUS EYE
DAMAGE/EYE IRRITATION**

EYES RABBIT
RESULT: IRRITATING TO EYES.
(OECD TEST GUIDELINE 405)
REMARKS: (REGULATION (EC) NO 1272/2008, ANNEX
VI)

**RESPIRATORY OR SKIN
SENSITISATION**

LOCAL LYMPH NODE ASSAY (LLNA) MOUSE
RESULT: NEGATIVE

**GERM CELL
MUTAGENICITY**

TEST TYPE: SISTER CHROMATID EXCHANGE ASSAY
TEST SYSTEM: CHINESE HAMSTER OVARY CELLS
METABOLIC ACTIVATION: WITH AND WITHOUT
METABOLIC ACTIVATION

RESULT: NEGATIVE

REMARKS: (ECHA)

TEST TYPE: UNSCHEDULED DNA SYNTHESIS ASSAY
TEST SYSTEM: HUMAN DIPLOID FIBROBLASTS
METABOLIC ACTIVATION: WITH AND WITHOUT
METABOLIC ACTIVATION

RESULT: NEGATIVE

REMARKS: (ECHA)

TEST TYPE: AMES TEST
TEST SYSTEM: SALMONELLA TYPHIMURIUM
METABOLIC ACTIVATION: WITH AND WITHOUT
METABOLIC ACTIVATION

RESULT: NEGATIVE

REMARKS: (ECHA)

TEST TYPE: MICRONUCLEUS TEST
SPECIES: MOUSE
CELL TYPE: BONE MARROW
APPLICATION ROUTE: INTRAPERITONEAL INJECTION

RESULT: NEGATIVE

REMARKS: (ECHA)

TEST TYPE: DOMINANT LETHAL TEST
SPECIES: RAT

APPLICATION ROUTE: INHALATION

RESULT: NEGATIVE

REMARKS: (ECHA)

TEST TYPE: DOMINANT LETHAL TEST
SPECIES: MOUSE

APPLICATION ROUTE: INTRAPERITONEAL

RESULT: NEGATIVE

REMARKS: (ECHA)

CARCINOGENICITY

IARC:

NO INGREDIENT OF THIS PRODUCT PRESENT AT
LEVELS GREATER THAN OR EQUAL TO 0.1% IS
IDENTIFIED AS PROBABLE, POSSIBLE OR CONFIRMED
HUMAN CARCINOGEN BY IARC.

NTP:

NO INGREDIENT OF THIS PRODUCT PRESENT AT
LEVELS GREATER THAN OR EQUAL TO 0.1% IS
IDENTIFIED AS A KNOWN OR ANTICIPATED
CARCINOGEN BY NTP.

OSHA: NO COMPONENT OF THIS PRODUCT PRESENT AT LEVELS GREATER THAN OR EQUAL TO 0.1% IS ON OSHA S LIST OF REGULATED CARCINOGENS.

REPRODUCTIVE TOXICITY MAY DAMAGE THE UNBORN CHILD.

SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE NO DATA AVAILABLE

SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE NO DATA AVAILABLE

ASPIRATION HAZARD NO DATA AVAILABLE

ADDITIONAL INFORMATION REPEATED DOSE TOXICITY - RAT - MALE AND FEMALE - ORAL - 28 D - NOAEL (NO OBSERVED ADVERSE EFFECT LEVEL) - 238 MG/KG - LOAEL (LOWEST OBSERVED ADVERSE EFFECT LEVEL) - 475 MG/KG
REMARKS: SUBACUTE TOXICITY

RTECS: LQ2100000

VOMITING
DIARRHEA
ABDOMINAL PAIN

WARNING: INTOLERANCE FOR ALCOHOL CAN OCCUR UP TO 4 DAYS AFTER DIMETHYLFORMAMIDE EXPOSURE. N,N-DIMETHYLFORMAMIDE IS CONSIDERED TO BE A POTENT LIVER TOXIN.

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

AFTER ABSORPTION: HEADACHE, DIZZINESS, DROWSINESS

DAMAGE TO: KIDNEY, LIVER

THIS SUBSTANCE SHOULD BE HANDLED WITH PARTICULAR CARE.

SECTION 12. ECOLOGICAL INFORMATION

TOXICITY

TOXICITY TO FISH	FLOW-THROUGH TEST LC50 - LEPOMIS MACROCHIRUS (BLUEGILL SUNFISH) - 7,100 MG/L - 96 H
TOXICITY TO DAPHNIA AND OTHER AQUATIC INVERTEBRATES	STATIC TEST EC50 - DAPHNIA MAGNA (WATER FLEA) - 13,100 MG/L - 48 H
TOXICITY TO ALGAE	STATIC TEST ERC50 - DESMODESMUS SUBSPICATUS (GREEN ALGAE) - > 1,000 MG/L - 72 H
TOXICITY TO DAPHNIA AND OTHER AQUATIC INVERTEBRATES(CHRONIC TOXICITY)	SEMI-STATIC TEST NOEC - DAPHNIA MAGNA (WATER FLEA) - 1,500 MG/L - 21 D REMARKS: (ECHA)

PERSISTENCE AND DEGRADABILITY

BIODEGRADABILITY	AEROBIC - EXPOSURE TIME 21 D RESULT: 100 % - READILY BIODEGRADABLE.
BIOCHEMICAL OXYGEN DEMAND (BOD)	900 MG/G REMARKS: (LIT.)
THEORETICAL OXYGEN DEMAND	1,863 MG/G REMARKS: (LIT.)

BIOACCUMULATIVE POTENTIAL

BIOACCUMULATION	CYPRINUS CARPIO (CARP) - 56 D AT 25 C - 0.002 MG/L(N,N-DIMETHYLFORMAMIDE)
	BIOCONCENTRATION FACTOR (BCF): 0.3 - 1.2
	REMARKS: DOES NOT SIGNIFICANTLY ACCUMULATE IN ORGANISMS.

MOBILITY IN SOIL

NO DATA AVAILABLE

RESULTS OF PBT AND VPVB ASSESSMENT

PBT/VPVB ASSESSMENT NOT AVAILABLE AS
CHEMICAL SAFETY ASSESSMENT NOT
REQUIRED/NOT CONDUCTED

OTHER ADVERSE EFFECTS

STABILITY IN WATER - CA.50 D

REMARKS: REACTION WITH HYDROXYL RADICALS
(CALCULATED)(LIT.)

SECTION 13. DISPOSAL CONSIDERATIONS

WASTE TREATMENT METHODS

PRODUCT BURN IN A CHEMICAL INCINERATOR EQUIPPED WITH AN AFTERBURNER AND SCRUBBER BUT EXERT EXTRA CARE IN IGNITING AS THIS MATERIAL IS HIGHLY FLAMMABLE. OFFER SURPLUS AND NON-RECYCLABLE SOLUTIONS TO A LICENSED DISPOSAL COMPANY. CONTACT A LICENSED PROFESSIONAL WASTE DISPOSAL SERVICE TO DISPOSE OF THIS MATERIAL.

CONTAMINATED PACKAGING DISPOSE OF AS UNUSED PRODUCT.

SECTION 14. TRANSPORT INFORMATION

DOT (US)
PROPER SHIPPING NAME: N,N-DIMETHYLFORMAMIDE
UN NUMBER: 2265
CLASS: 3
PACKING GROUP: III
REPORTABLE QUANTITY (RQ): 100 LBS
POISON INHALATION HAZARD: NO

IMDG
PROPER SHIPPING NAME: N,N-DIMETHYLFORMAMIDE
UN NUMBER: 2265
CLASS: 3
PACKING GROUP: III
EMS-NO: F-E, S-D

IATA
PROPER SHIPPING NAME: N,N-DIMETHYLFORMAMIDE
UN NUMBER: 2265
CLASS: 3
PACKING GROUP: III

SECTION 15. REGULATORY INFORMATION

SARA 302 COMPONENTS THIS MATERIAL DOES NOT CONTAIN ANY COMPONENTS WITH A SECTION 302 EHS TPQ.

SARA 313 COMPONENTS THE FOLLOWING COMPONENTS ARE SUBJECT TO REPORTING LEVELS ESTABLISHED BY SARA TITLE III, SECTION 313:

	CAS-NO.	REVISION DATE
<i>N,N</i> -Dimethylformamide	68-12-2	02/24/2020

SARA 311/312 HAZARDS FIRE HAZARD, ACUTE HEALTH HAZARD, CHRONIC HEALTH HAZARD

MASSACHUSETTS RIGHT TO KNOW COMPONENTS

	CAS-NO.	REVISION DATE
<i>N,N</i> -Dimethylformamide	68-12-2	02/24/2020

PENNSYLVANIA RIGHT TO KNOW COMPONENTS

	CAS-NO.	REVISION DATE
<i>N,N</i> -Dimethylformamide	68-12-2	02/24/2020

CALIFORNIA PROP. 65 COMPONENTS WARNING! THIS PRODUCT CONTAINS A CHEMICAL KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER.

	CAS-NO.	REVISION DATE
<i>N,N</i> -Dimethylformamide	68-12-2	10/27/2017

SECTION 16. OTHER INFORMATION

FULL TEXT OF H-STATEMENTS REFERRED TO UNDER SECTIONS 2 AND 3.

H226	FLAMMABLE LIQUID AND VAPOUR.
H312 + H332	HARMFUL IN CONTACT WITH SKIN OR IF INHALED
H319	CAUSES SERIOUS EYE IRRITATION.
H350	MAY CAUSE CANCER.
H360	MAY DAMAGE FERTILITY OR THE UNBORN CHILD.

MSDS LEGEND

MW:	MOLECULAR WEIGHT
MF:	MOLECULAR FORMULA
VOC:	VOLATILE ORGANIC COMPOUNDS
ACGIH:	AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGINISTS
CAS:	CHEMICAL ABSTRACTS SERIVE REGISTRY NUMBER
OSHA:	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
PEL:	PERMISSIBLE EXPOSURE LIMIT (OSHA)
TLV:	THRESHOLD LIMIT VALUE (ACGIH)

IMPORTANT:

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