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SAFETY DATA SHEET

SECTION 1. CHEMICAL IDENTIFICATION

CATALOG #:	36569
NAME:	<i>N,N</i> -Dimethylformamide dimethyl sulfate adduct
SYNONYMS:	DMF-Dimethyl sulfate Methoxymethylene- <i>N,N</i> -dimethyliminium methyl sulfate
24 HOUR EMERGENCY TELEPHONE:	(800) 535-5053(USA) 352-323-3500 (INTERNATIONAL)
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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 4), H227
ACUTE TOXICITY, ORAL (CATEGORY 3), H301

ACUTE TOXICITY, INHALATION (CATEGORY 3), H331
ACUTE TOXICITY, DERMAL (CATEGORY 3), H311
SKIN IRRITATION (CATEGORY 2), H315
SERIOUS EYE DAMAGE (CATEGORY 1), H318
RESPIRATORY SENSITISATION (CATEGORY 1), H334
CARCINOGENICITY (CATEGORY 1B), H350
SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (CATEGORY 3),
RESPIRATORY SYSTEM, H335

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)

H227 COMBUSTIBLE LIQUID.
H301 + H311 + H331 TOXIC IF SWALLOWED, IN CONTACT WITH SKIN OR IF
INHALED.
H315 CAUSES SKIN IRRITATION.
H318 CAUSES SERIOUS EYE DAMAGE.
H334 MAY CAUSE ALLERGY OR ASTHMA SYMPTOMS OR
BREATHING DIFFICULTIES IF INHALED.
H335 MAY CAUSE RESPIRATORY IRRITATION.
H350 MAY CAUSE CANCER.

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.
P261 AVOID BREATHING DUST/ FUME/ GAS/ MIST/ VAPOURS/
SPRAY.
P264 WASH SKIN THOROUGHLY AFTER HANDLING.
P270 DO NOT EAT, DRINK OR SMOKE WHEN USING THIS
PRODUCT.
P271 USE ONLY OUTDOORS OR IN A WELL-VENTILATED AREA.
P280 WEAR PROTECTIVE GLOVES/ PROTECTIVE CLOTHING/ EYE
PROTECTION/ FACE PROTECTION.
P285 IN CASE OF INADEQUATE VENTILATION WEAR
RESPIRATORY PROTECTION.
P301 + P310 + P330 IF SWALLOWED: IMMEDIATELY CALL A POISON
CENTER/DOCTOR. RINSE MOUTH.
P302 + P352 + P312 IF ON SKIN: WASH WITH PLENTY OF WATER. CALL A POISON
CENTER/DOCTOR IF YOU FEEL UNWELL.
P304 + P340 + P311 IF INHALED: REMOVE PERSON TO FRESH AIR AND KEEP
COMFORTABLE FOR BREATHING. CALL A POISON
CENTER/DOCTOR.
P305 + P351 + P338 +
P310 IF IN EYES: RINSE CAUTIOUSLY WITH WATER FOR SEVERAL
MINUTES. REMOVE CONTACT LENSES, IF PRESENT AND

P308 + P313	EASY TO DO. CONTINUE RINSING. IMMEDIATELY CALL A POISON CENTER/DOCTOR.
P332 + P313	IF EXPOSED OR CONCERNED: GET MEDICAL ADVICE/ ATTENTION
P362	IF SKIN IRRITATION OCCURS: GET MEDICAL ADVICE/ ATTENTION.
P370 + P378	TAKE OFF CONTAMINATED CLOTHING AND WASH BEFORE REUSE.
P403 + P233	IN CASE OF FIRE: USE DRY SAND, DRY CHEMICAL OR ALCOHOL-RESISTANT FOAM TO EXTINGUISH.
P403 + P235	STORE IN A WELL-VENTILATED PLACE. KEEP CONTAINER TIGHTLY CLOSED.
P405	STORE IN A WELL-VENTILATED PLACE. KEEP COOL.
P501	STORE LOCKED UP.
	DISPOSE OF CONTENTS/ CONTAINER TO AN APPROVED WASTE DISPOSAL PLANT.
HAZARDS NOT OTHERWISE CLASSIFIED (HNOC) OR NOT COVERED BY GHS	NONE

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

MF:	C ₅ H ₁₃ NO ₅ S
MW:	199.23
CAS-NO.	89712-45-8
PURITY:	≥ 99% (Assay)

HAZARDOUS COMPONENTS

COMPONENT	CLASSIFICATION	CONCENTRATION
<i>N,N</i> -Dimethylformamide dimethyl sulfate adduct	FLAM. LIQ. 4; ACUTE TOX. 3; SKIN IRRIT. 2; EYE DAM. 1; RESP. SENS. 1; CARC. 1B; STOT SE 3; H227, H301, H331, H311, H315, H318, H334, H350, H335	<= 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	IF BREATHED IN, MOVE PERSON INTO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. CONSULT A PHYSICIAN.
IN CASE OF SKIN CONTACT	WASH OFF WITH SOAP AND PLENTY OF WATER. TAKE VICTIM IMMEDIATELY TO HOSPITAL. CONSULT A PHYSICIAN.
IN CASE OF EYE CONTACT	RINSE THOROUGHLY WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES AND CONSULT A PHYSICIAN.
IF SWALLOWED	DO NOT INDUCE VOMITING. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. RINSE MOUTH WITH WATER. 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 USE WATER SPRAY, ALCOHOL-RESISTANT FOAM, DRY CHEMICAL OR CARBON DIOXIDE.
	UNSUITABLE EXTINGUISHING MEDIA DO NOT USE WATER JET.
SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE	CARBON OXIDES, NITROGEN OXIDES (NOX), SULPHUR OXIDES
ADVICE FOR FIREFIGHTERS	WEAR SELF-CONTAINED BREATHING APPARATUS FOR FIREFIGHTING IF NECESSARY.
FURTHER INFORMATION	USE WATER SPRAY TO COOL UNOPENED CONTAINERS.

SECTION 6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES	WEAR RESPIRATORY PROTECTION. AVOID BREATHING VAPOURS, MIST OR GAS. ENSURE ADEQUATE VENTILATION. REMOVE ALL SOURCES OF IGNITION. EVACUATE PERSONNEL TO SAFE AREAS. BEWARE OF VAPOURS ACCUMULATING TO FORM EXPLOSIVE CONCENTRATIONS. VAPOURS CAN ACCUMULATE IN LOW AREAS. FOR PERSONAL PROTECTION SEE SECTION 8.
ENVIRONMENTAL PRECAUTIONS	PREVENT FURTHER LEAKAGE OR SPILLAGE IF SAFE TO DO SO. DO NOT LET PRODUCT ENTER DRAINS.
METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING UP	CONTAIN SPILLAGE, AND THEN COLLECT WITH NON-COMBUSTIBLE ABSORBENT MATERIAL, (E.G. SAND, EARTH, DIATOMACEOUS EARTH, VERMICULITE) AND PLACE IN CONTAINER FOR DISPOSAL ACCORDING TO LOCAL / NATIONAL REGULATIONS (SEE SECTION 13). KEEP IN SUITABLE, CLOSED CONTAINERS FOR DISPOSAL.
REFERENCE TO OTHER SECTIONS	FOR DISPOSAL SEE SECTION 13.

SECTION 7. HANDLING AND STORAGE

PRECAUTIONS FOR SAFE HANDLING	AVOID CONTACT WITH SKIN AND EYES. AVOID INHALATION OF VAPOUR OR MIST. KEEP AWAY FROM SOURCES OF IGNITION - NO SMOKING.TAKE MEASURES TO PREVENT THE BUILD UP OF ELECTROSTATIC CHARGE. FOR PRECAUTIONS SEE SECTION 2.2.
CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES	KEEP CONTAINER TIGHTLY CLOSED IN A DRY AND WELL-VENTILATED PLACE. CONTAINERS WHICH ARE OPENED MUST BE CAREFULLY RESEALED AND KEPT UPRIGHT TO PREVENT LEAKAGE. 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

CONTAINS NO SUBSTANCES WITH OCCUPATIONAL EXPOSURE LIMIT VALUES.

EXPOSURE CONTROLS

APPROPRIATE ENGINEERING CONTROLS AVOID CONTACT WITH SKIN, EYES AND CLOTHING. WASH HANDS BEFORE BREAKS AND IMMEDIATELY AFTER HANDLING THE PRODUCT.

PERSONAL PROTECTIVE EQUIPMENT

EYE/FACE PROTECTION TIGHTLY FITTING SAFETY GOGGLES. FACESHIELD (8-INCH MINIMUM). USE EQUIPMENT FOR EYE PROTECTION TESTED AND APPROVED UNDER APPROPRIATE GOVERNMENT STANDARDS SUCH AS NIOSH (US) OR EN 166(EU).

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.

BODY PROTECTION COMPLETE SUIT PROTECTING AGAINST CHEMICALS, 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 FULLFACE RESPIRATOR WITH MULTI-PURPOSE 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 PREVENT FURTHER LEAKAGE OR SPILLAGE IF SAFE TO DO SO. DO NOT LET PRODUCT ENTER DRAINS.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE	Colorless to dark orange liquid
ODOUR	NO DATA AVAILABLE
ODOUR THRESHOLD	NO DATA AVAILABLE
PH	NO DATA AVAILABLE
MELTING POINT/FREEZING POINT	
INITIAL BOILING POINT AND BOILING RANGE	
FLASH POINT	87 °C
EVAPORATION RATE	NO DATA AVAILABLE
FLAMMABILITY (SOLID, GAS)	NO DATA AVAILABLE
UPPER/LOWER FLAMMABILITY OR EXPLOSIVE LIMITS	NO DATA AVAILABLE
VAPOUR PRESSURE	NO DATA AVAILABLE
VAPOUR DENSITY	6.88 - (AIR = 1.0)
RELATIVE DENSITY	1.349
WATER SOLUBILITY	NO DATA AVAILABLE
PARTITION COEFFICIENT: N- OCTANOL/WATER	NO DATA AVAILABLE
AUTO-IGNITION TEMPERATURE	NO DATA AVAILABLE
DECOMPOSITION TEMPERATURE	NO DATA AVAILABLE
VISCOSITY	NO DATA AVAILABLE
EXPLOSIVE PROPERTIES	NO DATA AVAILABLE
OXIDIZING PROPERTIES	NO DATA AVAILABLE

OTHER SAFETY INFORMATION

RELATIVE VAPOUR DENSITY	6.88 - (AIR = 1.0)
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SECTION 10. STABILITY AND REACTIVITY

REACTIVITY	NO DATA AVAILABLE
CHEMICAL STABILITY	STABLE UNDER RECOMMENDED STORAGE CONDITIONS.
POSSIBILITY OF HAZARDOUS REACTIONS	NO DATA AVAILABLE
CONDITIONS TO AVOID	HEAT, FLAMES AND SPARKS.
INCOMPATIBLE MATERIALS	STRONG OXIDIZING AGENTS

**HAZARDOUS
DECOMPOSITION
PRODUCTS**

OTHER DECOMPOSITION PRODUCTS - NO DATA
AVAILABLE
HAZARDOUS DECOMPOSITION PRODUCTS FORMED
UNDER FIRE CONDITIONS. - CARBON OXIDES,
NITROGEN OXIDES (NOX), SULPHUR OXIDES
IN THE EVENT OF FIRE: SEE SECTION 5

SECTION 11. TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

ACUTE TOXICITY

NO DATA AVAILABLE

INHALATION: NO DATA AVAILABLE

DERMAL: NO DATA AVAILABLE

NO DATA AVAILABLE

**SKIN
CORROSION/IRRITATION**

NO DATA AVAILABLE

**SERIOUS EYE
DAMAGE/EYE IRRITATION**

NO DATA AVAILABLE

**RESPIRATORY OR SKIN
SENSITISATION**

NO DATA AVAILABLE

**GERM CELL
MUTAGENICITY**

NO DATA AVAILABLE

**CARCINOGENICITY
IARC:**

POSSIBLE HUMAN CARCINOGEN
NO COMPONENT 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 COMPONENT 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

NO DATA AVAILABLE

**SPECIFIC TARGET ORGAN
TOXICITY - SINGLE
EXPOSURE**

INHALATION - MAY CAUSE RESPIRATORY
IRRITATION.

SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE	NO DATA AVAILABLE
ASPIRATION HAZARD	NO DATA AVAILABLE
ADDITIONAL INFORMATION	RTECS: NOT AVAILABLE TO THE BEST OF OUR KNOWLEDGE, THE CHEMICAL, PHYSICAL, AND TOXICOLOGICAL PROPERTIES HAVE NOT BEEN THOROUGHLY INVESTIGATED.

SECTION 12. ECOLOGICAL INFORMATION

TOXICITY	NO DATA AVAILABLE
PERSISTENCE AND DEGRADABILITY	NO DATA AVAILABLE
BIOACCUMULATIVE POTENTIAL	NO DATA AVAILABLE
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	NO DATA AVAILABLE

SECTION 13. DISPOSAL CONSIDERATIONS

WASTE TREATMENT METHODS

PRODUCT	OFFER SURPLUS AND NON-RECYCLABLE SOLUTIONS TO A LICENSED DISPOSAL COMPANY. THIS COMBUSTIBLE MATERIAL MAY BE BURNED IN A CHEMICAL INCINERATOR EQUIPPED WITH AN AFTERBURNER AND SCRUBBER. 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: TOXIC LIQUID, ORGANIC, N.O.S. (*N,N*-Dimethylformamide dimethyl sulfate adduct)
UN NUMBER: 2810
CLASS: 6.1
PACKING GROUP: III
REPORTABLE QUANTITY (RQ):
POISON INHALATION HAZARD: NO

IMDG

PROPER SHIPPING NAME: TOXIC LIQUID, ORGANIC, N.O.S. (*N,N*-Dimethylformamide dimethyl sulfate adduct)
UN NUMBER: 2810
CLASS: 6.1
PACKING GROUP: III
EMS-NO: F-A, S-A

IATA

PROPER SHIPPING NAME: TOXIC LIQUID, ORGANIC, N.O.S. (*N,N*-Dimethylformamide dimethyl sulfate adduct)
UN NUMBER: 2810
CLASS: 6.1
PACKING GROUP: III

SECTION 15. REGULATORY INFORMATION

SARA 302 COMPONENTS NO CHEMICALS IN THIS MATERIAL ARE SUBJECT TO THE REPORTING REQUIREMENTS OF SARA TITLE III, SECTION 302.

SARA 313 COMPONENTS THIS MATERIAL DOES NOT CONTAIN ANY CHEMICAL COMPONENTS WITH KNOWN CAS NUMBERS THAT EXCEED THE THRESHOLD (DE MINIMIS) REPORTING LEVELS ESTABLISHED BY SARA TITLE III, SECTION 313.

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

MASSACHUSETTS RIGHT TO KNOW COMPONENTS

NO COMPONENTS ARE SUBJECT TO THE MASSACHUSETTS RIGHT TO KNOW ACT.

PENNSYLVANIA RIGHT TO KNOW COMPONENTS

	CAS-NO.	REVISION DATE
<i>N,N</i> -Dimethylformamide dimethyl sulfate adduct	89712-45-8	

NEW JERSEY RIGHT TO KNOW COMPONENTS

	CAS-NO.	REVISION DATE
<i>N,N</i> -Dimethylformamide dimethyl sulfate adduct	89712-45-8	

SECTION 16. OTHER INFORMATION

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

H227	COMBUSTIBLE LIQUID.
H301 + H311 + H331	TOXIC IF SWALLOWED, IN CONTACT WITH SKIN OR IF INHALED.
H315	CAUSES SKIN IRRITATION.
H318	CAUSES SERIOUS EYE DAMAGE.
H334	MAY CAUSE ALLERGY OR ASTHMA SYMPTOMS OR BREATHING DIFFICULTIES IF INHALED.
H335	MAY CAUSE RESPIRATORY IRRITATION.
H350	MAY CAUSE CANCER.

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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