

MINNESOTA MINING AND MFG CO -- HFE-71DE 3M NOVEC ENGINEERED FLUID (SEE SUPPL) --  
6850-01-459-0069

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

Product ID:HFE-71DE 3M NOVEC ENGINEERED FLUID (SEE SUPPL)

MSDS Date:11/01/2000

FSC:6850

NIIN:01-459-0069

Status Code:A

MSDS Number: CLPSX

=== Responsible Party ===

Company Name:MINNESOTA MINING AND MFG CO

Address:3M CENTER BLDG 224-5S-04

City:SAINT PAUL

State:MN

Z

IP:55144-1000

Country:US

Info Phone Num:800-364-3577 OR 651-737-6501(24HR)

Emergency Phone Num:800-364-3577 OR 651-737-6501

Resp. Party Other MSDS Num.: DOCUMENT:07-7119-6

Preparer's Name:NOT PROVIDED

CAGE:76381

=== Contractor Identification ===

Company Name:MINNESOTA MINING AND MFG CO, DBA 3M

Address:3M CENTER BLDG 224-5S-04

Box:City:SAINT PAUL

State:MN

ZIP:55144-1000

Country:US

Phone:866-556 5712 / 612-733-1110

Contract Num:SP0450-02-M-M113

CAGE:76381

Company Name:MINNESOTA MINING AND MFG CO

PERFORMANCE CHEM AND FLUIDS DIV

Address:3M CTR

Box:City:SAINT PAUL

State:MN

ZIP:55144-1000

Country:US

Phone:800-364-3577/651-737-6501

CAGE:28112

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

Ingred Name:1,2-TRANS-DICHLOROETHYLENE

CAS:156-60-5

RTECS #:KV9400000

Minumum % Wt:49.

Maxumum % Wt:51.

Other REC Limits:75 PPM CMRG

OSHA PEL:200 PPM

ACGIH TLV:200 PPM

EPA Rpt Qty:1000 LBS

DOT Rpt Qty:1000 LBS

Ingred Name:METHYL NONAFLUOROISOBUTYL ETHER

25.

Maximum % Wt:36.

Other REC Limits:750 PPM AIHA

OSHA PEL:NOT PROVIDED

ACGIH TLV:NOT PROVIDED

Ingredient Name:METHYL NONAFLUOROBUTYL ETHER

CAS:163702-07-6

Minimum % Wt:15.

Maximum % Wt:26.

Other REC Limits:750 PPM AIHA

OSHA PEL:NOT PROVIDED

ACGIH TLV:NOT PROVIDED

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

LD50 LC50 Mixture:ORAL TOXIC: (LD50 > 5G/KG IN ALBINO RAT)

Routes of Entry: Inhalation:YES Skin:YES Ingestion:NO

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

NO

Health Hazards Acute and Chronic:EYE: IRRITATION: REDNESS, SWELLING

PAIN, TEARING, AND HAZY VISION. SKIN: IRRITATION. REDNESS, SWELLING, ITCHING, DRYNESS. INHALATION: SINGLE OVEREXPOSURE; CENTRAL NERVOUS SYSTEM DEPRESSION. HEADACHE, DIZZINESS, DROWSINESS, INCOORDINATION, SLOWED REACTION TIME, SLURRED SPEECH, GIDDINESS UNCONSCIOUSNESS. IRRITATION (UPPER RESPIRATORY): SORENESS OF NOSE, THROAT, COUGHING, SNEEZING. INGESTION: NOT LIKELY ROUTE OF EXPOSURE. CENTRAL NER

VOUS SYSTEM DEPRESSION, HEADACHE,

DIZZINESS, DROWSINESS, MUSCULAR WEAKNESS, INCOORDINATION, SLOWED REACTION TIME, FATIGUE, BLURRED VISION, SLURRED SPEECH, GIDDINESS, TREMORS AND CONVULSIONS.

Explanation of Carcinogenicity:NONE

Effects of Overexposure:EYE: IRRITATION: REDNESS, SWELLING PAIN, TEARING, AND HAZY VISION. SKIN: IRRITATION: REDNESS, SWELLING, ITCHING, DRYNESS. INHALATION: SINGLE OVEREXPOSURE; CENTRAL NERVOUS SYSTEM DEPRESSION. HEADACHE, DIZZINESS, DROWSINESS, INCOORDINATION, SLOWED REACTION TIME, SLURRED SPEECH, GIDDINESS UNCONSCIOUSNESS. IRRITATION (UPPER RESPIRATORY): SORENESS OF NOSE, THROAT, COUGHING, SNEEZING. INGESTION: CENTRAL NERVOUS SYSTEM DEPRESSION, HEADACHE, DIZZINESS, DROWSINESS, MUSCULAR WEAKNESS, INCOORDINATION, SLOWED REACTION TIME, FATIGUE, BLURRED VISION, SPEECH, GIDDINESS, TREMORS AND CONVULSIONS.

Medical Cond Aggravated by Exposure:NOT PROVIDED

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

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First Aid:EYE CONTACT: IMMEDIATELY FLUSH WITH LARGE AMOUNT OF WATER. GET IMMEDIATE MEDICAL ATTENTION. SKIN CONTACT: FLUSH WITH LARGE AMOUNT OF WATER. IF IRRITATION PERSISTS, GET MEDICAL ATTENTION. INHALATION: REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GET IMMEDIATE MEDICAL ATTENTION. SWALLOWED: IF SWALLOWED, DO NOT INDUCE VOMITING. GIVE VICTIM TWO GLASSES OF WATER. CALL A PHYSICIAN IMMEDIATELY. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

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

Flash Point:NONE  
Autoignition Temp:=410.C, 770.F  
Lower Limits:NONE  
Upper Limits:NONE  
Extinguishing Media:WATER, CARBON DIOXIDE, DRY CHEMICAL, DRY POWDER.  
Fire Fighting Procedures:WEAR FULL PROTECTIVE CLOTHING, INCLUDING HELMET, SELF CONTAINED, POSITIVE PRESSURE OR PRESSURE DEMAND BREATHING APPARATUS, BUNKER COAT AND PANTS, BANDS AROUND ARMS, WAIST AND LEGS, FACE MASK, AND PROTECTIVE COVERING FOR EXPOSED AREAS OF THE HEAD. KEEP CONTAINERS COOL WITH WATER SPRAY TO AVOID RUPTURE.  
Unusual Fire/Explosion Hazard:EXTREME CONDITIONS OF HEAT (WELDING, OPEN FLAME) MAY PRODUCE DECOMPOSITION PRODUCTS THAT INCLUDE HYDROGEN FLUORIDE. NO SMOKING.

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

Spill Release Procedures:OBSERVE PRECAUTIONS FROM OTHER SECTIONS. VENTILATE AREA. CONTAIN SPILL. COVER WITH ABSORBENT MATERIAL. COLLECT SPILLED MATERIAL. CLEAN UP RESIDUE WITH AN APPROPRIATE ORGANIC SOLVENT. READ AND FOLLOW SAFETY PRECAUTIONS ON THE SOLVENT LABEL AND MSDS. PLACE IN METAL CONTAINER. SEAL THE CONTAINER. FOR SPILLS RESULTING IN SIGNIFICANT RELEASE IN A CONFINED AREA, WARN OTHERS AND LEAVE IMMEDIATELY.  
Neutralizing Agent:NOT RELEVANT

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

Handling and Storage Precautions:STORE AWAY FROM ACIDS, HEAT. KEEP CONTAINER CLOSED WHEN NOT IN USE

SE AND IN WELL-VENTILATED AREA. STORE

AT TEMPERATURES BELOW THE BOILING POINT OF 41C.

Other Precautions:PREVENTION OF ACCIDENTAL INGESTION: DO NOT EAT, DRINK, OR SMOKE WHEN USING THIS PRODUCT. WASH EXPOSED AREAS THOROUGHLY WITH SOAP AND WATER. NOT AN EXPECTED ROUTE OF EXPOSURE. SMOKING WHILE USING THIS PRODUCT CAN RESULT IN CONTAMINATION OF TOBACCO AND/OR SMOKE AND LEAD TO FORMATION OF HAZARDOUS DECOMPOSITION PRODUCTS.

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Exposure Controls/Personal Protection  
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Respiratory Protection:AVOID BREATHING OF VAPORS, MISTS OR SPRAY. IF VENTILATION IS NOT ADEQUATE SELECT ONE OF FOLLOWING NIOSH APPROVED RESPIRATORS BASED ON AIRBORNE CONCENTRATION OF CONTAMINANTS AND IN ACCORDANCE WITH OSHA REGULATIONS: HALF-MASK.

Ventilation:USE IN A WELL-VENTILATED AREA. PROVIDE SUFFICIENT VENTILATION TO MAINTAIN EMISSIONS BELOW RECOMMENDED LIMITS.

Protective Gloves:USE GLOVES FOR HANDLING PRODUCT.POLYETHYLENE/ETHYLENE VINYL ALCOHOL RECOMMENDED

MMENDED

Eye Protection:WEAR VENTED GOGGLES AND/OR SAFETY GLASSES WITH SIDE SHIELDS.

Other Protective Equipment:AVOID SKIN CONTACT. WEAR AN APRON.

Work Hygienic Practices:NOT PROVIDED

Supplemental Safety and Health

P/N: 98-0211-9221-2. AVOID EXPOSING MATERIAL TO EXTREME CONDITIONS OF HEAT (>150C , OPEN FLAME). ID NUMBER / U.P.C.: 98-0211-9219-4; 98-0211-9221-0; 98-0211-9223-6; 00-51135-11050-8; 00-51135-11052-2; 00-51135-11054-6; 98-0211-9220-2; 98-0211-9222-8; 98-0212-1172-1;

00-51135-11051-5; 00-51135-11053-9; 00-51135-63036-5

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Physical/Chemical Properties  
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HCC:N1

Boiling Pt:=41.C, 105.8F

Decomp Temp:Decomp Text:NOT PROVIDED

Vapor Pres:383 MMHG @ 25 DEG C

Vapor Density:4.8 (AIR=1

Spec Gravity:1.37 G/ML

VOC Pounds/Gallon:685

Viscosity:0.45 CENTIPOISE

Evaporation Rate & Reference:59 BUOAC=1

Solubility in Water:SLIGHT

Appearance and Odor:CLEAR, COLORLESS LIQUID, SLIGHT ODOR.

Percent Volatiles by Volume:100

Corrosion Rate:NO

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

Stability Indicator/Materials to Avoid: YES

STRONG ACIDS, STRONG BASES, STRONG OXIDIZING AGENTS.

Stability Condition to Avoid: AVOID TEMPERATURES ABOVE THE BOILING POINT.

Hazardous Decomposition Products: HYDROGEN FLUORIDE, PERFLUOROISOBUTYLENE (PFIB).

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

Toxicological Information: THE TOXICITY INFORMATION ON

TRANS-DICHLOROETHYLENE HAS BEEN LI

MITED TO STUDIES OF QUESTIONABLE

QUALITY. THESE STUDIES SUGGESTED LIVER AND KIDNEY TOXICITY AT ELEVATED CONCENTRATIONS. RECENTLY A 90-DAY INHALATION STUDY WAS CONDUCTED TO CLARIFY THE TOXICITY OF TRANS-DICHLOROETHYLENE. NO ADVERSE EFFECTS WERE SEEN IN THIS STUDY WHICH HAD A HIGH DOSE OF 4000 PPM. TOXICITY DATA FOR METHYLISOPERFLUOROBUTYL AND METHYLPERFLUOROBUTYL COMPONENTS: ACUTE INHALATION LETHAL CONCENTRATION: >100,000 PPM (4 HR). ORAL TOXICITY: PRACTICALLY NON

-TOXIC (LD50 > 5G/KG IN ALBANO RAT). DEVELOPMENTAL TOXICITY: NO ABNORMAL (CONTD. SEE "TRANSPORT")

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

Ecological: PRODUCT PRESENTS A LOW ENVIRONMENTAL HAZARD. PRODUCT IS

ESTIMATED TO HAVE MINIMAL TOXICITY TO AQUATIC ORGANISMS. THIS ESTIMATE ASSUMES NO SYNERGISTIC, ANTAGONISTIC OR NONADDITIVE EFFECTS. TAKE PRECAUTIONS TO PREVENT DIRECT RELEASE OF THIS PRODUCT TO THE ENVIRONMENT. THE HIGH POTENTIAL OF THIS SUBS

TANCE TO

MOVE FROM WATER TO THE ATMOSPHERE ACCOUNTS FOR ITS LOW TOXICITY AND MAKE IT UNLIKELY THAT THIS SUBSTANCE WILL BIOCONCENTRATE IN AEROBIC ENVIRONMENTS. 1,2-TRANS-DICHLOROETHYLENE IS UNLIKELY TO BIOCONCENTRATE TO HIGH CONCENTRATIONS IN AQUATIC ORGANISMS BY PARTITIONING INTO FAT.

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

Waste Disposal Methods: INCINERATE IN PRESENCE OF COMBUSTIBLE MATERIAL IN INDUSTRIAL OR COMMERCIAL FACILITY CAPABLE OF H

ANDLING

HALOGENATED WASTE. DISPOSE OF COMPLETELY ABSORBED WASTE PRODUCT IN HAZARDOUS WASTE FACILITY. REC LAIM IF FEASIBLE. FOR INFORMATION ON PRODUCT RETURN, CONTACT YOUR DISTRIBUTOR. U.S. EPA HAZARDOUS WA STE NUMBER = NONE ( NOT U.S. EPA HAZARDOUS.)

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

Transport Information:NOT REGULATED FOR TRANSPORTATION.

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

SARA Title III Information:EPCRA 31  
1/312 REPORTABLE QUANTITY = NOT REPORTABLE.

Federal Regulatory Information:THE COMPONENTS OF THIS PRODUCT ARE IN COMPLIANCE WITH THE CHEMICAL REGISTRATION REQUIREMENTS OF TSCA.

State Regulatory Information:NOT PROVIDED

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

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