

MINNESOTA MINING & MFG CO INDUSTRIAL CHEM PRODUCTS -- FC-77 FLUORINERT BRAND  
ELECTRONIC LIQUID -- 6850-00-964-0838

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

Product ID:FC-77 FLUORINERT BRAND ELECTRONIC LIQUID

MSDS Date:07/08/1999

FSC:6850

NIIN:00-964-0838

MSDS Number: BFZLH

=== Responsible Party ===

Company Name:MINNESOTA MINING & MFG CO INDUSTRIAL CHEM PRODUCTS

Address:3M CTR

City:SAINT PAUL

State:MN

ZIP:55144

Country:US

Info Phone Num:800-364-3577

Emergency Phone N

um:612-737-6501

Resp. Party Other MSDS Num.:10-3791-0

CAGE:28112

=== Contractor Identification ===

Company Name:BALKAMP INC

Address:2601 S HOLT ROAD

Box:City:INDIANAPOLIS

State:IN

ZIP:46241

Country:US

Phone:317-244-7241

CAGE:70842

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

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  
Company Name:NAPA, A DIVISION OF LINCOLN AUTOMOTIVE  
Address:ONE LINCOLN WAY  
Box:City:ST. LOUIS  
State:MO  
ZIP:63120-1578  
Country:US  
Phone:414-255-5520  
CAGE:050Q3

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

Ingred Name:PERFLUORO COMPOUNDS, C5-18 (PRIMARILY COMPOUNDS WITH 8  
CARBONS)  
CAS:86508-42-1  
= Wt:100.  
Other REC Limits:NONE RECOMMENDED

===== Hazards

Identification =====

LD50 LC50 Mixture:LD50 (ORAL, RAT) IS NOT KNOWN.  
Routes of Entry: Inhalation:YES Skin:YES Ingestion:NO  
Reports of Carcinogenicity:NTP:NO IARC:NO OSHA:NO  
Health Hazards Acute and Chronic:TARGET ORGANS:EYES, SKIN. ACUTE-  
EYE/SKIN:CONTACT IS NOT EXPECTED TO RESULT IN SIGNIFICANT  
IRRITATION. INHALATION:NO ADVERSE EFFECTS ARE EXPECTED UNLESS THE  
PRODUCT IS OVER HEATED AND DECOMPOSITION OC CURS. ORAL: INGESTION  
IS NOT A LIKELY ROUTE OF EXPOS  
URE TO THIS PRODUCT. PRACTICALLY  
NON-TOXIC. CHRONIC- UNKNOWN.  
Explanation of Carcinogenicity:NONE SPECIFIED BY MANUFACTURER  
Effects of Overexposure:DERMAL : MINIMALLY IRRITATING.  
Medical Cond Aggravated by Exposure:NONE SPECIFIED BY MANUFACTURER

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

First Aid:EYES: IMMEDIATELY FLUSH WITH LARGE AMOUNTS OF WATER. GET  
IMMEDIATE MEDICAL ATTENTION. SKIN CONTACT: WASH AFFECTED AREA WITH  
SOAP AND WATER. INHALATION: IF SIGNS/

SYMPTOMS OCCUR, REMOVE PERSON  
TO FRESH AIR. IF SIGNS/SYMPTOMS CONTINUE, CALL A PHYSICIAN.  
INGESTED: NO NEED FOR FIRST AID IS ANTICIPATED.

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

Flash Point Method:SCC

Flash Point:NONE

Extinguishing Media:WATER SPRAY, CARBON DIOXIDE, FOAM OR DRY CHEMICAL  
FOR SURROUNDING FIRE. USE WATER SPRAY TO COOL FIRE EXPOSED  
CONTAINERS.

Fire Fighting Procedures:WEAR FULL PROTECTIVE CLOTHING, INCLUDING  
HELMET, BUNKER PANTS AN  
D COAT, BANDS ON LEGS/ARMS, PROTECTIVE  
COVERING ON HEAD AND NIOSH-APPROVED SELF-CONTAINED BREATHING  
APPARATUS WITH FULL FACEPIECE OPERAT ED IN POSITIVE PRESSURE MODE.  
NO UNUSUAL EFFECTS ARE ANTICIPATED DURING FIRE EXTINGUISHING  
OPERATIONS.

Unusual Fire/Explosion Hazard:EXPOSURE TO EXTREME HEAT CAN GIVE RISE TO  
THERMAL DECOMPOSITION.

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

Spill Release Procedures:OBSERVE PRECAUTIONS FROM OTHER SECTIONS. IN  
AC  
CORDANCE WITH GOOD INDUSTRIAL PRACTICE, PROVIDE EXHAUST  
VENTILATION FOR LARGE SPILLS OR IN CONFINED SPACES. COLLECT SPILLED  
MATERIAL WITH AN ABSORBENT. PL ACE IN AN APPROVED CONTAINER.

Neutralizing Agent:NONE SPECIFIED BY MANUFACTURER

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

Handling and Storage Precautions:STORE UNDER NORMAL WAREHOUSE  
CONDITIONS. KEEP AWAY FROM INCOMPATIBLE MATERIALS. NO SMOKING WHILE  
USING THIS PRODUCT. SMOKING WHILE USING THIS PROD  
UCT CAN RESULT IN  
CONTAMINATION OF THE TOBACCO AND/OR SMOKE AND LEAD TO HAZARDOUS  
DECOMPOSITION PRODUCTS.

Other Precautions:IF THE PRODUCT IS EXPOSED TO EXTREME CONDITION OF  
HEAT FROM MISUSE OR EQUIPMENT FAILURE, TOXIC DECOMPOSITION PRODUCTS  
THAT INCLUDE HYDROGEN FLUORIDE AND PERFLUOROISOBUTYLENE CAN OCCUR.

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

Respiratory Protection:AVOID BREATHING OF THERMAL DECOMPOSITION  
PRODUCTS. SELECT ONE OF THE FOLLOWIN

G NIOSH APPROVED RESPIRATORS

BASED ON AIRBORNE CONCENTRATION IAW OSHA REGULATIONS: HALF-MASK  
SUPPLIED AIR RESPIRATOR, FULL- FACE SUPPLIED AIR RESPIRATOR.

Ventilation:IF HEATED TO DECOMPOSITION: APPROPRIATE LOCAL EXHAUST  
VENTILATION SUFFICIENT TO MAINTAIN LEVELS OF DECOMPOSITION PRODUCTS  
BELOW THIER EXPOSURE GUIDELINES.

Protective Gloves:GLOVES ARE NOT REQUIRED.

Eye Protection:WEAR SAFETY GLASSES WITH SIDE SHIELDS.

Other Protective Equipment:NONE SPECIFIED BY MANUFACTURER. DLA-HMIS

:

EYE WASH STATION, SAFETY SHOWER, PROTECTIVE CLOTHING

Work Hygienic Practices:OBSERVE GOOD INDUSTRIAL HYGIENE PRACTICES AND  
RECOMMENDED PROCEDURES. DO NOT EAT/DRINK WHILE WORKING WITH THIS  
PRODUCT.

Supplemental Safety and Health

FOR INDUSTRIAL USE ONLY. NOT INTENDED FOR USE AS A MEDICAL DEVICE OR  
DRUG. HYDROGEN FLUORIDE HAS AN ACGIH THRESHOLD LIMIT VALUE (TLV) OF  
3 PARTS PER MILLION PARTS AIR AND AN OSHA PEL OF 3 PPM FLUORIDE AS  
AN 8-HOUR TIME-WEIGHTED AVERAGE AND 6 PPM  
FLUORIDE AS A SHORT-TERM  
EXPOSURE LIMIT (STEL).

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

HCC:N1

Boiling Pt:>90.C, 194.F

B.P. Text:90-107C

Vapor Pres:42 @ 20C

Vapor Density:14

Spec Gravity:1.8

Viscosity:0.8 CST @ 20C

Evaporation Rate & Reference:>1 (N-BUTYL ACETATE=1)

Solubility in Water:NIL

Appearance and Odor:COLORLESS LIQUID - ODORLESS

Percent Volatiles by Volume:100

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

Stability Indicator

/Materials to Avoid:YES

FINELY DIVIDED ACTIVE METALS, ALKALI AND ALKALINE EARTH METALS

Stability Condition to Avoid:EXTREME HEAT

Hazardous Decomposition Products:MAY FORM CARBON MONOXIDE, CARBON  
DIOXIDE, HYDROGEN FLUORIDE AND PERFLUOROISOBUTYLENE.

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

Toxicological Information:NONE SPECIFIED BY MANUFACTURER

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

Ecological:BIODEGRADATION: CHEMICAL OXYGEN DEMAND (

COD): NIL. 20-DAY

BIOCHEMICAL OXYGEN DEMAND (BOD20): NIL. AQUATIC TOXICITY: FATHEAD  
MINNOW (PIMEPHALES PROMELAS) 96 HR: LL50>1000 MG/L. WATER FLEA  
(DAPHNIA MAGN A) 48-HR EL50: >1500 MG/L.

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

Waste Disposal Methods:AS A DISPOSAL ALTERNATIVE, INCINERATE IN THE  
PRESENCE OF A COMBUSTIBLE MATERIAL IN AN INDUSTRIAL OR COMMERCIAL  
FACILITY CAPABLE OF HANDLING HALOGENATED WASTE. RECLAIM IF  
FEASIBLE. FOR INFORMATION ON PRODUCT RETURN, SEE YOUR DISTRIBUTOR.

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

Transport Information:TRANSPORTATION INFORMATION: NOT REGULATED FOR ANY  
MODE OF TRANSPORTATION.

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

SARA Title III Information:SARA 311/312 REPORTABLE: NONE.  
Federal Regulatory Information:THE COMPONENTS OF THIS PRODUCT ARE IN  
COMPLIANCE WITH THE REQUIREMENTS OF : TSCA  
State Regulatory Information:NONE SPECIFIED BY MANUFACTURER

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

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