

## Appendix E: Detailed Hazard Mitigation & MSDS

In addition to all the mitigation tactics listed below the team will always maintain good Environment		
Materials	Risk	Mitigation
Phenolic Powder- Black	Ingestion Hazards, Skin Irritation, Eye Irritation, Respiratory Irritation from Dust	Team members will work in well-ventilated areas and wear face masks at all times to prevent inhalation and ingestion of the dust from the Phenolic Black Powder. Gloves will be worn at all times to prevent skin irritation. Goggles will be worn at all times to prevent eye irritation.
Phenolic Resin	Toxic Fumes, Skin Irritation, Eye Irritation	Team Members will work in a well-ventilated area and wear face masks at all times to prevent inhalation of toxic fumes and ingestion of the material. Gloves and chemical resistant aprons will be worn at all times to prevent Skin Irritation and contact with clothing. Goggles will be worn at all times to prevent Eye Irritation
Copperhead igniter	Ingestion Hazards, Toxic Fumes, Skin Irritation, Eye Irritation, Inadvertent Ignition, Burns to skin	Team members will work in well-ventilated areas and wear face masks at all times to prevent inhalation and ingestion of hazardous chemicals. Gloves will be worn at all times to prevent skin irritation and burns to skin. Goggles will be worn at all times to prevent eye irritation. Igniters will be kept away from ignition sources such as flames, matches, and heat sources, and will be properly stored in Type 3 or Type 4 magazines to prevent inadvertent ignition.

First Fire Igniter	Ingestion Hazards, Toxic Fumes, Skin Irritation, Eye Irritation, Inadvertent Ignition, Burns to skin	Team members will work in well-ventilated areas and wear face masks at all times to prevent inhalation of toxic fumes and ingestion of hazardous chemicals. Gloves will be worn at all times to prevent skin irritation and burns to skin. Goggles will be worn at all times to prevent eye irritation. Igniters will be kept away from ignition sources such as flames, matches, and heat sources, and will be properly stored in Type 3 or Type 4 magazines to prevent inadvertent ignition.
First Fire Jr. Igniter	Ingestion Hazards, Toxic Fumes, Skin Irritation, Eye Irritation, Inadvertent Ignition, Burns to skin	Team members will work in well-ventilated areas and wear face masks at all times to prevent inhalation of toxic fumes and ingestion of hazardous chemicals. Gloves will be worn at all times to prevent skin irritation and burns to skin. Goggles will be worn at all times to prevent eye irritation. Igniters will be kept away from ignition sources such as flames, matches, and heat sources, and will be properly stored in Type 3 or Type 4 magazines to prevent inadvertent ignition.
Rocket Propellant	Skin Irritation, Inadvertent Ignition, Burns to skin	Gloves will be worn at all times to prevent skin irritation. Propellant will be kept away from ignition sources, such as flames, matches, igniters, heat sources, and will be properly stored in Type 3 or Type 4 magazines to prevent inadvertent ignition. After motor burn, the team will wait 15 minutes before disassembling the motor, while wearing insulated gloves to prevent burns to skin.
Epoxy Resin	Toxic Fumes, Skin Irritation, Eye Irritation	Team Members will work in a well-ventilated area and wear face masks at all times to prevent inhalation of toxic fumes and ingestion of the material. Gloves and chemical resistant aprons will be worn at all times to prevent Skin Irritation and contact with clothing. Goggles will be worn at all times to prevent Eye Irritation

5-Minute Epoxy Resin	Toxic Fumes, Skin Irritation, Eye Irritation	Team Members will work in a well-ventilated area and wear face masks at all times to prevent inhalation of toxic fumes and ingestion of the material. Gloves and chemical resistant aprons will be worn at all times to prevent Skin Irritation and contact with clothing. Goggles will be worn at all times to prevent Eye Irritation
Sinmast 4 Epoxy Mortar Mix - Normal Cure	Ingestion Hazards, Skin Irritation, Eye Irritation	Team Members will wear face masks at all times to prevent ingestion of the material. Gloves and chemical resistant aprons will be worn at all times to prevent Skin Irritation and contact with clothing. Goggles will be worn at all times to prevent Eye Irritation
Compressed Carbon Fiber Sheets	Inhalation Hazards, Eye Irritation, Skin Irritation	Team Members will wear face masks at all times to prevent inhalation of the material. Goggles will be worn at all times to prevent Eye Irritation. Gloves will be worn at all times to prevent skin irritation
Fiber Glass Cloth	Inhalation Hazards, Eye Irritation, Skin Irritation	Team Members will wear face masks at all times to prevent inhalation of the material. Goggles will be worn at all times to prevent Eye Irritation. Gloves will be worn at all times to prevent skin irritation
Polystyrene	Ingestion Hazards	Team Members will wear face masks at all times to prevent Ingestion of Material
Polystyrene Foam	Ingestion Hazards, Skin Irritation, Eye Irritation	Team Members will wear face masks at all times to prevent Ingestion of Material. Goggles will be worn at all times to prevent eye irritation
Duct Tape	Skin Irritation, Eye Irritation	Team members will avoid prolonged exposure of duct tape to bare skin to prevent skin irritation. Team members will not place duct tape on their eyes to prevent eye irritation
Masking Tape	No Risks Stated	
Super Glue	Toxic Fumes, Ingestion Hazards, Eye Irritation, Skin Irritation	Team Members will work in a well-ventilated area and wear face masks at all times to prevent inhalation of toxic fumes and ingestion of the material. Gloves and chemical resistant aprons will be worn at all times to prevent Skin Irritation and contact with. Goggles will be

		worn at all times to prevent eye irritation.
Acetone	Toxic Fumes, Ingestion Hazards, Eye Irritation, Skin Irritation	Team Members will work in a well-ventilated area and wear face masks at all times to prevent inhalation of toxic fumes and ingestion of the material. Gloves and chemical resistant aprons will be worn at all times to prevent Skin Irritation and contact with. Goggles will be worn at all times to prevent eye irritation.
Mineral Spirits	Severe Eye Irritation, Skin irritation, Ingestion hazards	Team Members will wear face masks at all times to prevent Ingestion of the material. Gloves will be worn at all times to prevent skin irritation. Goggle will be worn at all times to prevent eye irritation
Denatured Alcohol	Toxic Fumes, Ingestion Hazards, Eye Irritation	Team Members will work in a well-ventilated area and wear face masks at all times to prevent inhalation of toxic fumes and ingestion of the material. Goggles will be worn at all times to prevent eye irritation
Carbon Dioxide	Inhalation Hazards	Team members will work in a well-ventilated area to prevent inhalation hazards
Silicone Lube	Ingestion Hazards, Skin Irritation, Eye Irritation, Toxic Fumes	Team Members will work in a well-ventilated area and wear face masks at all times to prevent inhalation of toxic fumes and ingestion of the material. Gloves and chemical resistant aprons will be worn at all times to prevent Skin Irritation and contact with clothing. Goggles will be worn at all times to prevent eye irritation

White Lithium Grease	Ingestion Hazards, Skin Irritation, Eye Irritation, Toxic Fumes	Team Members will work in a well-ventilated area and wear face masks at all times to prevent inhalation of toxic fumes and ingestion of the material. Gloves and chemical resistant aprons will be worn at all times to prevent Skin Irritation and contact with clothing. Goggles will be worn at all times to prevent eye irritation
Isopropyl Rubbing Alcohol	Toxic Fumes, Ingestion Hazards, Eye Irritation, Inadvertent Ignition, Burns to Skin	Team Members will work in a well-ventilated area and wear face masks at all times to prevent inhalation of toxic fumes and ingestion of the material. Goggles will be worn at all times to prevent contact with eyes leading to eye irritation. Material will be kept away from ignition sources, such as flames, matches, igniters, heat sources. Team members will wear gloves to protect from burns to skin in the event of an inadvertent ignition
Black Powder	Inhalation Hazards, Eye Irritation, Inadvertent Ignition, Burns to skin	Team Members will wear face masks at all times to prevent Inhalation of the Black Powder. The Black Powder will be kept away from ignition sources such as flames, matches, and heat source to prevent inadvertent ignition. Gloves will be worn to prevent burns to skin. Goggles will be worn at all times to protect eyes. Equipment used with or near the Black Powder will be nonstatic producing materials to prevent inadvertent ignition.

BUEHLER LTD -- 20-3100 PHENOLIC POWDER-BLACK -- 9330-00-166-0250  
===== Product Identification =====

Product ID:20-3100 PHENOLIC POWDER-BLACK  
MSDS Date:01/01/1985  
FSC:9330  
NIIN:00-166-0250  
MSDS Number: BDDZJ  
=== Responsible Party ===  
Company Name:BUEHLER LTD  
Address:41 WAUKEGAN RD  
Box:1  
City:LAKE BLUFF  
State:IL  
ZIP:60044-1687  
Country:US  
CAGE:09410

=== Contractor Identification ===

Company Name: BUEHLER LTD.  
Address: 41 WAUKEGAN RD.  
Box: City: LAKE BLUFF  
State: IL  
ZIP: 60044-1687  
Country: US  
Phone: 847-295-8500  
CAGE: 09410

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

Ingred Name: PHENOL  
CAS: 108-95-2  
RTECS #: SJ3325000  
Fraction by Wt: 3%  
OSHA PEL: S, 5 PPM  
ACGIH TLV: S, 5 PPM; 8990  
EPA Rpt Qty: 1000 LBS  
DOT Rpt Qty: 1000 LBS

Ingred Name: NON HAZARDOUS INGREDIENTS (AS SPECIFIED BY MFR)  
Fraction by Wt: 97%

==== Hazards Identification =====

Effects of Overexposure: NONE SPECIFIED BY  
MFR. POSS. SKIN, EYE, RESPIRATORY  
IRRIT DUE TO DUST

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

First Aid: SKIN: WASH W/ SOAP & WATER. EYES: FLUSH W/ WATER FOR 15  
MIN. AVOID  
INGESTION. CONSULT A DR.

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

Extinguishing Media: DRY CHEMICAL, WATER, CARBON DIOXIDE  
Fire Fighting Procedures: SELF CONT BREATHING GEAR IN ENCLOSED  
AREA  
Unusual Fire/Explosion Hazard: AVOID DUST ACCUMULATIONS OR DUST-  
LADEN

ATMOSPHERES-DUST/AIR MIXTURES ARE EXPLOSIVE

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

Spill Release Procedures:VACUUM OR SWEEP WITH SAWDUST,SAND OR SWEEPING  
COMPOUND.AVOID GENERATING DUST.

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

Handling and Storage Precautions:AVOID TEMP EXTREMES & MOISTURE-CAN  
AFFECT PRODUCT PERFORMANCE.AVOID PROLONGED OR REPEATED SKIN & EYE  
CONTACT OR BREATHING OF VAPORS.  
Other Precautions:USE ADEQUATE VENTILATION.USE GOOD PERSONAL HYGIENE.

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

Respiratory Protection:NIOSH APPROVED RESPIRATORS RECOMMENDED FOR  
NUISANCE DUST  
Ventilation:LOCAL RECOMMENDED TO REMOVE DUST & FUMES  
Protective Gloves:RECOMMENDED  
Eye Protection:SAFETY GLASSES  
Other Protective Equipment:AS NECESSARY FOR GOOD HYGIENE & CLEAN WORK  
ENVIRONMENT.  
Supplemental Safety and Health  
EXPLOSIVE LIMITS (AS POWDER) EQUALS 0.030 OZ/CU FT.

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

HCC:T3  
NRC/State Lic Num:EXPLOSIVE LIMIT  
Boiling Pt:B.P. Text:NONE  
Solubility in Water:NEGLIGIBLE  
Appearance and Odor:GRANULAR-SLIGHT PHENOLIC ODOR.

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

Stability Indicator/Materials to Avoid:YES



NONE SPECIFIED BY MFR  
Hazardous Decomposition  
Products:CO\*2,CO,PHENOLS,AMMONIA,FORMALDEHYDE

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

Waste Disposal Methods:BURY OR INCINERATE IN ACCORDANCE WITH  
LOCAL,STATE OR FEDERAL REGS.

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particular situation.

CHEMRAY COATING CORP -- VARNISH, SPAR, PHENOLIC RESIN -- 8010-  
00-251-6980

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

Product ID:VARNISH, SPAR, PHENOLIC RESIN  
MSDS Date:10/27/1989  
FSC:8010  
NIIN:00-251-6980  
MSDS Number: BHVZW  
=== Responsible Party ===  
Company Name:CHEMRAY COATING CORP

Address:209 N MICHIGAN AVE  
City:KENILWORTH  
State:NJ  
ZIP:07033  
Country:US  
Info Phone Num:201-245-1111  
Emergency Phone Num:800-424-9300 (CHEMTREC)  
Preparer's Name:FRED ARMSTRONG  
CAGE:33832  
=== Contractor Identification ===  
Company Name:CHEMRAY COATING CORP  
Address:209 N MICHIGAN AVE  
Box:City:KENILWORTH  
State:NJ  
ZIP:07033  
Country:US  
Phone:201-245-1111  
CAGE:33832

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

Ingred Name:STODDARD SOLVENT  
CAS:8052-41-3  
RTECS #:WJ8925000  
Fraction by Wt: 41%  
OSHA PEL:500 PPM  
ACGIH TLV:100 PPM; 9293

Ingred Name:VOC=3.07 LBS/GAL OR 368 GRAMS/LITER  
RTECS #:9999999VO

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

Routes of Entry: Inhalation:YES Skin:NO Ingestion:NO  
Health Hazards Acute and Chronic:OVEREXPOSURE-NAUSEA, HEADACHE,  
DIZZINESS CAUSED BY OVER INHALATION. HIGH VAPOR  
CONCENTRATIONS  
(>1000 PPM) ARE IRRITATING TO THE EYES AND RESPIRATORY TRACT,  
ARE  
ANESTHETIC, AND MAY HAVE OTHER CENTRAL N ERVOUS SYSTEM  
EFFECTS.  
Effects of Overexposure:OVEREXPOSURE-NAUSEA, HEADACHE, DIZZINESS  
CAUSED  
BY OVER INHALATION. HIGH VAPOR CONCENTRATIONS (>1000 PPM)

ARE

IRRITATING TO THE EYES AND RESPIRATORY TRACT, ARE ANESTHETIC, AND

MAY HAVE OTHER CENTRAL NERVOUS SYSTEM EFFECTS. Medical Cond Aggravated by Exposure:NONE GENERALLY KNOWN.

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First Aid Measures  
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First Aid:EYE CONTACT: FLUSH WITH WATER 15 MINUTES OR UNTIL IRRITATION SUBSIDES. IF IRRITATION PERSISTS, CALL PHYSICIAN. SKIN CONTACT: REMOVE CONTAMINATED CLOTHING AND WASH THOROUGHLY WITH SOAP AND WATER. INHALATION: IF OVERCOME BY VAPORS. REMOVE TO FRESH AIR, CALL PHYSICIAN. INGESTION: DO NOT INDUCE VOMITING, CALL PHYSICIAN.

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Fire Fighting Measures  
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Flash Point Method:SCC  
Flash Point:103 F/40 C  
Autoignition Temp:Autoignition Temp Text:473 F  
Lower Limits:0.9  
Upper Limits:7  
Extinguishing Media:CARBON DIOXIDE, FOAM, WATER FOG OR DRY CHEMICAL.  
Fire Fighting Procedures:USE AIR SUPPLIED BREATHING EQUIPMENT. COOL ENCLOSED CONTAINERS WITH WATER SPRAY. AVOID BREATHING VAPORS OR FUMES.  
Unusual Fire/Explosion Hazard:IF LEAK OR SPILL HAS IGNITED, USE WATER SPRAY TO DISPERSE THE VAPORS FROM FIRE FIGHTERS.

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Accidental Release Measures  
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Spill Release Procedures:REMOVE ALL IGNITION SOURCES. KEEP FROM HEAT, SPARKS AND OPEN FLAME. ADD ABSORBENT (SAND, EARTH, SAWDUST) TO SPILL. VENTILATE AREA (OPEN WINDOWS, DOORS). LARGE SPILL: KEEP FROM ENTERING SEWERS/WATERCOURSES BY DIKING. ADVISE

AUTHORITIES IF DOES  
ENTER.

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Handling and Storage

Handling and Storage Precautions:STORE AWAY FROM IGNITION SOURCES,  
KEEP

IN COOL, DRY, WELL VENTILATED AREAS. AVOID DIRECT SUNLIGHT  
AND

EXTREME TEMPERATURES, HOT OR COLD.

Other Precautions:AVOID EYE, SKIN CONTACT, INHALATION &/OR  
INGESTION OF

MISTS, SPRAY OR VAPORS. AVOID BREATHING SANDING OR BLASTING  
DUST.

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Exposure Controls/Personal Protection =====

Respiratory Protection:USE HYDROCARBON VAPOR CANISTER OR  
SUPPLIED AIR

RESPIRATOR IN CONFINED AREAS.

Ventilation:LOCAL EXHAUST: FACE VELOCITY 60FPM. SPECIAL: USE ONLY  
W/ADEQUATE VENTILATION. MECHANICAL: USE EXPLOSION PROOF  
EQUIPMENT.

Protective Gloves:CHEMICAL RESISTANT.

Eye Protection:SPLASH GOGGLES OR FACE SHIELD.

Other Protective Equipment:USE CHEMICAL RESISTANT APRON OR  
CLOTHING.

Supplemental Safety and Health

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Physical/Chemical Properties =====

Boiling Pt:B.P. Text:308F,153C

Melt/Freeze Pt:M.P/F.P Text:0 F(-17.8C)

Decomp Temp:Decomp Text:600 F(316C)

Vapor Pres:<10 @ 68 F

Vapor Density:4.8 @ 77 F

Spec Gravity:.90 (H2O=1)

Viscosity:C-F@77F G.H.

Evaporation Rate & Reference:0.09 (BUTYL ACETATE=1)

Solubility in Water:NEGLIGIBLE

Appearance and Odor:CLEAR CARAMEL LIQUID WITH SOLVENT ODOR.

Percent Volatiles by Volume:47.7

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

Stability Indicator/Materials to Avoid: YES  
CAN REACT WITH OXIDIZING MATERIAL WHEN HEATED TO  
DECOMPOSITION.  
Stability Condition to Avoid: HIGH TEMPERATURES.  
Hazardous Decomposition Products: CARBON MONOXIDE.

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

Waste Disposal Methods: ASSURE CONFORMITY WITH APPLICABLE  
DISPOSAL  
REGULATIONS. DISPOSE OF ABSORBED MATERIAL AT AN APPROVED  
DISPOSAL  
SITE OR FACILITY. DISPOSE IN CONFORMITY WITH STATE AND  
FEDERAL  
REGULATIONS.

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particular situation.

AeroTech Division, RCS Rocket Motor Components, Inc.

Material Safety Data Sheet & Emergency Response Information

Prepared in accordance with 29 CFR § 1910.1200 (g)

#### Section 1. Product Identification

Copperhead™ igniter, FirstFire™ igniter, FirstFire Jr.™ igniter. These products contain varying percentages of Ammonium or Potassium Perchlorate, carbon black and carbon fibers dispersed in a flammable binder with lesser amounts of proprietary ingredients such as burn rate modifiers and a metal fuel.

#### Section 2. Physical Characteristics

Narrow copper foil strips or yellow wires coated with a small amount of black igniter composition on one end, little or no odor

#### Section 3. Physical Hazards

Igniters are flammable and may give off varying amounts of Hydrogen Chloride and Carbon Monoxide gas, soot and carbon fibers when burned.

#### Section 4. Health Hazards

Igniter coating may be hazardous in the case of ingestion, and may be toxic to kidneys, lungs and the nervous system. Symptoms may include respiratory irritation, skin irritation, muscle tightness, vomiting, diarrhea, abdominal pain, muscular tremors, weakness, labored breathing, irregular heartbeat, convulsions. Inhalation of large amounts of combustion products may produce similar but lesser symptoms as ingestion.

#### Section 5. Primary Routes of Entry

Ingestion, inhalation.

#### Section 6. Permitted Exposure Limits

None established for manufactured product.

#### Section 7. Carcinogenic Potential

None known.

## Section 8. Precautions for Safe Handling

Keep away from flames and other sources of heat. Do not smoke within 25 feet of product. Do not ingest. Do not breathe combustion products. Keep in original packaging until ready for use.

## Section 9. Control Measures

See section 8.

## Section 10. Emergency & First Aid Procedures

If ingested, induce vomiting and call a physician. If combustion products are inhaled, move to fresh air and call a physician if ill effects are noted. For mild burns use a first aid burn ointment. For severe burns immerse the burned area in cold water at once and see a physician immediately.

## Section 11. Date of Preparation or Revision

October 12, 2008

## Section 12. Contact Information

AeroTech Division, RCS Rocket Motor Components, Inc.

2113 W. 850 N. St.

Cedar City, UT 84721

(435) 865-7100 (Ph)

(435) 865-7120 (Fax)

Email: [customerservice@aerotech-rocketry.com](mailto:customerservice@aerotech-rocketry.com)

Web: <http://www.aerotech-rocketry.com>

Emergency Response: (800) 535-5053 (US), (352) 323-3500 (Int'l)

AeroTech Division, RCS Rocket Motor Components, Inc.

Material Safety Data Sheet & Emergency Response Information

Prepared in accordance with 29 CFR § 1910.1200 (g)

#### Section 1. Product Identification

Model rocket motor, high power rocket motor, hobby rocket motor, composite rocket motor, rocket motor kit, rocket motor reloading kit, containing varying amounts of solid propellant with the trade names White Lightning™, Blue Thunder™, Black Jack™, Black Max™, Redline™, Warp-9™ or Mojave Green™. These products contain varying percentages of Ammonium Perchlorate, Strontium and/or Barium Nitrate dispersed in synthetic rubber with lesser amounts of proprietary ingredients such as burn rate modifiers and metal fuels. Rocket motor ejection charges contain black powder.

#### Section 2. Physical Characteristics

Black plastic cylinders or bags with various colored parts, little or no odor

#### Section 3. Physical Hazards

Rocket motors and reload kits are flammable, rocket motors may become propulsive in a fire. All propellants give off varying amounts of Hydrogen Chloride and Carbon Monoxide gas when burned, Mojave Green propellant also produces Barium Chloride.

#### Section 4. Health Hazards

Propellant is an irritant in the case of skin and eye contact, may be extremely hazardous in the case of ingestion, and may be toxic to kidneys, lungs and the nervous system. Symptoms include respiratory irritation, skin irritation, muscle tightness, vomiting, diarrhea, abdominal pain, muscular tremors, weakness, labored breathing, irregular heartbeat, convulsions. Inhalation of large amounts of combustion products may produce similar but lesser symptoms as ingestion.

#### Section 5. Primary Routes of Entry

Skin contact, ingestion, inhalation.



## Section 6. Permitted Exposure Limits

None established for manufactured product.

## Section 7. Carcinogenic Potential

None known.

## Section 8. Precautions for Safe Handling

Disposable rubber gloves are recommended for handling Mojave Green propellant. Keep away from flames and other sources of heat. Do not smoke within 25 feet of product. Do not ingest. Do not breathe exhaust fumes. Keep in original packaging until ready for use.

## Section 9. Control Measures

See section 8.

## Section 10. Emergency & First Aid Procedures

If ingested, induce vomiting and call a physician. If combustion products are inhaled, move to fresh air and call a physician if ill effects are noted. In the case of skin contact, wash area immediately and contact a physician if severe skin rash or irritation develops. For mild burns use a first aid burn ointment. For severe burns immerse the burned area in cold water at once and see a physician immediately.

## Section 11. Date of Preparation or Revision

October 11, 2008

## Section 12. Contact Information

AeroTech Division, RCS Rocket Motor Components, Inc.

2113 W. 850 N. St.

Cedar City, UT 84721

(435) 865-7100 (Ph)

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Email: [customerservice@aerotech-rocketry.com](mailto:customerservice@aerotech-rocketry.com)

Web: <http://www.aerotech-rocketry.com>

Emergency Response: (800) 535-5053 (US), (352) 323-3500 (Int'l)

EMS CATALOG NO: 13000  
EMS PRODUCT: DER 736 Epoxy Resin  
DATE: 03/06/96  
PAGE NUMBER: One of 5

#### MATERIAL SAFETY DATA SHEET

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FOR PRODUCT AND SALES INFORMATION

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CONTACT ELECTRON MICROSCOPY SCIENCES OFFICE ABOVE.

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PRODUCT IDENTIFICATION

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PRODUCT NAME: D.E.R.(R) 736 Epoxy Resin

INGREDIENTS: Epichlorohydrin-polyglycol reaction product

(% w/, unless otherwise noted)

CAS NUMBER: 041638-13-5

PERCENT: 100

This document is prepared pursuant to the OSHA Hazard Communication Standard (29 CFR 1910.1200). In addition, other substances not 'Hazardous' per this OSHA Standard may be listed. Where proprietary ingredient shows, the identity may be made available as provided in this standard.

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#### PHYSICAL DATA

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BOILING POINT: Greater than 225oC at 760 mm Hg

VAPOR PRESSURE: 5.6 mm Hg at 20oC

VAPOR DENSITY: Not applicable

SOLUBILITY IN WATER: 11.0 wt.%

SPECIFIC GRAVITY: 1.14

VISCOSITY: 30-60 cps at 25oC

APPEARANCE: Near water white liquid

ODOR: Slight ethereal.

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#### FIRE AND EXPLOSION HAZARD DATA

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FLASH POINT: 320oF

METHOD USED: PMCC, ASTM D-93

FLAMMABLE LIMITS: LFL: Not determined

UFL: Not determined

EXTINGUISHING MEDIA:

Foam, CO<sub>2</sub>, dry chemical, alcohol-resistant foam

FIRE AND EXPLOSION HAZARDS: None known

FIRE-FIGHTING EQUIPMENT: Wear positive pressure self-contained breathing apparatus.

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## REACTIVITY DATA

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### STABILITY (CONDITIONS TO AVOID):

None; but for maximum product life do not exceed 55oC (131oF) during storage.

### INCOMPATIBILITY (SPECIFIC MATERIALS TO AVOID):

Base or strong acid, amines and oxidizing materials.

### HAZARDOUS DECOMPOSITION PRODUCTS:

The by-products expected in incomplete pyrolysis or combustion of epoxy resins are mainly phenolics, carbon monoxide, hydrogen chloride, and water. The thermal decomposition products of epoxy resins therefore should be treated as potentially hazardous substances, and appropriate precautions should be taken.

### HAZARDOUS POLYMERIZATION:

Will not occur by itself, but masses of more than 1 pound of product plus an aliphatic amine will cause irreversible polymerization with considerable heat buildup.

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## ENVIRONMENTAL AND DISPOSAL INFORMATION

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### ACTION TO TAKE FOR SPILLS/LEAKS:

Soak up in absorbent material such as sand and collect in suitable containers. Residual resin may be removed using steam or hot soapy water. Solvents are not recommended for cleanup unless the recommended exposure guidelines and safe handling practices for the specific solvent are followed. Consult appropriate solvent MSDS for handling

information and exposure guidelines. Keep spark producing equipment away. For large spills, evacuate upwind of spills and contain with dike.

#### DISPOSAL METHOD:

DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF

WATER. For unused or uncontaminated material, the preferred disposal options are to send to a licensed recycler, reclaimer, or incinerator. For used or contaminated material, the preferred disposal options remain the same, although additional evaluation is required (see, for example, 40 CFR, Part 261, "Identification and Listing of Hazardous waste.") Any disposal practice must be in compliance with Federal, State, Provincial, and Local laws and regulations.

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#### HEALTH HAZARD DATA

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EYE: May cause moderate irritation with corneal injury.

#### SKIN CONTACT:

Short single exposure not likely to cause significant skin irritation. Prolonged exposure may cause skin irritation. Repeated exposure may cause skin burns. May cause more severe response if confined to skin or skin is abraded (scratched or cut). May cause allergic skin reaction in susceptible individuals.

#### SKIN ABSORPTION:

A single prolonged exposure is not likely to result in the material being absorbed through skin in harmful amounts. The LD50 for skin absorption in rabbits is >2000mg/kg.

#### INGESTION:

Single dose oral toxicity is low. The oral LD50 for rats is >2000 mg/kg. Amounts ingested incidental to normal handling operations are not likely to cause injury; swallowing larger amounts may cause injury.

#### INHALATION:

Elevated temperatures may generate vapor levels sufficient to cause irritation and other effects.

#### MUTAGENICITY (EFFECTS ON GENETIC MATERIAL):

Results of in vitro ("test tube") mutagenicity tests have been positive.

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#### FIRST AID

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EYES: Irrigate immediately with water for at least 15 minutes.

SKIN: Wash off in flowing water or shower.

#### INGESTION:

Induce vomiting if large amounts are ingested. Consult medical personnel.

#### INHALATION:

Remove to fresh air if effects occur. Consult a physician.

#### NOTE TO PHYSICIAN:

If burn is present, treat as any thermal burn, after decontamination. No specific antidote. Supportive care. Treatment based on judgement of the physician in response to reactions of the patient.

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#### HANDLING PRECAUTIONS

---

EXPOSURE GUIDELINE(S): None established.

#### VENTILATION:

Good general ventilation should be sufficient for most

conditions.

#### RESPIRATORY PROTECTION:

No respiratory protection should be needed. If respiratory irritation is experienced, use an approved air-purifying respirator.

#### SKIN PROTECTION:

For brief contact, no precautions other than clean body-covering clothing should be needed. When prolonged or frequently repeated contact could occur, use protective clothing impervious to this material. Selection of specific items such as gloves, boots, apron or full-body suit will depend on operation.

#### EYE PROTECTION:

Use safety glasses. Where contact with this material is likely, chemical goggles are recommended because eye contact may cause pain even though it is unlikely to cause injury.

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#### ADDITIONAL INFORMATION

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#### SPECIAL PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:

None except normal handling care. Practice good caution and personal cleanliness to avoid eye and skin contact. Avoid breathing vapors if generated.

ITW DEVCON CORP -- 5-MINUTE EPOXY RESIN -- 8040-00-264-6816

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

Product ID:5-MINUTE EPOXY RESIN

MSDS Date:12/14/1989

FSC:8040

NIIN:00-264-6816

MSDS Number: BLJGZ

=== Responsible Party ===

Company Name:ITW DEVCON CORP

Address:30 ENDICOTT ST

City:DANVERS

State:MA

ZIP:01923

Country:US

Info Phone Num:508-777-1100

Emergency Phone Num:800-424-9300 CHEMTREC

CAGE:EO352

=== Contractor Identification ===

Company Name:DEVCON CORP

Address:30 ENDICOTT ST

Box:City:DANVERS

State:MA

ZIP:01923-3753

Country:US

Phone:1-508-777-1100



CAGE:16059  
Company Name:ITW DEVCON CORP  
Address:30 ENDICOTT ST  
City:DANVERS  
State:MA  
ZIP:01923  
Country:US  
Phone:508-777-1100  
CAGE:EO352

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

Ingred Name:BISPHENOL A DIGLYCIDYL ETHER RESIN (POTENTIAL SKIN SENSITIZER)  
CAS:25068-38-6  
RTECS #:KD4380000  
Fraction by Wt: >60%  
Other REC Limits:NONE SPECIFIED

Ingred Name:VOC: 0 LBS/GAL (EPA REFERENCE METHOD 24)  
RTECS #:9999999VO  
Other REC Limits:NONE SPECIFIED

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

LD50 LC50 Mixture:ORAL LD50 RAT: 11,400 MG/KG; DERM LD50 \*  
Routes of Entry: Inhalation:NO Skin:YES Ingestion:YES  
Reports of Carcinogenicity:NTP:NO IARC:NO OSHA:NO  
Health Hazards Acute and Chronic:PROLONGED OR REPEATED SKIN CONTACT MAY CAUSE SENSITIZATION WITH ITCHING, SWELLING OR RASHES ON LATER EXPOSURE.  
Explanation of Carcinogenicity:\*RABB: >20,000 MG/KG; INHALATION LC50 RAT: NO DEATHS IN SATURATED AIR; EXPOSURE TIME: 8 HRS.  
Effects of Overexposure:EYES: MILD IRRITATION. SKIN: MILD IRRITATION. INHALATION. THE LOW VAPOR PRESSURE OF THE RESIN MAKES INHALATION UNLIKELY IN NORMAL USE. INGESTION: ACUTE ORAL TOXICITY IS LOW. MAY CAUSE GASTRIC DISTRESS .  
Medical Cond Aggravated by Exposure:ALLERGIES, ECZEMA OR OTHER SKIN DISORDERS.

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

First Aid: EYES: FLUSH W/CLEAN WATER-15 MIN. WHILE GENTLY HOLDING EYELIDS OPEN. GET IMMEDIATE MEDICAL ATTENTION. SKIN: WASH THOROUGHLY W/ SOAP & WARM WATER. CONSULT PHYSICIAN IF IRRITATION DEVELOPS. INHALATION: REMOVE TO FRESH AIR. GIVE OXYGEN IF BREATHING IS DIFFICULT. GET MEDICAL ATTENTION IF SYMPTOMS PERSIST. INGESTION: DO NOT INDUCE VOMITING. GIVE 2 GLASSES WATER TO DILUTE (UNLESS UNCONSCIOUS). GET MEDICAL ATTENTION.

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

Flash Point Method: PMCC  
Flash Point: >400F, >204C  
Lower Limits: N/D  
Upper Limits: N/D  
Extinguishing Media: CO2, DRY CHEMICAL, FOAM.  
Fire Fighting Procedures: FIREFIGHTERS SHOULD WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING.  
Unusual Fire/Explosion Hazard: NONE

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

Spill Release Procedures: PREVENT SKIN AND EYE CONTACT. LARGE SPILLS MAY BE ABSORBED ON INERT MATERIAL SUCH AS SAND OR VERMICULITE. SCRAPE SPILL UP INTO NONPOROUS CONTAINERS. CLEAN SPILL AREA WITH STRONG DETERGENT AND WATER; USE SOLVENTS ONLY WITH APPROPRIATE CAUTION.

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

Handling and Storage Precautions: STORE IN A COOL, DRY PLACE. HANDLE MIXED RESIN & HARDENER IN ACCORDANCE WITH POTENTIAL HAZARD OF THE CURING AGENT USED. DISCARD CONTAMINATED LEATHER ARTICLES.  
Other Precautions: REMOVE CONTAMINATED CLOTHING AND PROTECTIVE

GEAR;

CLEAN THOROUGHLY BEFORE USING AGAIN. IF CURED MATERIAL IS SANDED OR

MACHINED, USE ADEQUATE PRECAUTIONS AGAINST NUISANCE PARTICULATES.

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

Respiratory Protection:NONE REQUIRED AT NORMAL HANDLING TEMPERATURES.

Ventilation:LOCAL EXHAUST IS RECOMMENDED FOR CONFINED AREAS. GENERAL

MECHANICAL VENTILATION IS ADEQUATE FOR NORMAL USE.

Protective Gloves:IMPERVIOUS GLOVES.

Eye Protection:SAFETY GLASSES WITH SIDE SHIELDS.

Other Protective Equipment:OTHER GEAR AS REQUIRED.

Work Hygienic Practices:WASH THOROUGHLY AFTER USING, PARTICULARLY

BEFORE EATING OR SMOKING.

Supplemental Safety and Health

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

HCC:N1

Boiling Pt:B.P. Text:N/D

Melt/Freeze Pt:M.P/F.P Text:N/D

Vapor Pres:NIL @ 70 F

Vapor Density:>1

Spec Gravity:1.2

pH:7 (5%)

Evaporation Rate & Reference:<<1 (BUAC = 1)

Solubility in Water:NIL

Appearance and Odor:THICK, AMBER LIQUID WITH LITTLE ODOR.

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

Stability Indicator/Materials to Avoid:YES

STRONG ACIDS AND STRONG OXIDIZING AGENTS.

Stability Condition to Avoid:OPEN FLAME AND EXTREME HEAT.

Hazardous Decomposition Products:OXIDES OF CARBON, ALDEHYDES AND ACIDS

FROM INCOMPLETE COMBUSTION.

Conditions to Avoid Polymerization:HEAT IS GENERATED WHEN THIS RESIN IS

MIXED WITH AMINES OR EPOXY HARDENERS; BE CAREFUL WHEN MIXING.

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

Waste Disposal Methods:REMOVE TO A WASTE FACILITY OPERATING IN COMPLIANCE WITH STATE AND LOCAL REGULATIONS.

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SPECIALTY COMPOUNDS INC -- SINMAST 4 EPOXY MORTAR MIX - NORMAL CURE -- 5610-00N078857

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

Product ID:SINMAST 4 EPOXY MORTAR MIX - NORMAL CURE

MSDS Date:08/01/1995

FSC:5610

NIIN:00N078857

MSDS Number: CGGQS

=== Responsible Party ===

Company Name:SPECIALTY COMPOUNDS INC

Address:3300 EAST 84TH PLACE

City:MERRILVILLE

State:IN

ZIP:46410

Country:US

Info Phone Num:219-947-1070

Emergency Phone Num:800-255-3924

CAGE:7T163

=== Contractor Identification ===

Company Name:SPECIALTY COMPOUNDS INC  
Address:3300 E 84TH PL  
Box:City:MERRILLVILLE  
State:IN  
ZIP:46410-6551  
Country:US  
Phone:219-947-1070  
CAGE:7T163

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

Ingred Name:COMPONENT "A" (CONSISTING OF INGREDIENTS 2 & 3)  
RTECS #:9999999ZZ  
OSHA PEL:N/K  
ACGIH TLV:N/K

Ingred Name:BISPHENOL A-EPICHLOROHYDRIN COPOLYMER;  
(BISPHENOL A  
EPICHLOROHYDRIN EPOXY RESIN)  
CAS:25068-38-6  
RTECS #:SL6475000  
Fraction by Wt: 90%  
OSHA PEL:N/K  
ACGIH TLV:N/K

Ingred Name:PROPANE, 1-BUTOXY-2,3-EPOXY-; (BUTYL GLYCIDYL ETHER)  
(BGE)  
CAS:2426-08-6  
RTECS #:TX4200000  
Fraction by Wt: 10%  
OSHA PEL:50 PPM  
ACGIH TLV:25 PPM

Ingred Name:COMPONENT "B" (CONSISTING OF INGREDIENTS 5 - 8)  
RTECS #:9999999ZZ  
OSHA PEL:N/K  
ACGIH TLV:N/K

Ingred Name:TOFA REACT WITH TEPA  
CAS:68953-36-6  
Fraction by Wt: 55%  
OSHA PEL:N/K  
ACGIH TLV:N/K

Ingred Name:DIETHYLENETRIAMINE  
CAS:111-40-0  
RTECS #:IE1225000  
Fraction by Wt: 15%  
OSHA PEL:1 PPM  
ACGIH TLV:1 PPM, S

Ingred Name:1,2-ETHANEDIAMINE, N-(2-AMINOETHYL)-N'-(2-  
((2-AMINOETHYL)AMINO)ETHYL)-; (TETRAETHYLENEPENTAMINE)  
CAS:112-57-2  
RTECS #:KH8585000  
Fraction by Wt: 15%  
OSHA PEL:N/K  
ACGIH TLV:N/K

Ingred Name:PHENOL, 4,4'-ISOPROPYLENEDI-; (BISPHENOL A) (SARA 313)  
CAS:80-05-7  
RTECS #:SL6300000  
Fraction by Wt: 10%  
OSHA PEL:N/K  
ACGIH TLV:N/K

Ingred Name:SUPP DATA:WHEN PRODUCT COMES IN CONTACT  
W/NITROUS ACID,  
NITRITES OR ATMOSPHERES W/HIGH NITROUS OXIDE  
CONCENTRATIONS.  
RTECS #:9999999ZZ

Ingred Name:SPILL PROC:OR DISP. EVACUATE ALL PERS UPWIND FROM  
SPILL.  
PVNT SPILL PROD FROM ENTERING STREAMS/DRINKING WATER (ING  
11)  
RTECS #:9999999ZZ

Ingred Name:ING 10:SUPPLIES. NOTIFY LOCAL HEALTH AUTHORITIES &  
OTHER  
APPROPRIATE AGENCIES IF SUCH CONTAMINATION SHOULD OCCUR.  
RTECS #:9999999ZZ

Ingred Name:PROT GLOVES:SITUATIONS, WEAR IMPERMEABLE GLOVES  
W/CUFFS TO  
PVNT SPREAD OF MATL ABOVE WRISTS. EXAMINE PROT GLOVES(ING  
13)

RTECS #:9999999ZZ

Ingred Name:ING 12:BEFORE USING. DISCARD IF THERE IS EVIDENCE OF HOLES

OR CRACKS.

RTECS #:9999999ZZ

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

LD50 LC50 Mixture:NONE SPECIFIED BY MANUFACTURER.  
Routes of Entry: Inhalation:NO Skin:YES Ingestion:YES  
Reports of Carcinogenicity:NTP:NO IARC:NO OSHA:NO  
Health Hazards Acute and Chronic:EYE CONTACT:MODERATELY IRRITATING.

SKIN CONTACT:MODERATELY IRRITATING - POSSIBLE SENSITIZATION.

INHALATION:DUE TO LOW VOLATILITY, NOT LIKELY TO BE INHALED.

INGESTION:CAN CAUSE BLEEDING IN GASTROINTESTINAL TRACT.

Explanation of Carcinogenicity:NOT RELEVANT

Effects of Overexposure:SEE HEALTH HAZARDS.

Medical Cond Aggravated by Exposure:NONE SPECIFIED BY MANUFACTURER.

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

First Aid:EYES:FLUSH W/PLENTY OF WATER FOR AT LST 15 MINS HOLDING LIDS

OPEN. GET MED ATTN. SKIN:REMOVE PROD FROM SKIN. FLUSH AFFECTED AREA

W/WATER. REMOVE CONTAM CLTHG & GLOVES. FOLLOW BY WASHING W/SOAP &

WATER . IF IRRIT PERSISTS GET MED ATTN. INHAL:REMOVE TO FRESH AIR &

PROVIDE OXYG IF BRTHG IS DFCLT. GET MED ATTN. INGEST:DO NOT INDUCE

VOMIT. ADMIN 3-4 GLASSES OF MILK/WATER. OBTAIN MED CARE IMMEDIATELY.

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

Flash Point Method:PMCC

Flash Point:156F,69C

Extinguishing Media:WATER FOG, CO\*2, DRY CHEMICAL OR FOAM. MATERIAL

WILL NOT BURN UNLESS PREHEATED.  
Fire Fighting Procedures:USE NIOSH APPROVED SCBA & FULL PROTECTIVE EQUIPMENT . COOL FIRE W/WATER FOG.  
Unusual Fire/Explosion Hazard:NONE SPECIFIED BY MANUFACTURER.

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

Spill Release Procedures:SHUT OFF/REMOVE ALL IGNIT SOURCES.  
CONSTRUCT  
DIKE TO PVNT SPREADING. PERS SHOULD BE EQUIPPED W/NIOSH APPRVD SCBA & BUTYL RUBBER PROT CLTHG. COVER MINOR SPILLS W/SODIUM BISULFITE & REDUCE VAPS. SPRAY W /WATER. PLACE IN METAL CNTNRS FOR RECOVERY(ING  
10)  
Neutralizing Agent:NONE SPECIFIED BY MANUFACTURER.

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

Handling and Storage Precautions:CORR. KEEP AT ROOM TEMP, DRY, VENTED  
STOR IN CLSD CNTNRS. KEEP AWAY FROM OXIDIZERS, HEAT/FLAMES.  
STORE  
IN STEEL CNTNRS. AVOID CONT W/SKIN OR EYES.  
Other Precautions:HANDLE IN WELL VENTED WORK SPACE. AVOID BRTHG VAPS.  
ADHERE TO WORK PRACTICE RULES ESTABLISHED BY GOVT REGS (E.G. OSHA).  
DO NOT USE SODIUM NITRITE/OTHER NITROSATING AGENTS IN FORMULATIONS.  
CANCER-CAUSI NG NITROSAMINES COULD BE FORMED.

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

Respiratory Protection:IN POORLY VENTED AREAS, A NIOSH APPRVD CARTRIDGE  
MASK APPRVD FOR ORG VAPS IS REC UNDER FOLLOWING CNDTNS:EMER  
SITUATIONS, WHEN PROD VAP CONC IS >20 PPM FOR PERIOD >15 MINS,  
DURING REPAIR & CLEANING OF EQUIP, DURING TRANSFER/DISCHARGE(SUPDAT)



Ventilation:ADEQUATE GENERAL & LOCAL EXHAUST.  
Protective Gloves:NITRILE RUBBER GLOVES. IN EMER (ING 12)  
Eye Protection:ANSI APPRVD CHEM WORKERS GOGGS &(SUPDAT)  
Other Protective Equipment:EYE WASH FOUNTAIN & DELUGE SHOWER  
WHICH MEET  
ANSI DESIGN CRITERIA . LONG SLEEVE CLTHG, SLICKER SUIT,  
RUBBER  
BOOTS.  
Work Hygienic Practices:CONTACT LENSES SHOULD NOT BE WORN. WASH  
AT END  
OF EACH WORK SHIFT & BEFORE EATING, SMOKING/USING TOILET.  
LAUNDER(SUPDAT)  
Supplemental Safety and Health  
PH:ALKALINE. WASTE DISP METH:LONG TERM ENVIRON HAZS, THUS  
LANDFILL  
DISPS MUST BE CONSIDERED LESS ACCEPT THAN INCIN. RESP  
PROT:& USE OF  
PROD. EYE PROT:FULL LGTH FSHLD . HYGIENE PRACT:OR DISCARD C  
ONTAM  
CLTHG. DISCARD CONTAM LEATHER ARTICLES INCL SHOES. MATLS  
TO  
AVOID:ARE KNOWN TO BE CARCINS, MAY BE FORMED (ING 9)

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

pH:SUPDAT  
Appearance and Odor:CLEAR, LIGHT AMBER, FLOWABLE LIQUID;  
AMMONIACAL  
ODOR.

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

Stability Indicator/Materials to Avoid:YES  
CAN REACT VIGOROUSLY W/STRONG OXIDIZING AGENTS, STRONG  
LEWIS/MINERAL  
ACIDS. CAUT:N-NITROSAMINES, MANY OF WHICH (SUPDAT)  
Stability Condition to Avoid:NONE SPECIFIED BY MANUFACTURER.  
Hazardous Decomposition Products:N-NITROSAMINES MAY BE FORMED.

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

Waste Disposal Methods:COMPLY W/ALL FED, STATE & LOC REGS. INCIN IS  
ACCEPT & PEF METH OF DISP. INCIN IN ADMIXT W/FUEL EQUIPPED  
W/SCRUBBER TO REMOVE NITROGEN OXIDES & CARBON MONOXIDE.

DISP OF IN  
APPRVD LANDFILL IF ALLOWED L OCALLY. WASTE FROM THIS PROD  
MAY  
PRESENT (SUPDAT)

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assume responsibility for the suitability of this information to their  
particular situation.

GARLOCK INC -- COMPRESSED CARBON FIBER SHEET, STYLE MTC-9850 -  
- 5330-00N064992

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

Product ID:COMPRESSED CARBON FIBER SHEET, STYLE MTC-9850  
MSDS Date:08/11/1993  
FSC:5330

NIIN:00N064992  
MSDS Number: BZKXB  
=== Responsible Party ===  
Company Name:GARLOCK INC  
Address:1666 DIVISION ST  
City:PALMYRA  
State:NY  
ZIP:14522  
Country:US  
Info Phone Num:315-597-4811  
Emergency Phone Num:315-597-4811  
Preparer's Name:HAROLD R HUGHES  
CAGE:76380

=== Contractor Identification ===  
Company Name:GARLOCK INC  
Address:1666 DIVISION ST  
Box:City:PALMYRA  
State:NY  
ZIP:14522  
Country:US  
Phone:315-597-4811  
CAGE:76380  
Company Name:GARLOCK INC MECHANICAL PACKING DIV  
Address:1666 DIVISION ST  
City:PALMYRA  
State:NY  
ZIP:14522-9343  
Country:US  
Phone:315-597-4811  
CAGE:73680

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

Ingred Name:MINERAL WOOL; (ROCK WOOL (MAN MADE MINERAL FIBER))  
RTECS #:PY8070000  
Fraction by Wt: 2-6%  
OSHA PEL:N/K  
ACGIH TLV:10 MG/M3 (TWA) (MFR)

Ingred Name:SILICA, CRYSTALLINE - QUARTZ (CRYSTALLINE SILICA - NOT  
A  
HAZARD UNLESS AIRBORNE)  
CAS:14808-60-7  
RTECS #:VV7330000

Fraction by Wt: <2.5%  
OSHA PEL:SEE TABLE Z-3  
ACGIH TLV:0.1 MG/M3 RDUST;9495

Ingred Name:GRAPHITE; (NATURAL GRAPHITE - NOT A HAZARD UNLESS AIRBORNE)  
CAS:7782-42-5  
RTECS #:MD9659600  
Fraction by Wt: 2-5%  
OSHA PEL:15 MPPCF; Z-3  
ACGIH TLV:2 MG/M3 RDUST; 9495

Ingred Name:FIBERS, SYNTHETIC; (SYNTHETIC FIBERS)  
OSHA PEL:N/K  
ACGIH TLV:N/K

Ingred Name:BINDER SYSTEM; (ELASTOMERIC BINDERS)  
OSHA PEL:N/K  
ACGIH TLV:N/K

Ingred Name:STYRENE-BUTADIENE; (STYRENE-BUTADIENE ELASTOMER)  
OSHA PEL:N/K  
ACGIH TLV:N/K

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

LD50 LC50 Mixture:NONE SPECIFIED BY MANUFACTURER.  
Routes of Entry: Inhalation:YES Skin:NO Ingestion:NO  
Reports of Carcinogenicity:NTP:YES IARC:YES OSHA:NO  
Health Hazards Acute and Chronic:PRODUCT DOES NOT POSE A HEALTH HAZARD

UNDER ORDINARY CONDITIONS OF USE. A HAZARD WOULD ARISE ONLY IF THE

PRODUCT WAS SUBJECT TO MECHANICAL ACTIONS WHICH COULD CAUSE FIBERS

AND/OR DUST TO RELEASED FROM THE ELASTOMER MATRIX. INHALATION OF

SUFFICIENT QUANTITIES OF FIBERS AND/OR DUST COULD CAUSE (EFTS OF OVEREXP)

Explanation of Carcinogenicity:CRYSTALLING SILICA:NTP 7TH ANNUAL RPT ON

CARCINS, 1994: ANTIC TO BE CARCIN. IARC MONOGRAPHS, SUPP. VOL 7, PG

341(SUPDAT)

Effects of Overexposure:HLTH HAZ:RESPIRATORY PROBLEMS AND HAS THE

POTENTIAL TO CAUSE LASTING LUNG DAMAGE.

Medical Cond Aggravated by Exposure:BREATHING AIRBORNE FIBERS OR PARTICULATES MAY AGGRAVATE ANY EXISTING LUNG DISORDERS OR BRONCHITIS.

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

First Aid:INGEST:CALL MD IMMEDIATELY . EYES:IMMEDIATELY FLUSH W/POTABLE WATER FOR A MINIMUM OF 15 MINUTES, SEEK ASSISTANCE FROM MD

SKIN:FLUSH W/COPIOUS AMOUNTS OF WATER. CALL MD . INHAL:IF O  
VERCOME  
BY THERMAL DECOMPOSITION PRODUCTS FROM A FIRE, MOVE TO FRESH AIR.  
IF VICTIM IS UNCONSCIOUS, EXHIBITS BREATHING DIFFICULTY OR IF RECOVERY IS NOT PROMPT, CONTACT A PHYSICIAN FOR TREATMENT.

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

Extinguishing Media:WATER, FOAM, CARBON DIOXIDE, DRY CHEMICAL.  
Fire Fighting Procedures:USE NIOSH/MSHA APPROVED SCBA & FULL PROTECTIVE EQUIPMENT .

Unusual Fire/Explosion Hazard:PRODUCES SMOKE AND SOME HAZARDOUS DECOMPOSITION PRODUCTS WHEN BURNED.

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

Spill Release Procedures:NO SPECIAL ACTION FOR SOLID PIECES OF PRODUCT.

VACUUM UP ANY DUST FROM OPERATIONS SUCH AS GASKET CUTTING.

ALTERNATELY, DAMPEN AREA BEFORE WIPING OR SWEEPING. DO NOT DRY WIPE OR SWEEP.

Neutralizing Agent:NONE SPECIFIED BY MANUFACTURER.

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

Handling and Storage Precautions:STORE IN CLEAN DRY PLACE AWAY FROM

STRONG OXIDIZING AGENTS. DO NOT GRIND OR MACHINE PRODUCT. NORMAL

WASH UP AFTER HANDLING IS RECOMMENDED.

Other Precautions:WHEN REMOVING USED GASKETS, AVOID EXCESSIVE MECHANICAL ACTIONS AND PLACE RESIDUE IN A PLASTIC BAG FOR DISPOSAL.

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

Respiratory Protection:NO SPECIAL REQUIREMENTS UNDER NORM CONDITIONS OF

USE. HALF-FACE RESP W/HIGH EFFICIENTY FILTERS SHOULD BE WORN BY

INDIVIDUALS WHEN ENGAGING IN REMOVAL OF USED GASKETS THAT ARE

FRIABLE/WHICH REQ AGGRESS IVE SCRAPING &WIRE BRUSHING TO REMOVE.

Ventilation:NO SPECIAL REQUIREMENTS UNDER NORMAL CONDITIONS OF USE.

Protective Gloves:IMPERVIOUS GLOVES .

Eye Protection:ANSI APPROVED CHEM WORKERS GOGGS .

Other Protective Equipment:NONE SPECIFIED BY MANUFACTURER.

Work Hygienic Practices:NO SPECIAL RECOMMENDATIONS.

Supplemental Safety and Health

EXPLAN OF CARCIN: 1987: GROUP 2A. ANIMAL: LUNG. HAZ DECOMP PROD:

HYDROGEN CYANIDE. THERE MAY BE OTHERS UNKNOWN TO US.

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

Solubility in Water:INSOLUBLE

Appearance and Odor:BLACK SHEET OR GASKETS - SLIGHT ODOR.

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

Stability Indicator/Materials to Avoid:NO

AVOID STORAGE WITH STRONG OXIDIZING AGENTS.

Stability Condition to Avoid:DIRECT FLAME WILL IGNITE PRODUCT.

Hazardous Decomposition Products:IN A FIRE:CARBON MONOXIDE UNDER CERTAIN CIRCUMSTANCES, POSSIBLY ACRYLONITRILE MONOMER FUMES AND

POSSIBLY SOME (SUPDAT)

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

Waste Disposal Methods:NORMAL LANDFILL. COMPLY WITH ANY LOCAL  
DISPOSAL  
REGULATIONS. DISPOSAL MUST BE IN ACCORDANCE WITH FEDERAL,  
STATE AND  
LOCAL REGULATIONS .

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assume responsibility for the suitability of this information to their  
particular situation.

CLARK-SCHWEBEL FIBER GLASS CORP -- FIBER GLASS CLOTH -- 8305-01-276-9043

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

Product ID:FIBER GLASS CLOTH  
MSDS Date:06/28/1989  
FSC:8305  
NIIN:01-276-9043  
MSDS Number: BWRFR  
=== Responsible Party ===  
Company Name:CLARK-SCHWEBEL FIBER GLASS CORP  
Box:2627  
City:ANDERSON  
State:SC  
ZIP:29622  
Country:US  
Info Phone Num:803-224-3506  
Emergency Phone Num:800-424-9300 (CHEMTREC)  
CAGE:1H193  
=== Contractor Identification ===  
Company Name:CLARK-SCHWEBEL FIBER GLASS CORP  
Box:City:ANDERSON  
State:SC  
ZIP:29622  
Country:US  
Phone:803-224-3506  
CAGE:1H193

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

Ingred Name:GLASS OXIDE  
Fraction by Wt: >99%  
OSHA PEL:15 MG/M3 (MFR)  
ACGIH TLV:5 MG/M3 (MFR)

Ingred Name:METHACRYLATO CHROMIC CHLORIDE  
Fraction by Wt: <1%  
OSHA PEL:N/K  
ACGIH TLV:N/K

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



LD50 LC50 Mixture:NONE SPECIFIED BY MANUFACTURER.  
Routes of Entry: Inhalation:YES Skin:NO Ingestion:NO  
Reports of Carcinogenicity:NTP:NO IARC:NO OSHA:NO  
Health Hazards Acute and Chronic:ACUTE: IF IN EYES OR ON SKIN, MAY  
CAUSE MILD IRRITATION. IF INHALED, MAY CAUSE UPPER  
RESPIRATORY  
TRACT IRRITATION. CHRONIC HEALTH EFFECTS: NONE MENTIONED.  
Explanation of Carcinogenicity:NOT RELEVANT  
Effects of Overexposure:SEE HEALTH HAZARDS.  
Medical Cond Aggravated by Exposure:NONE.

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

First Aid:INGEST: CALL MD IMMEDIATELY . EYES: FLUSH WITH WATER  
FOR AT  
LEAST 15 MINUTES WHILE LIFTING UPPER & LOWER EYELIDS. IF  
IRRITATION  
PERSISTS, GET MEDICAL ATTENTION. SKIN: WASH THOROUGHLY WITH  
SOAP A  
ND COOL WATER. INHAL: IF INHALED AND AFFECTED, REMOVE  
INDIVIDUAL TO  
FRESH AIR. IF IRRITATION PERSISTS, GET MEDICAL ATTENTION.

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

Flash Point:NONE  
Extinguishing Media:USE APPROPRIATE EXTINGUISHING MEDIA FOR  
PRIMARY  
SOURCE OF FIRE. PRODUCT IS NOT COMBUSTIBLE.  
Fire Fighting Procedures:USE NIOSH/MSHA APPROVED SCBA AND FULL  
PROTECTIVE EQUIPMENT .  
Unusual Fire/Explosion Hazard:NONE.

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

Spill Release Procedures:NO SPECIAL PRECAUTIONS.  
Neutralizing Agent:NONE SPECIFIED BY MANUFACTURER.

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

Handling and Storage Precautions:FIBER GLASS CLOTH IS DENSE AND

EVEN

SMALL ROLLS ARE HEAVY. USE LIFT DEVICES TO PREVENT INJURIES.  
DO NOT

ALLOW CLOTH TO CRUSH LIMBS OR EXTREMITIES.

Other Precautions:NONE KNOWN.

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

Respiratory Protection:IF AIRBORNE FIBERGLASS CONCENTRATIONS  
EXCEED

PERMISSIBLE EXPOSURE LEVELS, NIOSH/MSHA APPROVED  
RESPIRATORY

PROTECTION FOR NUISANCE DUST IN ACCORDANCE WITH OSHA  
1910.134

SHOULD BE USED. NONE NORMALLY RE QUIRED.

Ventilation:USE LOCAL EXHAUST VENTILATION IF NECESSARY TO  
MAINTAIN

AIRBORNE LEVELS TO BELOW ESTABLISHED LIMITS.

Protective Gloves:IMPERVIOUS GLOVES .

Eye Protection:ANSI APPRVD CHEM WORKERS GOGGLES .

Other Protective Equipment:IN SOME CIRCUMSTANCES, IT MAY BE  
ADVISABLE

TO WEAR LONG SLEEVED, LOOSE FITTING CLOTHING.

Work Hygienic Practices:USE RECOM SFTY EQUIP. WASH W/SOAP &  
WATER AFTER

HNDLG. WASH WORK CLOTHES SEPARATELY FROM OTHER CLTHG.  
WIPE OUT

(SUPDAT)

Supplemental Safety and Health

HYGIENE PRACT: WASHING MACHINE.

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

Spec Gravity:2.54 (H\*2O=1)

Solubility in Water:INSOLUBLE

Appearance and Odor:WHITE TO LIGHT GREEN, ODORLESS CLOTH.

Percent Volatiles by Volume:NONE

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

Stability Indicator/Materials to Avoid:YES

STRONG BASES AND ACIDS (OXIDIZING MINERAL, ESPECIALLY OXALIC  
AND

HYDROFLUORIC ACID).

Stability Condition to Avoid:NONE.

Hazardous Decomposition Products:GLASS CLOTHG: NONE. SMALL AMOUNTS OF

OXIDES OF CARBON AND NITROGEN MAY BE EVOLVED IF EXPOSED TO FIRE.

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

Waste Disposal Methods:AN INERT, SOLID WASTE. DISPOSE OF IN A LANDFILL

IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.

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SCIENTIFIC POLYMER PRODUCTS, INC -- POLYSTYRENE, 400 -- 6810-00N047324

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

Product ID:POLYSTYRENE, 400

MSDS Date:03/01/1991

FSC:6810

NIIN:00N047324

MSDS Number: BTQVW

=== Responsible Party ===

Company Name:SCIENTIFIC POLYMER PRODUCTS, INC

Address:6265 DEAN PARKWAY

City:ONTARIO

State:NY

ZIP:14519

Country:US

Info Phone Num:716-265-0413

Emergency Phone Num:716-265-0413

CAGE:0MW60

=== Contractor Identification ===

Company Name:SCIENTIFIC POLYMER PRODUCTS, INC

Address:6265 DEAN PARKWAY

Box:City:ONTARIO

State:NY

ZIP:14519

Country:US

Phone:716-265-0413

CAGE:0MW60

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

Ingred Name:SYTRENE POLYMER; (POLYSTYRENE)

CAS:9003-53-6  
RTECS #:WL6475000  
Fraction by Wt: 99.9%  
OSHA PEL:N/K  
ACGIH TLV:N/K

Ingred Name:ADDITIVES  
Fraction by Wt: <0.1%  
OSHA PEL:N/K  
ACGIH TLV:N/K

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

LD50 LC50 Mixture:NONE SPECIFIED BY MANUFACTURER.  
Routes of Entry: Inhalation:NO Skin:NO Ingestion:NO  
Reports of Carcinogenicity:NTP:NO IARC:NO OSHA:NO  
Health Hazards Acute and Chronic:NONE SPECIFIED BY MANUFACTURER.  
Explanation of Carcinogenicity:NOT RELEVANT.  
Effects of Overexposure:NONE SPECIFIED BY MANUFACTURER.  
Medical Cond Aggravated by Exposure:NONE SPECIFIED BY  
MANUFACTURER.

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

First Aid:INGEST:CALL MD IMMEDIATELY . INHAL:REMOVE FROM  
EXPOSURE. IF  
BREATHING STOPS, BEGIN MOUTH TO MOUTH. EYES:FLUSH WITH  
WATER FOR AT  
LEAST 15 MINUTES. SKIN:WASH AFFECTED AREA WITH SOAP AND  
WATER. REM  
OVE DIRTY CLOTHING. IN ALL CASES, IF IRRITATION DEVELOPS, SEEK  
MEDICAL ASSISTANCE.

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

Flash Point Method:COC  
Flash Point:977F,525C  
Extinguishing Media:DRY CHEMICAL, CO\*2, WATER.  
Fire Fighting Procedures:USE NIOSH/MSHA APPROVED SCBA & FULL  
PROTECTIVE  
EQUIPMENT .  
Unusual Fire/Explosion Hazard:DECOMPOSITION MAY RESULT IN RELEASE  
OF

CO\*2 AND ORGANICS OF UNKNOWN CHEMICAL COMPOSITION.  
FLAMMABLE DUST  
WHEN FINELY DIVIDED & SUSPENDED IN AIR.

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

Spill Release Procedures:SWEEP UP SPILL AND PLACE IN CONTAINERS  
FOR

SALVAGE OR DISPOSAL.

Neutralizing Agent:NONE SPECIFIED BY MANUFACTURER.

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

Handling and Storage Precautions:TREAT AS A COMBUSTIBLE SOLID.  
STORE

AWAY FROM OXIDIZING MATLS IN A COOL, DRY PLACE WITH  
ADEQUATE  
VENTILATION.

Other Precautions:KEEP AWAY FROM HEAT AND OPEN FLAMES. KEEP  
CONTAINERS

TIGHTLY CLOSED. NOTE:THIS MATERIAL IS INTENDED FOR  
LABORATORY USE

ONLY. IT IS NOT INTENDED FOR DRUG, HOUSEHOLD OR OTHER USES.

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

Respiratory Protection:NIOSH/MSHA APPROVED RESPIRATOR  
APPROPRIATE FOR

EXPOSURE OF CONCERN .

Ventilation:LOCAL EXHAUST ADEQUATE.

Protective Gloves:IMPERVIOUS GLOVES .

Eye Protection:ANSI APPRVD CHEM WORKER GOGGLES .

Other Protective Equipment:ANSI APPRVD EMERGENCY EYE WASH &  
DELUGE

SHOWER .

Work Hygienic Practices:GOOD HYGIENE PRACTICES SHOULD BE  
STRICTLY

FOLLOWED.

Supplemental Safety and Health

NONE SPECIFIED BY MANUFACTURER.

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

Melt/Freeze Pt:M.P/F.P Text:>212F,>100C  
Spec Gravity:1.05  
Solubility in Water:INSOLUBLE  
Appearance and Odor:COLORLESS, ODORLESS PELLETT

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

Stability Indicator/Materials to Avoid:YES  
STRONG OXIDIZING AGENTS.  
Hazardous Decomposition Products:CO AND ORGANICS OF UNKNOWN  
CHEMICAL  
COMPOSITION.

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

Waste Disposal Methods:IN ACCORDANCE WITH FEDERAL, STATE AND  
LOCAL  
REGULATIONS.

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assume responsibility for the suitability of this information to their  
particular situation.

DOW CHEMICAL CO -- 05536 DOW GRAYBOARD EXTRUDED  
POLYSTYRENE FOAM INSULATION -- 5640-00F024892

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

Product ID:05536 DOW GRAYBOARD EXTRUDED POLYSTYRENE FOAM  
INSULATION

MSDS Date:06/13/1990

FSC:5640

NIIN:00F024892

MSDS Number: BNYRD

=== Responsible Party ===

Company Name:DOW CHEMICAL CO

Address:2030 DOW CENTER

City:MIDLAND

State:MI

ZIP:48674

Country:US

Info Phone Num:(517) 636-4410

Emergency Phone Num:(517) 636-4410

CAGE:0BG07

=== Contractor Identification ===

Company Name:DOW CHEMICAL CO THE

Address:1801 DOW CTR

City:MIDLAND



State:MI  
ZIP:48674-1801  
Country:US  
Phone:517-636-4400 / 800-258-2436  
CAGE:0BG07  
Company Name:DOW CHEMICAL U.S.A.  
City:MIDLAND  
State:MI  
ZIP:48674  
Country:US  
Phone:517-636-4400  
CAGE:71983

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

Ingred Name:ETHENE-1-OCTENE COPOLYMER; POLYETHYLENE  
CAS:26227-73-8  
Fraction by Wt: 0-10%

Ingred Name:STYRENE POLYMER, POLYSTYRENE  
CAS:9003-53-6  
RTECS #:WL6475000  
Fraction by Wt: BALANCE

Ingred Name:DICHLORODIFLUOROMETHANE, FREON 12  
CAS:75-71-8  
RTECS #:PA8200000  
Fraction by Wt: 0-7.5%  
Other REC Limits:1000 PPM  
OSHA PEL:4950 MG/CUM  
ACGIH TLV:4950 MG/CUM  
EPA Rpt Qty:5000 LBS  
DOT Rpt Qty:5000 LBS  
Ozone Depleting Chemical:1

Ingred Name:ETHANE, 1-CHLORO-1,1-DIFLUORO-,  
CHLORODIFLUOROETHANE (DOT),  
FREON 142, DIFLUOROROMONOCHELOETHANE  
CAS:75-68-3  
RTECS #:KH7650000  
Fraction by Wt: 0-10%  
Ozone Depleting Chemical:2

Ingred Name:POLYETHYLENE, POLYETHYLENE RESIN (HOMOPOLYMER)

CAS:9002-88-4  
RTECS #:TQ3325000  
Fraction by Wt: 0-10%

Ingred Name:HEXABROMOCYCLODODECANE \*92-2\*  
CAS:3194-55-6  
Fraction by Wt: 0-2%

Ingred Name:1,2,3,4,5-PENTABROMO-6-CHLOROCYCLOHEXANE \*92-2\*  
CAS:87-84-3  
Fraction by Wt: 0-2%

Ingred Name:ETHYL CHLORIDE, CHLOROETHANE  
CAS:75-00-3  
RTECS #:KH7525000  
Fraction by Wt: 0-4.5%  
Other REC Limits:2600 MG/CUM  
OSHA PEL:1000 PPM  
ACGIH TLV:1000 PPM  
EPA Rpt Qty:100 LBS  
DOT Rpt Qty:100 LBS

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

Routes of Entry: Inhalation:YES Skin:YES Ingestion:YES  
Reports of Carcinogenicity:NTP:NO IARC:NO OSHA:NO  
Health Hazards Acute and Chronic:EYES: IRRITATION OR CORNEAL INJURY.  
SKIN: MECHANICAL INJURY. INGESTION: LIVER & KIDNEY EFFECTS,  
INCREASE IN TISSUE LEVELS OF BROMINE, PHYSICAL INJURY,  
CHOKING.  
INHALATION: SEVERE RESPIRATORY EFFECTS, UPPER RESPIRATORY  
TRACT  
IRRITATION, CNSDEPRESSION, ANESTHETIC EFFECTS, IRREGULAR  
HEARTBEATS  
& CARDIAC SENSITIZATION.  
Explanation of Carcinogenicity:NONE  
Effects of Overexposure:EYES: IRRITATION OR CORNEAL INJURY. SKIN:  
MECHANICAL INJURY. INGESTION: LIVER & KIDNEY EFFECTS,  
INCREASE IN  
TISSUE LEVELS OF BROMINE, PHYSICAL INJURY, CHOKING.  
INHALATION:  
SEVERE RESPIRATORY EFFECTS, UPPER RESPIRATORY TRACT  
IRRITATION,

CNSDEPRESSION, ANESTHETIC EFFECTS, IRREGULAR HEARTBEATS &  
CARDIAC  
SENSITIZATION.

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

First Aid:EYES: IRRIGATE W/WATER FOR 5 MIN. INHALATION: REMOVE TO  
FRESH  
AIR. SKIN/INGESTION: OBTAIN MEDICAL ATTENTION IN ALL CASES.

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

Flash Point Method:PMCC  
Flash Point:670F  
Extinguishing Media:WATER FOG  
Fire Fighting Procedures:WEAR POSITIVE-PRESSURE SCBA. APPLY LARGE  
VOLUME OF WATER DIRECTLY ON FLAME OR BURNING SURFACE.  
Unusual Fire/Explosion Hazard:EMITS DENSE, BLACK SMOKE WHEN  
BURNED.  
GRINDING OR CUTTING MAY LEAD TO A BUILDUP OF DUST  
SUSPENDED IN AIR  
WHICH CAN CAUSE A DUST EXPLOSION IF IGNITED.

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

Spill Release Procedures:PICK UP, OR IF DUST/SMALL PIECES, SWEEP UP  
&  
PLACE IN SUITABLE CONTAINER FOR DISPOSAL.

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

Handling and Storage Precautions:DON'T STORE OR USE IN CONFINED,  
VIRTUALLY AIRTIGHT SPACES TO PREVENT BUILDUP OF  
COMBUSTIBLE VAPORS.  
Other Precautions:USE ONLY AS DIRECTED BY THE SPECIFIC  
INSTRUCTIONS FOR  
THIS PRODUCT. PROVIDE ADEQUATE VENTILATION, & APPROPRIATE  
DUST  
HANDLING SYSTEMS.

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

Respiratory Protection:USE AN APPROVED AIR-PURIFYING/APPROVED DUST

RESPIRATOR.

Ventilation:GENERAL/LOCAL EXHAUST

Eye Protection:GLASSES/CHEMICAL GOGGLES

Supplemental Safety and Health

GAS FIRED RECIRCULATING AIR FURNACES/HEATERS, GAS WATER HEATERS CAN BE

SUBJECTED TO RUST/CORROSION PROBLEMS. THIS INSULATION CONTAINS A

FLAME RETARDANT ADDITIVE TO INHIBIT ACCIDENTAL IGNITION FROM FIRE

SOURCES. PRODUCT MAY CONTAIN EITHER 9002-88-4 OR 26221-73-8.

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

Spec Gravity:0.027 TO 0.064

Solubility in Water:INSOLUBLE

Appearance and Odor:RIGID CELLULAR FOAM BOARD, NO ODOR.

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

Stability Indicator/Materials to Avoid:YES

AROMATIC HYDROCARBONS, HIGHER (>C5) ALIPHATIC HYDROCARBONS, ESTERS,

AMINES, HIGHER ALDEHYDES.

Stability Condition to Avoid:FIRE, HIGH TEMPS. TEMPERATURES OVER 572F WILL RELEASE COMBUSTIBLE GASES.

Hazardous Decomposition Products:CO, CO2, HYDROGEN

BROMIDE/CHLORIDE/FLUORIDE & SMALL AMOUNTS OF AROMATIC HYDROCARBONS

SUCH AS STYRENE & ETHYLBENZENE.

Conditions to Avoid Polymerization:FLAME OR OTHER IGNITION SOURCES

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

Waste Disposal Methods:BURY IN AN APPROVED LANDFILL, OR BURN IN AN ADEQUATE INCINERATOR W/EXCESS OXYGEN, IN ACCORDANCE

W/LOCAL, STATE

& FEDERAL REGULATIONS.

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KING ADHESIVES CORP -- 11-282 DUCT TAPE ADHESIVE -- 8040-00F038125

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

Product ID:11-282 DUCT TAPE ADHESIVE

MSDS Date:02/07/1992

FSC:8040

NIIN:00F038125

MSDS Number: BWKRB

=== Responsible Party ===

Company Name:KING ADHESIVES CORP

Address:5231 NORTHRUP AVE

City:ST LOUIS

State:MO

ZIP:63110-5000

Country:US  
Info Phone Num:314-772-9953/800-233-8171  
Emergency Phone Num:314-772-9953/800-233-8171  
CAGE:KINGG  
=== Contractor Identification ===  
Company Name:KING ADHESIVES CORP  
Address:5231 NORTHRUP AVE  
Box:City:ST LOUIS  
State:MO  
ZIP:63110-5000  
Country:US  
Phone:314-772-9953/800-233-8171  
CAGE:KINGG

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

Ingred Name:NON HAZARDOUS INGREDIENTS

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

Routes of Entry: Inhalation:NO Skin:NO Ingestion:NO  
Reports of Carcinogenicity:NTP:NO IARC:NO OSHA:NO  
Health Hazards Acute and Chronic:EYES: IRRITATION, DAMAGE TO MUCOUS  
LININGS. SKIN: IRRITATION. INHALATION: NASAL & RESPIRATORY  
IRRITATION. INGESTION: GI IRRITATION.  
Explanation of Carcinogenicity:NONE  
Effects of Overexposure:REDNESS, TEARING, BLURRED VISION,  
IRRITATION.

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

First Aid:EYES: FLUSH W/WATER FOR 15 MINS. INHALATION: REMOVE TO  
FRESH  
AIR. INGESTION: DON'T INDUCE VOMITING. OBTAIN MEDICAL ATTENTION  
IN  
ALL CASES.

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

Flash Point Method:TCC  
Flash Point:>203F  
Extinguishing Media:FOAM, CO2, DRY CHEMICAL, WATER FOG  
Fire Fighting Procedures:WEAR SELF CONTAINED BREATHING APPARATUS

W/FULL

FACE PIECE OPERATED IN A PRESSURE DEMAND/OTHER POSITIVE PRESSURE

MODE. DRY FILM WILL BURN.

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

Spill Release Procedures:DIKE AREA TO PREVENT FROM SPREADING. COLLECT

MATERIAL IN SALVAGE CONTAINER. MATERIAL WILL FLOW.

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

Handling and Storage Precautions:DON'T STORE IN TEMP >125F/BELOW FREEZING. WHEN HANDLING MATERIAL, ALWAYS FOLLOW PERSONAL PROTECTION

INSTRUCTION & NEVER TRANSFER.

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

Respiratory Protection:NONE REQUIRED

Ventilation:GENERAL MECHANICAL

Protective Gloves:IMPERVIOUS ARE RECOMMENDED

Eye Protection:SAFETY GLASSES

Work Hygienic Practices:REMOVE/LAUNDER CONTAMINATED CLOTHING BEFORE

REUSE.

Supplemental Safety and Health

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

Boiling Pt:B.P. Text:212F

Vapor Density:>1

Spec Gravity:1.03

Evaporation Rate & Reference:SLOWER THAN ETHER

Solubility in Water:COMPLETE

Appearance and Odor:WHITE COLORED THIN VISCOSITY LIQUID W/BLAND ODOR

Percent Volatiles by Volume:45-53

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

Stability Indicator/Materials to Avoid:YES

SULFURIC ACID/ALKALI MATERIALS/SODIUM/METAL HYDRIDES.  
Stability Condition to Avoid:FREEZING, TEMP <125F.  
Hazardous Decomposition Products:CO2, CO, CARBON, ACETIC  
ACID/ACETALDEHYDE

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

Waste Disposal Methods:DISPOSE OF IAW/FEDERAL, STATE & LOCAL  
REGULATIONS.

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particular situation.

**SECTION 1: PRODUCT AND COMPANY IDENTIFICATION**

**PRODUCT NAME:** SCOTCH BRAND #232 HIGH PERFORMANCE MASKING  
TAPE

**MANUFACTURER:** 3M

**DIVISION:** Industrial Tape And Specialties Division

**ADDRESS:** 3M Center

St. Paul, MN 55144-1000

**EMERGENCY PHONE:** 1-800-364-3577 or (651) 737-6501 (24 hours)

**Issue Date:** 01/11/2005



**Supercedes Date:** 07/24/2003

**Document Group:** 07-0454-4

**Product Use:**

Intended Use: Used in medium temperature paint bake operations.

Limitations on Use: 250°F for up to one hour.

**SECTION 2: INGREDIENTS**

**Ingredient C.A.S. No. % by Wt**

SATURATED PAPER BACKING MIXTURE 35 - 50

RUBBER / RESIN ADHESIVE MIXTURE 5 - 20

**SECTION 3: HAZARDS IDENTIFICATION**

**3.1 EMERGENCY OVERVIEW**

**Specific Physical Form:** Roll of Tape

**Odor, Color, Grade:** Tan color paper with unpigmented adhesive

**General Physical Form:** Solid

**Immediate health, physical, and environmental hazards:** The environmental properties of this product present a low environmental hazard. This product, when used under reasonable conditions and in accordance with the 3M directions for use, should not present a health hazard. However, use or processing of the product in a manner not in accordance with the product's directions for use may affect the performance of the product and may present potential health and safety hazards.

**3.2 POTENTIAL HEALTH EFFECTS**

**Eye Contact:**

No health effects are expected.

**Skin Contact:**

No health effects are expected.

**Inhalation:**

No health effects are expected.

**Ingestion:**

No health effects are expected.

**3.3 POTENTIAL ENVIRONMENTAL EFFECTS**

This substance does not leach metals or other RCRA (Resource Conservation and Recovery Act) listed TCLP (Toxic Characteristic Leaching Procedure) hazardous substances at concentrations that would make the product a hazardous waste.

**SECTION 4: FIRST AID MEASURES**

**4.1 FIRST AID PROCEDURES**

The following first aid recommendations are based on an assumption that appropriate personal and industrial hygiene practices are followed.

**Eye Contact:** No need for first aid is anticipated.

**Skin Contact:** No need for first aid is anticipated.

**Inhalation:** No need for first aid is anticipated.

**If Swallowed:** No need for first aid is anticipated.

## **SECTION 5: FIRE FIGHTING MEASURES**

### **5.1 FLAMMABLE PROPERTIES**

**Autoignition temperature** 451 °F

**Flash Point** *No Data Available*

**Flammable Limits - LEL** *Not Applicable*

**Flammable Limits - UEL** *Not Applicable*

**5.2 EXTINGUISHING MEDIA** Ordinary combustible material. Use fire extinguishers with class A extinguishing agents (e.g., water, foam). Use fire extinguishers

with class B extinguishing agents (e.g., dry chemical, carbon dioxide).

### **5.3 PROTECTION OF FIRE FIGHTERS**

**Special Fire Fighting Procedures:** See Hazardous Decomposition section for products of combustion. Nonflammable. Wear full protective equipment (Bunker Gear) and a self-contained breathing apparatus (SCBA).

**Unusual Fire and Explosion Hazards:** Not applicable. No unusual fire or explosion hazards are anticipated. Non-flammable: ordinary combustible material.

**Note: See STABILITY AND REACTIVITY (SECTION 10) for hazardous combustion and thermal decomposition information.**

## **SECTION 6: ACCIDENTAL RELEASE MEASURES**

**Accidental Release Measures:** Collect as much of the spilled material as possible. Reclaim undamaged product.

## **SECTION 7: HANDLING AND STORAGE**

### **7.1 HANDLING**

Do not ingest. Do not breathe thermal decomposition products. Avoid skin contact with hot material. Avoid eye contact with vapors, mists, or spray. This product is considered to be an article which does not release or otherwise result in exposure to a hazardous chemical under normal use conditions. Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below Occupational Exposure Limits. If ventilation is not adequate, use respiratory protection equipment.

### **7.2 STORAGE**

Store out of direct sunlight. Not applicable. Store under normal warehouse conditions.

## **SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

### **8.1 ENGINEERING CONTROLS**

Not applicable. Provide appropriate local exhaust for molten or extruded material. Provide appropriate local exhaust when product is

heated. General ventilation adequate below 400 C. Local exhaust recommended above 400 C.

## **8.2 PERSONAL PROTECTIVE EQUIPMENT (PPE)**

### **8.2.1 Eye/Face Protection**

Avoid eye contact. Not applicable. Avoid eye contact with vapors, mists, or spray.

### **8.2.2 Skin Protection**

Wear appropriate gloves, such as Nomex, when handling this material to prevent thermal burns. Not applicable. Avoid skin contact.

Avoid prolonged or repeated skin contact. Avoid skin contact with hot material. Gloves are not required. Select and use gloves and/or protective clothing to prevent skin contact based on the results of an exposure assessment. Consult with your glove and/or protective clothing manufacturer for selection of appropriate compatible materials.

### **8.2.3 Respiratory Protection**

Under normal use conditions, airborne exposures are not expected to be significant enough to require respiratory protection.

### **8.2.4 Prevention of Swallowing**

Not applicable. Do not ingest.

## **8.3 EXPOSURE GUIDELINES**

None Established

## **SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**

**Specific Physical Form:** Roll of Tape

**Odor, Color, Grade:** Tan color paper with unpigmented adhesive

**General Physical Form:** Solid

**Autoignition temperature** 451 °F

**Flash Point** *No Data Available*

**Flammable Limits - LEL** *Not Applicable*

**Flammable Limits - UEL** *Not Applicable*

**Boiling point** *Not Applicable*

**Density** 0.84 - 0.88 g/ml

**Vapor Density** *Not Applicable*

**Vapor Density** Negligible

**Vapor Pressure** *Not Applicable*

**Vapor Pressure** Negligible

**Specific Gravity** Approximately 0.85 g/ml

**pH** *Not Applicable*

**Melting point** *Not Applicable*

**Solubility In Water** *Not Applicable*

**Solubility in Water** Negligible

**Evaporation rate** *Not Applicable*

**Hazardous Air Pollutants** *No Data Available*

**Volatile Organic Compounds** <=0.2 %

**Percent volatile** *Not Applicable*

**VOC Less H2O & Exempt Solvents**  $\leq 0.2\%$

**Viscosity** *Not Applicable*

## **SECTION 10: STABILITY AND REACTIVITY**

**Stability:** Stable.

**Materials and Conditions to Avoid:** None known    Additional Information:  
Excessive heat

**Hazardous Polymerization:** Hazardous polymerization will not occur.

### **Hazardous Decomposition or By-Products**

#### **Substance Condition**

Hydrocarbons Not Specified

Carbon monoxide Not Specified

Carbon dioxide Not Specified  
**Hazardous Decomposition:** Under recommended usage conditions, hazardous decomposition products are not expected. Hazardous decomposition products may occur as a result of oxidation, heating, or reaction with another material.

## **SECTION 11: TOXICOLOGICAL INFORMATION**

Please contact the address listed on the first page of the MSDS for Toxicological Information on this material and/or its components.

## **SECTION 12: ECOLOGICAL INFORMATION**

### **ECOTOXICOLOGICAL INFORMATION**

Not determined. Not applicable.

### **CHEMICAL FATE INFORMATION**

Not determined. Not applicable.

## **SECTION 13: DISPOSAL CONSIDERATIONS**

**Waste Disposal Method:** Reclaim if feasible. If product can't be reclaimed, dispose of waste product in a sanitary landfill.

Alternatively, incinerate the waste product in an industrial, commercial, or municipal incinerator. Dispose of waste product in a sanitary landfill. As a disposal alternative, incinerate in an industrial or commercial facility.

**EPA Hazardous Waste Number (RCRA):** Not regulated

**Since regulations vary, consult applicable regulations or authorities before disposal.**

## **SECTION 14: TRANSPORT INFORMATION**

**Please contact the emergency numbers listed on the first page of the MSDS for Transportation Information for this material.**

## **SECTION 15: REGULATORY INFORMATION**

### **US FEDERAL REGULATIONS**

Contact 3M for more information.

**311/312 Hazard Categories:**

Fire Hazard - No Pressure Hazard - No Reactivity Hazard - No Immediate Hazard - No Delayed Hazard – No

#### **STATE REGULATIONS**

Contact 3M for more information.

#### **CHEMICAL INVENTORIES**

The components of this product are in compliance with the chemical notification requirements of TSCA.

All applicable chemical ingredients in this material are listed on the European Inventory of Existing Chemical Substances (EINECS), or are exempt polymers whose monomers are listed on EINECS.

This product is an article as defined by TSCA regulations, and is exempt from TSCA Inventory listing requirements.

Contact 3M for more information.

#### **INTERNATIONAL REGULATIONS**

Contact 3M for more information.

**WHMIS:** Hazardous

**This MSDS has been prepared to meet the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.**

#### **SECTION 16: OTHER INFORMATION**

##### **NFPA Hazard Classification**

**Health: 0 Flammability: 1 Reactivity: 0 Special Hazards: None**  
National Fire Protection Association (NFPA) hazard ratings are designed for use by emergency response personnel to address the hazards that are presented by short-term, acute exposure to a material under conditions of fire, spill, or similar emergencies. Hazard ratings are primarily based on the inherent physical and toxic properties of the material but also include the toxic properties of combustion or decomposition products that are known to be generated in significant quantities.

**DISCLAIMER:** The information in this Material Safety Data Sheet (MSDS) is believed to be correct as of the date issued. 3M MAKES NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR COURSE OF PERFORMANCE OR USAGE OF TRADE. User is responsible for determining whether the 3M product is fit for a particular purpose and suitable for user's method of use or application. Given the variety of factors that can affect the use and application of a 3M product, some of which are uniquely within the user's knowledge and control, it is essential that the user evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for user's method of use or application.

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SUPER GLUE CORP -- SUPER GLUE -- 8040-00N056030

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

Product ID: SUPER GLUE

MSDS Date: 08/18/1993

FSC: 8040

NIIN: 00N056030

MSDS Number: BWBXW

=== Responsible Party ===

Company Name: SUPER GLUE CORP

Address: 184-08 JAMACA AVE

City: HOLLIS

State: NY

ZIP: 11423

Country: US

Info Phone Num: 718-454-4747

Emergency Phone Num: 800-424-9300 (CHEMTREC)

CAGE: 0ACS9

=== Contractor Identification ===

Company Name: SUPER GLUE CORP

Address: 184-08 JAMAICA AVE

Box: City: HOLLIS

State: NY

ZIP: 11423

Country: US

Phone: 800-221-4478

CAGE: 0ACS9

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

Ingred Name: 2-PROPENOIC ACID, 2-CYANO-, ETHYL ESTER; (ETHYL  
CYANOACRYLATE)

CAS: 7085-85-0

RTECS #: UD3330000

Fraction by Wt: 60-100%

OSHA PEL: N/K

ACGIH TLV: N/K

Ingred Name: HYDROQUINONE (SARA III)

CAS: 123-31-9

RTECS #: MX3500000

Fraction by Wt: 0-1%  
OSHA PEL:2 MG/M3  
ACGIH TLV:2 MG/M3  
EPA Rpt Qty:1 LB  
DOT Rpt Qty:1 LB

Ingred Name:POLYMETHYLMETHACRYLATE  
CAS:9011-14-7  
RTECS #:TR0400000  
Fraction by Wt: 10-30%  
OSHA PEL:N/K  
ACGIH TLV:N/K

Ingred Name:SUPDAT:(DO NOT PULL) LIPS APART. IT IS ALMOST  
IMPOSSIBLE TO  
SWALLOW CYANOACRYLATE AS ADHESIVE SOLIDIFIES UPON (ING 5)  
RTECS #:9999999ZZ

Ingred Name:ING 4:CONT W/SALIVA & MAY ADHERE TO INSIDE OF MOUTH.  
SALIVA  
WILL LIFT ADHESIVE IN 1-2 DAYS, AVOID SWALLOWING (ING 6)  
RTECS #:9999999ZZ

Ingred Name:ING 5:ADHESIVE AFTER DETACHMENT.  
RTECS #:9999999ZZ

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

LD50 LC50 Mixture:LD50:(ORAL) 12.2 CC/KG  
Routes of Entry: Inhalation:YES Skin:NO Ingestion:YES  
Reports of Carcinogenicity:NTP:NO IARC:NO OSHA:NO  
Health Hazards Acute and Chronic:ACUTE:IRRITATES EYES, MUCOUS  
MEMBRANES. CHRONIC:NO RESIDUAL AFFECTS OF ACUTE  
PROPERTIES.  
Explanation of Carcinogenicity:NOT RELEVANT.  
Effects of Overexposure:SEE HEALTH HAZARDS.  
Medical Cond Aggravated by Exposure:PRE-EXISTING SKIN, EYE AND  
RESPIRATORY DISORDERS MAY BE AGGRAVATED BY EXPOSURE.

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

First Aid:EYE:TEARING FROM EYE IRRIT. REMOVE TO FRESH AIR. FLUSH  
AREAS



OF CONT W/WATER FOR @ LEAST 15 MINS. ADHESIVE WILL DISASSOCIATE FROM EYE/EYELIDS OVER TIME, USUALLY W/IN SEVERAL HRS. TEMPORARY WEeping OF EYES/DOUBLE VISION MAY BE EXPERIENCED UNTIL CLEARANCE IS ACHIEVED. SKIN:IMMERSE BONDED AREAS IN WARM, SOAPY WATER. PEEL/ROLL SKIN APART. REMOVE SECURED ADHESIVE W/SEVERAL APPLIC OF WARM, SOAPY(SUPDAT)

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

Flash Point Method:TCC  
Flash Point:176F,80C  
Extinguishing Media:FLUSH WITH LARGE AMOUNTS OF WATER OR DRY CHEMICAL EXTINGUISHER.  
Fire Fighting Procedures:NIOSH/MSHA APPRVD SCBA & FULL PROT EQUIP . FUMES MAY BE IRRITATING IF NOT BURNING & REQ AIR SUPPLY W/GOGG WHILE APPLYING LG AMTS OF WATER/DRY (SUPDAT)  
Unusual Fire/Explosion Hazard:NONE. COMBUSTIBLE REQUIRING THE ABOVE PROCEDURES.

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

Spill Release Procedures:POLYMERIZE WITH WATER. SOLID MATERIAL MAY BE SCRAPED FROM SURFACE.  
Neutralizing Agent:NONE SPECIFIED BY MANUFACTURER.

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

Handling and Storage Precautions:AVOID MOISTURE, DIRECT UV=SUNLIGHT AND DO NOT STORE ABOVE 25C. KEEP CNTNRS CLSD TIGHTLY WHEN NOT IN USE. AVOID BRTHG VAP, CONT WITH EYES/SKIN.  
Other Precautions:DO NOT SOTRE AT -5C WHICH FREEZES PRODUCT TO USELESS

STATE. PRODUCT NOT DAMAGED BY FREEZING.

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

Respiratory Protection:NORMALLY NOT NECESSARY. A NIOSH/MSHA APPROVED

ORGANIC VAPOR CANISTER MAY BE USED.

Ventilation:LOCAL EXHAUST:TO PREVENT EYE IRRITATION. MECHANICAL (GENERAL):LARGE AMOUNT:USED TO 2PPM.

Protective Gloves:VINYL (POLYETHYLENE)NON-STICKING GLOVES.

Eye Protection:SAFETY GLASSES & SIDE SHIELD.

Other Protective Equipment:RUBBER APRON TO PROTECT CLOTHING.

Work Hygienic Practices:SOAP AND WATER HELPS REMOVE ADHESIVE FROM SKIN.

Supplemental Safety and Health

SOL IN H\*20:INSOLUBLE, MATL REACTS TO HARDENED MASS FOR NON-HAZ WASTE.

FIRE FIGHT PROC:CHEM EXTING. FIRST AID PROC:WATER. INHAL:IRRIT OF

MUC MEMB/COUGHING. REMOVE TO FRESH AIR. INGEST:LIPS MAY BECOME

STUCK TOGETHER:APPLY COPIOUS AMTS OF WARM WATER & ENCOURAGE

SWETTING/PRESS FROM SALIVA INSIDE MOUTH. PEEL/ROLL (ING 4)

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

Boiling Pt:B.P. Text:149F,65C

Vapor Pres:1 @ 20C

Spec Gravity:1.05 (H\*20=1)

Evaporation Rate & Reference:NOT KNOWN

Solubility in Water:SUPP DATA

Appearance and Odor:TRANSPARENT WATER-WHITE TO STRAW COLORED LIQUID

WITH STIMULATIVE ODOR

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

Stability Indicator/Materials to Avoid:YES

POLYMERIZED BY WATER, ALCOHOL, AMINES, ALKALINE MATERIALS AND DIRECT

UV.

Stability Condition to Avoid:EXCESSIVE HEAT ABOVE 176F, MOISTURE AND ALKALINES. STABLE UP TO 122F. STORE IN COOL DRY PLACE.

Hazardous Decomposition Products:COMBUSTIBLE BY-PRODUCTS OF  
CARBON  
MONOXIDE/DIOXIDE.

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

Waste Disposal Methods:INCINERATE SOLID COMBUSTIBLE WASTE OR  
DUMP AS  
CHEMICAL WASTE ACCORDING TO LOCAL, STATE AND FEDERAL  
REGULATIONS.

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document should seek competent professional advice to verify and  
assume responsibility for the suitability of this information to their  
particular situation.

EMS CATALOG NO: 10000  
EMS PRODUCT: Acetone  
DATE: 4/22/96  
PAGE NUMBER: One of 7

#### MATERIAL SAFETY DATA SHEET

The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding the accuracy of these data or the results to be obtained from the use thereof.

Electron Microscopy Sciences assumes no responsibility for personal injury or property damage to vendees, users or third parties caused by the material. Such vendees or users assume all risks associated with the use of the material.

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P.O. BOX 251  
FORT WASHINGTON, PA 19034 24 HOUR EMERGENCY PHONE NUMBER  
(215) 646-1566 CHEMTREC: (800) 424-9300

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FOR PRODUCT AND SALES INFORMATION  
CONTACT ELECTRON MICROSCOPY SCIENCES OFFICE ABOVE.

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—  
PRODUCT IDENTIFICATION

PRODUCT NAME: Acetone  
CAS NO.: 67-64-1  
COMMON NAMES/SYNONYMS: 2-Propanone Dimethyl Ketal, Dimethyl Ketone  
FORMULA: C<sub>3</sub>H<sub>6</sub>O  
MOLECULAR WEIGHT: 58.08

NFPA RATING (MANUFACTURER):                      HAZARD RATING SCALE:  
HEALTH: 1    0 = NONE  
FIRE: 3    1 = MINIMAL  
REACTIVITY: 0    2 = MODERATE  
SPECIAL: None    3 = SERIOUS  
   4 = SEVERE

---

#### HAZARDOUS INGREDIENTS

COMPONENT	CAS NO.	% PEL	EXPOSURE LIMITS,PPM		LIMIT	HAZARD
			OSHA	ACGIH OTHER		
Acetone	67-64-1	>99	750	750	1,000	Flammable/Irritant (ACGIH STEL)

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#### PHYSICAL/CHEMICAL CHARACTERISTICS

BOILING POINT: 133F  
MELTING POINT: 142F  
SPECIFIC GRAVITY (WATER=1): 0.79  
VAPOR PRESSURE, mm Hg: 184  
pH: No data found  
VAPOR DENSITY (AIR=1): 2.0  
WATER SOLUBILITY : 100%  
EVAPORATION RATE (BUTYL ACETATE=1): 5.6  
% VOLATILE (BY VOLUME): 100  
APPEARANCE AND ODOR: Clear, colorless liquid; sweet odor.

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#### FIRST AID MEASURES

INHALATION: Remove to fresh air. Give artificial respiration if not breathing. Get immediate medical attention.

EYE CONTACT: Immediately flush eyes with lots of running water for 15 minutes, lifting the upper and lower eyelids occasionally. Get immediate attention.

SKIN CONTACT: Immediately wash skin with lots of soap and water. Remove contaminated clothing and shoes; wash before reuse. Get medical attention if irritation persists after washing.

INGESTION: Do not induce vomiting. If conscious, give lots of water. Get immediate medical attention. Do not give anything by mouth to an unconscious or convulsing person.

NOTES TO PHYSICIAN: The danger of aspiration must be weighed against toxicity when considering emptying the stomach. Stomach contents should be emptied quickly in a manner which avoids the vomitus from entering the lungs.

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## HEALTH HAZARD INFORMATION

PRIMARY ROUTES OF EXPOSURE: Inhalation, skin or eye contact.

### SIGNS AND SYMPTOMS OF EXPOSURE:

INHALATION: Prolonged or repeated exposure or breathing very high concentration may cause headaches, nausea, vomiting, dizziness, other central nervous system effects, convulsions, and in extreme cases, unconsciousness and death.

EYE CONTACT: Vapors will irritate the eyes. Liquid and mists will irritate and may burn the eyes.

SKIN CONTACT: Brief contact may dry the skin. Prolonged or repeated contact may irritate the skin causing dermatitis.

INGESTION: Swallowing large quantities causes headaches, nausea, vomiting, and perhaps unconsciousness. Can also cause liver and kidney injury.

CHRONIC EFFECTS OF EXPOSURE: No specific information available.

### MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE:

Preexisting eye or skin disorders may be aggravated by acetone exposure. Also, use of alcoholic beverages enhances toxic effects.

## TOXICITY DATA

ORAL: Rat LD50 = 9750 MG/KG

DERMAL: Rabbit LD50 = 20 G/KG

INHALATION: Rat LC50 = 16,000 PPM/4 HR

CARCINOGENICITY: This material is not considered to be a carcinogen by the National Toxicology Program, the International Agency for Research on Cancer, or The Occupational Safety and Health Administration.

OTHER DATA: Development of cataracts has been reported in laboratory animals after prolonged repeated skin exposure.

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## ECOLOGICAL INFORMATION SECTION

No data found

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## PERSONAL PROTECTION

VENTILATION: Local mechanical exhaust ventilation capable of maintaining emissions at the point of use below the PEL.

RESPIRATORY PROTECTION: If use conditions generate vapors or mists, wear a NIOSH- approved respirator appropriate for those emission levels.

Appropriate respirators may be a full facepiece or half mask air-purifying cartridge respirator equipped for organic vapors/mists, a self-contained breathing apparatus in the pressure demand mode, or a supplied-air respirator.

EYE PROTECTION: Chemical goggles unless a full facepiece respirator is also worn. It is generally recognized that contact lenses should not be worn when working with chemicals because contact lenses may contribute to the severity of an eye injury.

PROTECTIVE CLOTHING: Long-sleeved shirt, trousers, safety shoes, rubber gloves, and rubber apron.

OTHER PROTECTIVE MEASURES: An eyewash and safety shower should be nearby and ready for use.

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## FIRE AND EXPLOSION INFORMATION

FLASH POINT: -15oF METHOD USED: TCC

FLAMMABLE LIMITS IN AIR: LOWER: 2% UPPER: 13%

AUTOIGNITION TEMPERATURE: No data found

EXTINGUISHING MEDIA: Use water spray, dry chemical, CO2 or alcohol foam.

SPECIAL FIREFIGHTING PROCEDURES: Fire fighters should wear self-contained

breathing apparatus and full protective clothing. Use water spray to cool nearby containers and structures exposed to fire.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Acetone is extremely flammable. Extinguish all nearby sources of ignition. Avoid accumulation of water or acetone vapors because aqueous solutions containing more than 2.5% acetone vapors are flammable. Vapors formed from this product are heavier than air and may travel along the surface to a distant sources of ignition and flashback. Explosive vapor-air mixtures may be formed above the flash point or between the lower and upper flammable limits.

---

## HAZARDOUS REACTIVITY

STABILITY: Stable

POLYMERIZATION: Will not occur

CONDITIONS TO AVOID: Heat, Sparks, and Open Flames.

MATERIALS TO AVOID: Oxidizers, acids, alkalis, chlorinated compounds.

HAZARDOUS DECOMPOSITION PRODUCTS: May liberate carbon monoxide, carbon

dioxide, and unidentified organic compounds in black smoke.

---

## SPILL, LEAK AND DISPOSAL PROCEDURES

Action to take for spills or leaks: wear protective equipment including rubber boots, rubber gloves, rubber apron, and a self-contained breathing apparatus in the pressure demand mode or a supplied-air respirator. If the spill or leak is small, a full facepiece air-purifying cartridge respirator equipped for organic vapors may be satisfactory. In any event, always wear eye protection. Extinguish all ignition sources and ensure that all handling equipment is electrically grounded.



For small spills or drips, mop or wipe up and dispose of in DOT-approved waste containers. For large spills, contain by diking with soil or other non-combustible absorbent materials and then pump into DOT-approved waste containers; or absorb with non-combustible sorbent material, place residue in DOT-approved waste containers. Keep out of sewers, storm drains, surface waters, and soil.

Comply with all applicable governmental regulations on spill reporting, and handling and disposal of waste.

**DISPOSAL METHODS:** Dispose of contaminated product and materials used in cleaning up spills or leaks in a manner approved for this material. Consult with appropriate Federal, State and local regulatory agencies.

**NOTE:** Empty containers can have residues, gases and mists and are subject to proper waste disposal, as above.

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## SPECIAL PRECAUTIONS

**HANDLING AND STORAGE PRECAUTIONS:** Keep away from heat, sparks, and flames.

Store in a cool, dry, well-ventilated place away from incompatible materials. Vent container frequently, and more often in warm weather, to relieve pressure. Electrically ground all equipment when handling this product and use only non-sparking tools. Keep container tightly closed when not in use.

Do not use pressure to empty container. Wash thoroughly after handling. Do not get in eyes, on skin, or on clothing.

**REPAIR AND MAINTENANCE PRECAUTIONS:** Do not cut, grind, weld, or drill on or near this container.

**OTHER PRECAUTIONS:** Containers, even those that have been emptied, will retain product residue and vapors. Always obey hazard warnings and handle empty containers as if they were full.

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## OTHER REGULATORY INFORMATION

SECTION 313 - This product is a toxic chemical subject to the reporting

requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

PROPOSITION 65 (WITH CHEMICALS LISTED) - This product contains the following chemical(s) considered by the state of California's safe drinking water and Toxic Enforcement Act of 1986 (Proposition 65) as causing cancer or reproductive toxicity and for which warnings are required:

CHEMICALS	CAS NO.	% WT
Benzene	71-43-2	30 PPM

MASSACHUSETTS - Under the Massachusetts right-to know law, hazardous substance and extraordinarily hazardous substances components present in this product which requires reporting are:

HAZARDOUS SUBSTANCE	CAS NO.	CONC. (>1%)
Acetone	67-64-1	100

PENNSYLVANIA - Under the Pennsylvania right-to-know law, hazardous substances and special hazardous substances components present in this product which require reporting are:

HAZARDOUS SUBSTANCE	CAS NO.	CONC. (>1%)
Acetone	67-64-1	100

CALIFORNIA SCAQMD: Rule 443.1 VOC'S  
VOC: 790 G/L Vapor Pressure: 184 MMHG AT 68oF.

TSCA: THE INGREDIENTS OF THIS PRODUCT ARE ON THE TSCA INVENTORY.

EMS CATALOG NO: 14810  
EMS PRODUCT: EM GLASS  
DATE: 09/24/96  
PAGE NUMBER: One of 6

#### MATERIAL SAFETY DATA SHEET

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FOR PRODUCT AND SALES INFORMATION

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CONTACT ELECTRON MICROSCOPY SCIENCES OFFICE ABOVE.

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—  
PRODUCT IDENTIFICATION

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PRODUCT NAME: EM Glass

CHEMICAL NAME: Merckoglas(R) Liquid Cover Glass

CHEMICAL FAMILY: Organic substances in toluene

FORMULA: Organic substances in toluene

MOLECULAR WEIGHT: N/A

COMPONENT CAS # APPR %

Toluene 108-88-3 N/A

Also contains organic substances not disclosed by the manufacturer.

## HAZARDS IDENTIFICATION

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### EMERGENCY OVERVIEW:

Flammable liquid and vapor.  
Harmful or fatal if swallowed.  
Vapor harmful.  
May be irritating to skin, eyes and mucous membranes.  
May cause damage to central nervous system, liver, kidneys and lungs.

APPEARANCE: Colorless, viscous liquid.

### POTENTIAL HEALTH EFFECTS (ACUTE AND CHRONIC)

#### Symptoms of Exposure:

Quantitative data on the toxicity of this product is not available.  
Expected properties on the grounds of the components:  
Harmful or fatal if swallowed. Vapor harmful if inhaled.

Symptoms: Headache, dizziness, hallucinations, distorted perceptions, changes in motor activity, nausea, diarrhea, respiratory irritation, central nervous system depression, unconsciousness, liver, kidney and lung damage. Contact can cause severe eye irritation. May cause skin irritation.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Data not available.

ROUTES OF ENTRY: Inhalation, ingestion.

CARCINOGENICITY: The material is not listed (IARC, NTP, OSHA) as cancer causing agent.

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## FIRST AID MEASURES

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### EMERGENCY FIRST AID:

GET MEDICAL ASSISTANCE FOR ALL CASES OF OVEREXPOSURE.

SKIN: Wash thoroughly with soap and water.

EYES: Immediately flush thoroughly with water for at least 15 minutes.

INHALATION: Remove to fresh air; give artificial respiration if breathing has stopped.

INGESTION: If conscious, drink water and induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person.

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## FIRE FIGHTING MEASURES

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FLASH POINT (F): 47oF  
FLAMMABLE LIMITS LEL (%): N/A  
FLAMMABLE LIMITS UEL (%): N/A

EXTINGUISHING MEDIA: Dry chemical, CO2, or "alcohol" foam.

FIREFIGHTING PROCEDURES: Wear self-contained breathing apparatus and protective clothing.

FIRE & EXPLOSION HAZARDS: Dangerous fire and explosion hazard. Vapor can travel distances to ignition source and flash back.

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## ACCIDENTAL RELEASE MEASURES

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### SPILL RESPONSE:

Evacuate the area of all unnecessary personnel. Wear suitable protective equipment listed under Exposure/Personal Protection. Eliminate any ignition sources until the area is determined to be free from explosion or fire hazards. Contain the release and eliminate its source, if this can be done without risk. Take up and containerize for proper disposal as described under Disposal.

Comply with Federal, State, and local regulations on reporting releases. Refer to Regulatory Information for reportable quantity and other regulatory data.

The following Electron Microscopy Sciences clean up kit is recommended for this product:

SX0863 Solvent Spill Treatment Kit

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## HANDLING AND STORAGE

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Keep container closed.

Store in a cool, dry area away from ignition sources and oxidizers.

Do not breath vapor or mist.

Do not get in eyes, on skin, or on clothing.

Electrically ground all equipment when handling this product.

Retained residue may make empty containers hazardous; use caution!

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## EXPOSURE CONTROLS/PERSONAL PROTECTION

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### ENGINEERING CONTROLS AND PERSONAL PROTECTIVE EQUIPMENT:

Ventilation, Respiratory Protection, Protective Clothing, Eye Protection

Material should be handled or transferred in an approved fume hood or with adequate ventilation.

Protective gloves should be worn to prevent skin contact (Viton or equivalent).

Safety glasses with side shields should be worn at all times.

Respiratory Protection: If workplace exposure limit(s) of product or any component is exceeded (see TLV/PEL), a NIOSH/MSHA approved air supplied respirator is advised in absence of proper environmental control. OSHA regulations also permit other NIOSH/MSHA respirators (negative pressure type) under specified conditions (see your safety equipment supplier). Engineering and/or administrative controls should be implemented to reduce exposure.

#### WORK/HYGIENIC PRACTICES:

Wash thoroughly after handling. Do not take internally.  
Eye wash and safety equipment should be readily available.

#### EXPOSURE GUIDELINES:

TWA	STEL	CL	COMPONENT	PPM	MG/M3	PPM	MG/M3	PPM	MG/M3	SKIN
Toluene	100	375	150	560						

ACGIH - TLV:	TWA	STEL	CL	COMPONENT	PPM	MG/M3	PPM	MG/M3	PPM	MG/M3	SKIN
Toluene	50	188	X								

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#### PHYSICAL AND CHEMICAL PROPERTIES

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BOILING POINT (C 760 mmHg): N/A  
MELTING POINT (C): N/A  
SPECIFIC GRAVITY (H<sub>2</sub>O = 1): .91  
VAPOR PRESSURE (mm Hg) N/A  
PERCENT VOLATILE BY VOL (%): N/A  
VAPOR DENSITY (AIR =1): N/A  
EVAPORATION RATE (BuAc = 1): N/a  
SOLUBILITY IN WATER (%): Soluble  
APPEARANCE: Colorless, viscous liquid.

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#### STABILITY AND REACTIVITY



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STABILITY: Stable.  
HAZARDOUS POLYMERIZATION: Does not occur.  
HAZARDOUS DECOMPOSITION: CO<sub>2</sub>, hydrocarbons.  
CONDITIONS TO AVOID: Heat; contact with ignition sources.  
MATERIALS TO AVOID: Oxidizers.

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#### TOXICOLOGICAL INFORMATION

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TOXICITY DATA: None established.

TOXICOLOGICAL FINDINGS: None-Cited in Registry of Toxic Effects of Substances (RTECS).

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#### DISPOSAL CONSIDERATIONS

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EPA WASTE NUMBERS: D001 U220

TREATMENT:

Incineration, fuels blending or recycle. Contact your local permitted waste disposal site (TSD) for permissible treatment sites. Always contact a permitted waste disposer (TSD) to assure compliance with all current local, State and Federal regulations.

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#### TRANSPORT INFORMATION

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DOT SHIPPING NAME: Flammable liquid, n.o.s. (contains Toluene)

DOT NUMBER: UN1993

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## REGULATORY/OTHER INFORMATION

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TSCA STATEMENT: This product is a "Mixture". CAS number(s) of component(s) NOT listed on TSCA Inventory.

For Research and Development Use only; Not for Manufacturing or Commercial purposes.

COMPONENT: SARA EHS (302) SARA EHS TPQ (lbs) CERCLA RQ (lbs)

Toluene 1000

OSHA Floor List SARA 313 DeMinimis for SARA 313

%

Toluene Y Y 1.0

NFPA Hazard Ratings: Health - 1

Flammability - 3

Reactivity - 0

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

Product ID:MINERAL SPIRITS 75

MSDS Date:01/01/1985

FSC:8010

NIIN:01-127-6897

MSDS Number: BGNM

=== Responsible Party ===

Company Name:UNION OIL CO OF CALIFORNIA, CORP. DIV-EASTERN

Address:1650 EAST GOLF ROAD

City:SCHAUMBURG

State:IL

ZIP:60195

Country:US

Info Phone Num:708-619-2644

Emergency Phone Num:708-619-2644

CAGE:77416

=== Contractor Identification ===

Company Name:UNION OIL CO OF CALIFORNIA, CORP. DIV-EASTERN

Address:1650 EAST GOLF ROAD

Box:City:SCHAUMBURG

State:IL

ZIP:60195

Country:US

Phone:708-619-2644

CAGE:77416

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

Ingred Name:NAPHTHA (PETROLEUM SPIRITS OR BENZIN)

CAS:8030-30-6

RTECS #:SE7555000

Fraction by Wt: 100%

OSHA PEL:100 PPM

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

Effects of Overexposure:EYES:SEVERE IRRIT. SKIN: DRYNESS.

INH:HDCH,DIZZ,NAUSEA.

===== First Aid Measures

=====

First Aid:EYES: FLUSH W/WATER 15 MINS,CALL MD. SKIN:WASH W/MILD

SOAP &  
WATER,APPLY SKIN CREAM. INH:MOVE TO FRESH AIR & CALL MD.  
APPLY  
ARTIFICIAL RESP IF NEC.

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

Flash Point:108F.42C PCC  
Lower Limits:1.0  
Upper Limits:6.0  
Extinguishing Media:WATER SPRAY, CO\*2,FOAM,DRY CHEMICAL  
Fire Fighting Procedures:WEAR SCBA. USE WATER SPRAY TO COOL  
FIRE-EXPOSED CONTAINERS.  
Unusual Fire/Explosion Hazard:A DANGEROUS FIRE HAZARD IF HEATED OR  
SPRAYED IN AIR.

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

Spill Release Procedures:FLUSH WITH WATER INTO RETAINING AREA OR  
CONTAINER. AVOID EXPOSURE TO SPARKS,FIRE, OR HOT METAL  
SURFACES.  
VENTILATE AREA.

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

Handling and Storage Precautions:KEEP AWAY FROM HEAT, SPARKS &  
OPEN  
FLAME. USE WITH ADEQUATE VENTILATION. AVOID PROLONGED OR  
REPEATED  
CONTACT W/SKIN. KEEP CNTNRS CLSD WHEN NOT IN USE.

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

Respiratory Protection:SCBA FOR CONCENTRATIONS ABOVE TLV LIMITS.  
Ventilation:LOCAL EXHAUST  
Protective Gloves:YES  
Eye Protection:YES  
Other Protective Equipment:EYE BATH AND SAFETY SHOWER.  
Supplemental Safety and Health  
CONFORMS TO TT-T-291E,TYPE II, GRADE A. BP:156-198C. EVAP  
RATE:<0.1,N-BUAC PER GE MSDS #1257.CONTAINER SIZE:1 QT. CAN.

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

HCC:F4  
Boiling Pt:B.P. Text:313F-388F  
Vapor Pres:2.0  
Vapor Density:4.9  
Spec Gravity:0.781  
Evaporation Rate & Reference:SEE SUPP DATA  
Solubility in Water:NEGLIGIBLE  
Appearance and Odor:CLEAR LIQUID,CHARACTERISTIC ODOR.  
Percent Volatiles by Volume:100

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

Stability Indicator/Materials to Avoid:YES  
STRONG OXIDIZING AGENTS  
Stability Condition to Avoid:HEAT,SPARKS, OPEN FLAMES & FIRE.  
Hazardous Decomposition Products:THERMAL DECOMP MAY YIELD CO.

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

Waste Disposal Methods:INCINERATE UNDER SAFE CONDITIONS OR  
DISPOSE OF  
IN ACCORDANCE WITH LOCAL,STATE, OR FEDERAL REGULATIONS.

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assume responsibility for the suitability of this information to their  
particular situation.

HENRY SCHEIN INC -- ALCOHOL-DENATURED -- 6810-00F012186

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

Product ID:ALCOHOL-DENATURED  
MSDS Date:01/01/1987  
FSC:6810  
NIIN:00F012186  
MSDS Number: BJBWG  
=== Responsible Party ===  
Company Name:HENRY SCHEIN INC  
Address:5 HARBOR PARK DR  
City:PORT WASHINGTON  
State:NY  
ZIP:11050  
Info Phone Num:(516) 621-4300  
Emergency Phone Num:(516) 621-4300  
CAGE:64682

==== Contractor Identification ====

Company Name:HENRY SCHEIN INC  
Address:5 HARBOR PARK DR  
Box:City:PORT WASHINGTON  
State:NY  
ZIP:11050  
Phone:(516) 621-4300  
CAGE:64682

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

Ingred Name:METHYL ALCOHOL (METHANOL) (SARA III)  
CAS:67-56-1  
RTECS #:PC1400000  
Other REC Limits:200 PPM  
OSHA PEL:S,200PPM/250STEL  
ACGIH TLV:S,200PPM/250STEL; 93  
EPA Rpt Qty:5000 LBS  
DOT Rpt Qty:5000 LBS

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

Routes of Entry: Inhalation:YES Skin:NO Ingestion:NO  
Reports of Carcinogenicity:NTP:NO IARC:NO OSHA:NO

Health Hazards Acute and Chronic:INHALATION: MAY CAUSE SYSTEMIC POISONING.

Explanation of Carcinogenicity:NONE

Effects of Overexposure:INHALATION: MAY CAUSE SYSTEMIC POISONING.

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

First Aid:EYES: FLUSH W/PLENTY OF WATER. CONTACT PHYSICIAN. SKIN: WASH

CONTAMINATED AREA W/SOAP & WATER. INGESTION: INDUCE VOMITING. GIVE

2 GLASSES WATER & STICK FINGER DOWN THROAT OR DILUTE POINT W/WATER.

INHA LATION: REMOVE FROM CONTAMINATED AREA IMMEDIATELY.

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

Flash Point Method:TOC

Flash Point:60F

Lower Limits:5.5%

Upper Limits:36.5

Extinguishing Media:ALCOHOL OR POLYMER FOAM, CO2 OR DRY CHEMICAL

Fire Fighting Procedures:ADDITION OF WATER TO BURNING FUEL WILL REDUCE

THE INTENSITY OF FLAME.

Unusual Fire/Explosion Hazard:NONE

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

Spill Release Procedures:ELIMINATE IGNITION SOURCE. CONTAIN SPILL FOR

SALVAGE OR DISPOSAL. USE OF ANY DILUTION WATER SHOULD BE CLOSELY

CONTROLLED TO MINIMIZE SPILL VOLUME. AVOID RUN-OFF INTO STORM

SEWERS & DITCHES WHICH LEAD TO NATURAL WATERWAYS. ADVISE AUTHORITIES OF SPILL.

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

Handling and Storage Precautions:DON'T LEAVE CONTAINER OPEN. USE

W/ADEQUATE VENTILATION. AVOID PROLONGED/REPEATED CONTACT W/SKIN.

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

Respiratory Protection:SELF-CONTAINED BREATHING APPARATUS.  
Ventilation:MECHANICAL: ACCEPTABLE. LOCAL EXHAUST: PREFERABLE  
Protective Gloves:NEOPRENE, RUBBER  
Eye Protection:CHEMICAL SAFETY GOGGLES  
Other Protective Equipment:IMPERVIOUS APRON, BOOTS, EYE BATH & SAFETY SHOWER.  
Supplemental Safety and Health

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

Boiling Pt:B.P. Text:64.6F  
Vapor Pres:96.0  
Vapor Density:1.11  
Spec Gravity:0.7925  
Evaporation Rate & Reference:(BU AC = 1): 1  
Solubility in Water:COMPLETE  
Appearance and Odor:WATER-WHITE LIQUID; CHARACTERISTIC ODOR.  
Percent Volatiles by Volume:100%

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

Stability Indicator/Materials to Avoid:YES  
Stability Condition to Avoid:HEAT, SPARKS & FIRE

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

Waste Disposal Methods:CHEMICAL INCINERATOR; BIOLOGICAL TREATMENT;  
LANDFILL.

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GOEX INC -- BLACK POWDER -- 1376-00N037788

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

Product ID:BLACK POWDER

MSDS Date:09/01/1988

FSC:1376

NIIN:00N037788

MSDS Number: BQWTX

=== Responsible Party ===

Company Name:GOEX INC

Address:1002 SPRINGBROOK AVE

City:MOOSIC

State:PA

ZIP:18507

Country:US

Info Phone Num:717-457-6724

Emergency Phone Num:717-457-6724;800-424-9300(CHEMTREC)

CAGE:51580

=== Contractor Identification ===

Company Name:GOEX INC

Address:1002 SPRINGBROOK AVE

Box:City:MOOSIC

State:PA

ZIP:18507

Country:US

Phone:717-457-6724

CAGE:51580

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

Ingred Name:POTASSIUM NITRATE

CAS:7757-79-1

RTECS #:TT3700000

Fraction by Wt: 70-76%

Ingred Name:CHARCOAL  
CAS:16291-96-6  
RTECS #:FL7243500  
Fraction by Wt: 8-18%

Ingred Name:SULFUR; (SULPHUR)  
CAS:7704-34-9  
RTECS #:WS4250000  
Fraction by Wt: 9-20%

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

LD50 LC50 Mixture:NONE SPECIFIED BY MANUFACTURER.  
Routes of Entry: Inhalation:YES Skin:NO Ingestion:NO  
Reports of Carcinogenicity:NTP:NO IARC:NO OSHA:NO  
Explanation of Carcinogenicity:NOT RELEVANT

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

First Aid:INGEST:CALL MD IMMEDIATELY . INHAL:REMOVE TO FRESH AIR.  
SUPPORT BREATHING (GIVE O\*2/ARTF RESP) . EYES:IMMEDIATELY  
FLUSH  
W/POTABLE WATER FOR A MINIMUM OF 15 MINUTES, SEEK  
ASSISTANCE FROM  
MD . SKIN:FLUSH W/COPIOUS AMOUNTS OF WATER. CALL MD .

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

Extinguishing Media:WATER.  
Fire Fighting Procedures:DO NOT FIGHT FIRES. EVACUATE AREA.  
Unusual Fire/Explosion Hazard:DO NOT FIGHT FIRES. BLACK POWDER MAY  
DEFLAGRATE OR EXPLODE IN A FIRE WHILE CONFINED. EVACUATE  
AREA.

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

Spill Release Procedures:CAREFULLY PICK UP SPILLS W/NONSPARKING &  
NONSTATIC PRODUCING TOOLS. SUPERVISION ONLY BY A PERSON  
KNOWLEDGEABLE IN EXPLOSIVES.  
Neutralizing Agent:NONE SPECIFIED BY MANUFACTURER.

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

Handling and Storage Precautions:NO SMOKING. STORE IN A COOL, DRY PLACE.

Other Precautions:AFFECTED EQUIPMENT MUST BE THOROUGHLY WATER CLEANED

BEFORE ATTEMPTING REPAIRS. USE ONLY NONSPARKING TOOLS.

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

Respiratory Protection:USE NIOSH/MSHA APPROVED RESPIRATOR APPROPRIATE

FOR EXPOSURE OF CONCERN .

Ventilation:NOT REQUIRED IN OPEN, UNCONFINED AREAS.

Protective Gloves:IMPERVIOUS GLOVES .

Eye Protection:CHEMICAL WORKERS GOGGLES .

Other Protective Equipment:METAL FREE & NONSTATIC PRODUCING CLOTHES.

Work Hygienic Practices:WASH HANDS/SHOWER.

Supplemental Safety and Health

SPEC GRAV:1.7-1.82 (H\*2O=1).

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

Spec Gravity:SUPP DATA

pH:6-8

Solubility in Water:HIGH

Appearance and Odor:BLACK; NO ODOR.

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

Stability Indicator/Materials to Avoid:YES

Stability Condition to Avoid:KEEP AWAY FROM HEAT, SPARKS & OPEN FLAME.

AVOID IMPACT, FRICTION & STATIC ELECTRICITY.

Hazardous Decomposition Products:NONE SPECIFIED BY MANUFACTURER.

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

Waste Disposal Methods:DE-SENSITIZE BY DILUTING IN WATER. OPEN TRAIN

BURNING OF SMALL UNCONFINED QUANTITIES. ALL PROCEDURES MUST BE IN

COMPLIANCE W/ALL LOCAL, STATE & FEDERAL REGULATIONS.

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particular situation.

BUCKEYE FIRE EQUIPMENT CO -- CARBON DIOXIDE (CO2) -- 4210-00-203-  
0217

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

Product ID:CARBON DIOXIDE (CO2)

MSDS Date:12/01/1990

FSC:4210

NIIN:00-203-0217

MSDS Number: BXWLF

=== Responsible Party ===

Company Name:BUCKEYE FIRE EQUIPMENT CO

Address:102 INDUSTRIAL DR

City:KINGS MOUNTAIN

State:NC

ZIP:28086

Country:US

Info Phone Num:704-739-7415

Emergency Phone Num:704-739-7415

CAGE:57658

=== Contractor Identification ===

Company Name:BUCKEYE FIRE EQUIPMENT CO

Address:110 KINGS RD

Box:428

City:KINGS MOUNTAIN

State:NC

ZIP:28086

Country:US

Phone:704-739-7415

CAGE:57658

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

Ingrid Name:CARBON DIOXIDE  
CAS:124-38-9  
RTECS #:FF6400000  
Other REC Limits:NONE RECOMMENDED  
OSHA PEL:5000 PPM  
ACGIH TLV:5000PPM/30000STEL;95

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

Routes of Entry: Inhalation:YES Skin:NO Ingestion:NO  
Reports of Carcinogenicity:NTP:NO IARC:NO OSHA:NO  
Health Hazards Acute and Chronic:ACUTE: DIRECT CONTACT WITH LIQUID  
OR

SOLID WILL CAUSE BURNS, FROSTBITE OR BLINDNES. CARBON  
DIOXIDE IS AN  
ASPHYXIANT (DISPLACES OXYGEN). CHRONIC: NONE SPECIFIED BY  
MANUFACTURER.

Explanation of Carcinogenicity:NO INGREDIENT OF A CONCENTRATION OF  
0.1%

OR GREATER IS LISTED AS A CARCINOGEN OR SUSPECTED  
CARCINOGEN.

Effects of Overexposure:INHALED-SHORTNESS OF BREATH, INCREASED  
INHALATION RATE, UNCONSCIOUSNESS, POSSIBLE DEATH. CONTACT  
(SKIN,

EYES): BURNS, FROSTBITE, PAIN.

Medical Cond Aggravated by Exposure:NONE KNOWN.

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

First Aid:SKIN/EYES-TREAT AREA EXPOSED TO SOLID OR LIQUID AS  
FROSTBITE.

GET IMMEDIATE MEDICAL ATTENTION. INHALED-REMOVE TO FRESH  
AIR.

RESTORE BREATHING IF REQUIRED. GET MEDICAL ATTENTION.

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

Extinguishing Media:NONE, THIS MATERIAL IS AN EXTINGUISHING AGENT.  
DLA-

HMIS: USE MEDIA APPROPRIATE FOR SURROUNDING FIRE.

Fire Fighting Procedures:NONE. DLA-HMIS: WEAR SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE GEAR. COOL FIRE EXPOSED CONTAINERS WITH WATER.  
Unusual Fire/Explosion Hazard:NONE.

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

Spill Release Procedures:RELEASED GAS WILL DISSIPATE RAPIDLY AND HARMLESSLY TO ATMOSPHERE, IN OPEN AREAS. IN CONFINED OR ENCLOSED AREAS, MOVE PERSONNEL AND VENTILATE AREA. VENT TO ATMOSPHERE.  
Neutralizing Agent:NONE SPECIFIED BY MANUFACTURER.

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

Handling and Storage Precautions:STORE AWAY FROM DIRECT HEAT OR FLAME.  
Other Precautions:NONE.

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

Respiratory Protection:IF ENGINEERING CONTROLS FAIL OR NON-ROUTINE USE OR AN EMERGENCY OCCURS; WEAR AN MSHA/NIOSH APPROVED AIR-SUPPLIED RESPIRATOR OR SCBA, AS REQUIRED. USE IN ACCORDANCE WITH 29 CFR 1910.134 AND MANUFACTURE R'S RECOMMENDATIONS.  
Ventilation:USE ADEQUATE MECHANICAL VENTILATION OR LOCAL EXHAUST TO MAINTAIN EXPOSURE BELOW TLV(S).  
Protective Gloves:USE INSULATED GLOVES IF LIQUID OR SOLID.  
Eye Protection:SAFETY GLASSES.  
Other Protective Equipment:NONE REQUIRED.  
Work Hygienic Practices:USE GOOD HYGIENE AND GOOD HOUSEKEEPING PRACTICES.  
Supplemental Safety and Health  
CONTAINS 15 POUNDS, NOMINAL.

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

HCC:G3  
Boiling Pt:B.P. Text:-109F,-78C  
Vapor Pres:GAS @ 70F  
Vapor Density:1.52  
Evaporation Rate & Reference:HIGH (N-BUTYL ACETATE=1)  
Solubility in Water:SLIGHT  
Appearance and Odor:COLORLESS LIQUID OR GAS; NO ODOR.

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

Stability Indicator/Materials to Avoid:YES  
NONE SPECIFIED BY MANUFACTURER.  
Stability Condition to Avoid:NONE SPECIFIED BY MANUFACTURER.  
Hazardous Decomposition Products:NONE SPECIFIED BY MANUFACTURER.  
Conditions to Avoid Polymerization:WILL NOT OCCUR.

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

Waste Disposal Methods:DLA-HMIS: DISPOSE OF IN ACCORDANCE WITH  
LOCAL,  
STATE AND FEDERAL ENVIRONMENTAL REGULATIONS.

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particular situation.

AERVOE-PACIFIC CO INC -- 936 SILICONE LUBE, 50A -- 6850-00N078808  
===== Product Identification =====

Product ID:936 SILICONE LUBE, 50A  
MSDS Date:01/14/1993  
FSC:6850  
NIIN:00N078808  
MSDS Number: CGGPN  
=== Responsible Party ===  
Company Name:AERVOE-PACIFIC CO INC  
Address:1198 SAWMILL RD  
City:GARDNERVILLE  
State:NV  
ZIP:89410  
Country:US  
Info Phone Num:702-782-0100  
Emergency Phone Num:800-424-9300(CHEMTREC)  
Preparer's Name:MIKE A. TRAQUINA  
CAGE:0UPL1  
=== Contractor Identification ===



Company Name:AERVOE-PACIFIC CO INC  
Address:1198 SAWMILL RD  
Box:City:GARDNERVILLE  
State:NV  
ZIP:89410  
Country:US  
Phone:702-782-0100  
CAGE:0UPL1

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

Ingred Name:HEXANE; (N-HEXANE) (CERCLA). LD50:(ORAL,RAT) 28710  
MG/KG.

CAS:110-54-3  
RTECS #:MN9275000  
Fraction by Wt: 30%  
OSHA PEL:500 PPM  
ACGIH TLV:50 PPM  
EPA Rpt Qty:1 LB  
DOT Rpt Qty:1 LB

Ingred Name:VM & P NAPHTHA; (PETROLEUM NAPHTHA). LD50:(ORAL,RAT)  
>25

MG/KG.  
CAS:64742-89-8  
Fraction by Wt: 35%  
OSHA PEL:400 PPM (MFR)  
ACGIH TLV:400 PPM (MFR)

Ingred Name:PROPANE  
CAS:74-98-6  
RTECS #:TX2275000  
Fraction by Wt: 15%  
OSHA PEL:1000 PPM  
ACGIH TLV:ASPHYXIAN

Ingred Name:PROPANE, 2-METHYL-; (ISOBUTANE)  
CAS:75-28-5  
RTECS #:TZ4300000  
Fraction by Wt: <5%  
OSHA PEL:800 PPM (MFR)  
ACGIH TLV:800 PPM (MFR)

Ingred Name:BUTANE; (NORMAL BUTANE)

CAS:106-97-8  
RTECS #:EJ4200000  
Fraction by Wt: 10%  
OSHA PEL:800 PPM  
ACGIH TLV:800 PPM

Ingred Name:VOLATILE ORGANIC COMPOUNDS (COATING): 5.09 LBS/GAL  
(610  
G/L).  
RTECS #:9999999VO

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

LD50 LC50 Mixture:SEE INGREDIENTS.  
Routes of Entry: Inhalation:YES Skin:YES Ingestion:YES  
Reports of Carcinogenicity:NTP:NO IARC:NO OSHA:NO  
Health Hazards Acute and Chronic:INHALATION:ANESTHETIC, IRRITATION  
OF  
THE RESPIRATORY TRACT OR NERVOUS SYSTEM DEPRESSION-  
CHARACTERIZED BY  
HEADACHE, DIZZINESS, NAUSEA OR POSSIBLE UNCONSCIOUSNESS.  
EYE  
CONTACT:PRIMARY IRRITATION. SKIN:CONTACT OR ABSORPTION  
MAY CAUSE  
IRRITATION OR BURNING SENSATION. PROLONGED OR REPEATED  
CONTACT MAY  
CAUSE(EFTS OF OVEREXP)  
Explanation of Carcinogenicity:NOT RELEVANT  
Effects of Overexposure:HLTH HAZ:DERMATITIS - EXERCISE DUE CARE.  
INGESTION:NOT APPLICABLE.  
Medical Cond Aggravated by Exposure:NONE KNOWN.

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

First Aid:INGEST:CALL MD IMMEDIATELY . INHAL:REMOVE FROM  
EXPOSURE &  
RESTORE BREATHING, SEEK MEDICAL ATTENTION. SKIN:WASH  
AFFECTED AREA.  
REMOVE CONTAMINATED CLOTHING. SEE MD IF ANY IRRITATION  
PERSISTS.  
EYE S:FLUSH IMMEDIATELY W/WATER FOR AT LEAST 15 MINUTES &  
TAKE TO  
MD.

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

Flash Point:-0F,-18C

Lower Limits:1%

Upper Limits:9.5%

Extinguishing Media:FOAM, ALCOHOL FOAM, CO\*2, DRY CHEMICAL, WATER FOG.

Fire Fighting Procedures:USE NIOSH APPROVED SCBA & FULL PROTECTIVE EQUIPMENT . WATER SPRAY MAY BE USED TO COOL CONTAINERS EXPOSED TO HEAT OR FIRE.

Unusual Fire/Explosion Hazard:CLSD CNTNRS MAY EXPLODE DUE TO BUILD UP

OF PRESS FROM EXTREME HEAT/FIRE. AEROSOL SPRAY IS EXTREMELY FLAMM.

SENSITIVITY TO IMPACT:DO NOT PUNCTURE. (SUPP DATA)

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

Spill Release Procedures:REMOVE ALL SOURCES OF IGNITION, FLAMES, SPARKS, STATIC ELECTRICITY & ELECTRICAL. VENTILATE AREA & SOAK UP

W/INERT ABSORBENT USING NON-SPARKING TYPE TOOLS.

Neutralizing Agent:NONE SPECIFIED BY MANUFACTURER.

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

Handling and Storage Precautions:DO NOT STORE ABOVE 120F. DO NOT STORE

OR USE NEAR HEAT, SPARKS OR FLAME. DO NOT GET IN EYES. DO NOT

BREATHE VAPORS. AVOID SKIN CONTACT.

Other Precautions:DO NOT TAKE INTERNALLY. SMOKING WHILE USING THIS

PRODUCT MUST BE STRICTLY PROHIBITED. AVOID PROLONGED OR REPEATED CONTACT.

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

Respiratory Protection:IN RESTRICTED AREAS W/POOR VENTILATION USE

A

NIOSH APPROVED RESPIRATOR W/ORGANIC VAPOR CARTRIDGE.  
Ventilation:ALL APPLICATION AREAS SHOULD BE ADEQUATELY  
VENTILATED IN

ORDER TO KEEP INGREDIENTS BELOW THEIR EXPOSURE LIMITS.  
Protective Gloves:IMPERVIOUS GLOVES.

Eye Protection:ANSI APPROVED CHEM WORKERS GOGGS .

Other Protective Equipment:EYE WASH FOUNTAIN & DELUGE SHOWER  
WHICH MEET

ANSI DESIGN CRITERIA . IMPERVIOUS APRON IS REC TO PREVENT  
SKIN

CONT.

Work Hygienic Practices:NONE SPECIFIED BY MANUFACTURER.

Supplemental Safety and Health

EXPLO HAZ:SENSITIVITY TO STATIC DISCHARGE: PRIMARILY VAPORS.

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

Boiling Pt:B.P. Text:10F,-12C

Vapor Density:HVR/AIR

Spec Gravity:0.7 (H\*2O=1)

Evaporation Rate & Reference:FASTER/N-BUTYL ACETATE

Solubility in Water:NEGLIGIBLE

Appearance and Odor:CLEAR LIQUID; SOLVENT BASED ODOR.

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

Stability Indicator/Materials to Avoid:YES

STRONG OXIDIZING AGENTS.

Stability Condition to Avoid:HIGH TEMPERATURES.

Hazardous Decomposition Products:CARBON MONOXIDE & CARBON  
DIOXIDE.

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

Waste Disposal Methods:DISPOSE OF I/AW LOCAL, STATE & FEDERAL  
REGULATIONS. DO NOT INCINERATE CLOSED CONTAINERS.

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particular situation.

BOWMAN DISTRIBUTION, BANRES GROUP INC -- 21911 WHITE LUBE  
LITHIUM GREASE -- 9150-00F014116

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

Product ID:21911 WHITE LUBE LITHIUM GREASE

MSDS Date:10/18/1988

FSC:9150

NIIN:00F014116

MSDS Number: BJTPZ

=== Responsible Party ===

Company Name:BOWMAN DISTRIBUTION, BANRES GROUP INC  
Address:850 EAST 72ND STREET  
City:CLEVELAND  
State:OH  
ZIP:44103  
Info Phone Num:(216) 391-7200  
Emergency Phone Num:(216) 391-7200  
CAGE:05575

=== Contractor Identification ===

Company Name:BOWMAN DISTRIBUTION, BARNES GROUP INC  
Address:1301 EAST 9TH ST, SUITE 700  
Box:City:CLEVELAND  
State:OH  
ZIP:44114-1824  
Country:US  
Phone:216-416-7200  
CAGE:05573

Company Name:BOWMAN DISTRIBUTION, BARNES GROUP INC.  
Address:850 EAST 72ND STREET  
City:CLEVELAND  
State:OH  
ZIP:44103  
Phone:(216) 391-7200  
CAGE:05575

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

Ingred Name:METHYL CHLOROFORM (1,1,1-TRICHLOROETHANE) (SARA III)  
CAS:71-55-6  
RTECS #:KJ2975000  
Fraction by Wt: 15.0%  
Other REC Limits:350 PPM (CL)  
OSHA PEL:350 PPM/450 STEL  
ACGIH TLV:350 PPM/450STEL;9192  
EPA Rpt Qty:1000 LBS  
DOT Rpt Qty:1000 LBS  
Ozone Depleting Chemical:1

Ingred Name:HEXANE (N-HEXANE)  
CAS:110-54-3  
RTECS #:MN9275000  
Fraction by Wt: 22.0%  
Other REC Limits:50 PPM  
OSHA PEL:500 PPM

ACGIH TLV:50 PPM; 9293  
EPA Rpt Qty:1 LB  
DOT Rpt Qty:1 LB

Ingred Name:GREASE  
Fraction by Wt: 38.0%

Ingred Name:ISOBUTANE, 2-METHYLPROPANE  
CAS:75-28-5  
RTECS #:TZ4300000  
Fraction by Wt: <25.0%  
Other REC Limits:1000 PPM  
OSHA PEL:1800 MG/CUM  
ACGIH TLV:1000 PPM

Ingred Name:PROPANE  
CAS:74-98-6  
RTECS #:TX2275000  
Fraction by Wt: <25.0%  
Other REC Limits:1800 MG/CUM  
OSHA PEL:1000 PPM  
ACGIH TLV:ASPHYXIAN; 9192

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

Routes of Entry: Inhalation:YES Skin:YES Ingestion:YES  
Reports of Carcinogenicity:NTP:NO IARC:NO OSHA:NO  
Health Hazards Acute and Chronic:INHALATION: DIZZINESS OR NARCOSIS.  
SKIN: DEFATTING, EFFECTS ARE REVERSIBLE. LONG TERM  
EXPOSURE VAPOR  
MAY CAUSE LUNG, LIVER OR KIDNEY DAMAGE. THE SOLVENTS LISTED  
HAVE  
BEEN REPORTED TO AFFECT THE CENTRA L NERVOUS SYSTEM.  
INGESTION:  
HARMFUL.  
Explanation of Carcinogenicity:NONE  
Effects of Overexposure:INHALATION: DIZZINESS, NARCOSIS. SKIN:  
DEFATTING, EFFECTS ARE REVERSIBLE. LONG TERM EXPOSURE  
VAPOR MAY  
CAUSE LUNG, LIVER OR KIDNEY DAMAGE. THE SOLVENTS LISTED  
HAVE BEEN  
REPORTED TO AFFECT THE CENTRAL NERVOUS SYSTEM. INGESTION:  
HARMFUL.  
Medical Cond Aggravated by Exposure:HEART DISEASE, RESPIRATORY

DISORDER.

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

First Aid:INHALATION: IF UNCONSCIOUS, REMOVE PERSON TO FRESH AIR. EYES:  
FLUSH W/LARGE QUANTITIES OF WATER. OBTAIN MEDICAL ATTENTION IN ALL CASES.

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

Flash Point Method:TCC  
Flash Point:-40F  
Lower Limits:1.8%  
Upper Limits:12.0%  
Extinguishing Media:WATERFOG, FOAM, CO2, OR DRY CHEMICAL  
Fire Fighting Procedures:KEEP CONTAINERS COOL. USE EQUIPMENT OR SHIELDING REQUIRED TO PROTECT PERSONNEL AGAINST BURSTING OR VENTING CONTAINERS.  
Unusual Fire/Explosion Hazard:AT ELEVATED TEMPERATURES >130F CONTAINERS MAY VENT, RUPTURE OR BURST.

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

Spill Release Procedures:USE ABSORBENT SWEEPING COMPOUND TO SOAK UP MATERIAL. PUT INTO CONTAINER. DISPOSE AS HAZARDOUS WASTE.

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

Handling and Storage Precautions:DON'T STORE AT TEMPERATURES >120F.  
Other Precautions:NONE

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

Respiratory Protection:AVOID BREATHING CONCENTRATED VAPORS OR PARTICLES FROM ALL PRODUCTS NOT SPECIFICALLY DESIGNED TO BE INHALED.  
Ventilation:LOCAL EXHAUST: NORMAL USE-NORMAL VENTILATION



Eye Protection:SAFETY GLASSES REQUIRED  
Other Protective Equipment:LONG SLEEVES/PANTS.  
Supplemental Safety and Health

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

Boiling Pt:B.P. Text:-40 - >600F  
Vapor Pres:55 PSI  
Vapor Density:4.0  
Spec Gravity:0.8  
pH:NONE  
Appearance and Odor:LIQUID GAS, WHITE & SOLVENT ODOR.  
Percent Volatiles by Volume:60.0%

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

Stability Indicator/Materials to Avoid:YES  
Stability Condition to Avoid:PRESSURIZED CONTAINERS COULD RUPTURE  
>130F.  
Hazardous Decomposition Products:CO, CO2, WATER, PHOSGENE &  
HALOGEN  
ACIDS.

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

Waste Disposal Methods:DON'T PUNCTURE OR INCINERATE CONTAINERS.  
DISPOSE  
AS HAZARDOUS WASTE IN ACCORDANCE W/EPA RCRA. CONSUMER  
COMMODITY,  
ORM-D, UN 1954. RCRA HAZARDOUS WASTE: D001.

Disclaimer (provided with this information by the compiling agencies):  
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assume responsibility for the suitability of this information to their  
particular situation.

CHESTER LABORATORIES -- ISOPROPYL RUBBING ALCOHOL, USP --  
6810-00-311-0192

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

Product ID:ISOPROPYL RUBBING ALCOHOL, USP

MSDS Date:08/20/1993

FSC:6810

NIIN:00-311-0192

MSDS Number: CHHNG

=== Responsible Party ===

Company Name:CHESTER LABORATORIES

Address:3208 DIXIE HWY

City:ERLANGER

State:KY

ZIP:41018

Country:US

Info Phone Num:800-354-9709

Emergency Phone Num:606-578-4550

Preparer's Name:KENNETH P. REED, PH.D,CIH

CAGE:JO149

=== Contractor Identification ===

Company Name:CHESTER LABORATORIES

Box:UNKNOW

CAGE:87879

Company Name:CHESTER LABORATORY INC

Address:3208 DIXIE HIGHWAY

Box:City:ERLANGER

State:KY

ZIP:41018-1876

Country:US

Phone:606-341-7972

CAGE:JO149

Company Name:ROCHESTER MIDLAND CORP, INDUSTRIAL DIV

Address:321 COMMERCIAL AVE

Box:City:PALISADES PARK

State:NJ

ZIP:07650

Country:US

Phone:201-947-9880

CAGE:0D8W2

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

Ingred Name:ISOPROPYL ALCOHOL (SARA III)

CAS:67-63-0

RTECS #:NT8050000

Fraction by Wt: 70%

Other REC Limits:NONE SPECIFIED  
OSHA PEL:400 PPM/500 STEL  
ACGIH TLV:400 PPM/500STEL;9192

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

LD50 LC50 Mixture:TLV = 400 PPM  
Routes of Entry: Inhalation:YES Skin:NO Ingestion:YES  
Reports of Carcinogenicity:NTP:NO IARC:NO OSHA:NO  
Health Hazards Acute and Chronic:ACUTE: OVEREXPOSURE MAY LEAD TO  
CENTRAL NERVOUS SYSTEM DEPRESSION, LEADING TO HEADACHES  
AND  
DIZZINESS. EYE: MAY LEAD TO IRRITATION AND WILL INJURE EYE  
TISSUE  
IF NOT REMOVED PROMPTLY. SKIN: MAY LEAD TO DERMATITIS.  
INGESTION:  
MAY LEAD TO VOMITING. CHRONIC: PROLONGED SKIN CONTACT MAY  
CAUSE  
DERMATITIS.  
Explanation of Carcinogenicity:THIS CHEMICAL IS NOT LISTED AS HAVING  
ANY EVIDENCE OF BEING CARCINOGENIC.  
Effects of Overexposure:OVEREXPOSURE MAY LEAD TO DIZZINESS,  
HEADACHES,  
DERMATITIS AND EYE IRRITATION. HIGH VAPOR CONCENTRATIONS  
ARE  
ANESTHETIC AND MAY HAVE OTHER CENTRAL NERVOUS SYSTEM  
EFFECTS, SUCH  
AS LIGHTHEADEDNESS, HEADACHE AND DIZZINESS.  
Medical Cond Aggravated by Exposure:PERSONS WITH SKIN, HEART,  
RESPIRATORY, OR ANY OTHER MEDICAL CONDITION SHOULD USE  
CAUTION WHEN  
HANDLING OR USING THIS PRODUCT.

===== First Aid Measures

=====

First Aid:SKIN: IMMEDIATELY FLUSH WITH SOAP AND WATER. GET  
MEDICAL  
ATTENTION IF NECESSARY. INHALATION: IMMEDIATELY REMOVE  
VICTIM TO  
FRESH AIR. GIVE CPR IF BREATHING HAS STOPPED. GET MEDICAL  
ATTENTION. EYE: IMMEDIATELY FLUSH WITH WATER FOR 15  
MINUTES.GET  
MEDICAL ATTENTION. INGESTION: GET PROMPT MEDICAL ATTENTION.

DO NOT  
INDUCE VOMITING. KEEP AT REST.

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

Flash Point Method:SCC  
Flash Point:53.0F,11.7C  
Lower Limits:2  
Upper Limits:13  
Extinguishing Media:USE FOAM, OR DRY CHEMICAL. USE WATER SPRAY  
TO COOL  
FIRE EXPOSED CONTAINERS AND TO PROTECT PERSONNEL.  
Fire Fighting Procedures:WEAR FIRE FIGHTING PROTECTIVE EQUIPMENT  
AND A  
FULL FACED SELF CONTAINED BREATHING APPARATUS.  
Unusual Fire/Explosion Hazard:COMBUSTION OR HEAT OF FIRE MAY  
PRODUCE  
HAZARDOUS DECOMPOSITION PRODUCTS AND VAPORS. VAPORS  
HEAVIER THAN  
AIR, CAN TRAVEL ALONG GROUND AND FLASHBACK.

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

Spill Release Procedures:VENTILATE. ELIMINATE IGNITION SOURCES.  
ABSORB  
MATERIAL WITH CLAY, VERMICULITE, OR SIMILAR ABSORBENT  
MATERIAL.  
PLACE IN DISPOSAL CONTAINERS. FLUSH AREA WITH WATER.

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

Handling and Storage Precautions:USE ONLY IN WELL VENTILATED WORK  
AREA.  
KEEP CONTAINERS CLOSED WHEN NOT IN USE. FLAMMABLE LIQUID.  
DO NOT  
STORE ABOVE 120F.  
Other Precautions:DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER,  
DRILL,  
GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS,  
STATIC  
ELECTRICITY, OR OTHER SOURCES OF IGNITION. EXPLOSION  
HAZARD.

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

Respiratory Protection:NONE NORMALLY REQUIRED. USE NIOSH/MSHA APPROVED

RESPIRATOR. AIR-SUPPLIED OR FILTERING TYPE WITH ORGANIC VAPOR

CARTRIDGES IF TLV IS EXCEEDED.

Ventilation:LOCAL AND MECHANICAL EXHAUST RECOMMENDED. AVOID OPEN

ELECTRICAL SOURCES NEAR PRODUCT VAPOR AREAS.

Protective Gloves:NEOPRENE, NITRILE, OR POLYVINYL ALCOHOL

Eye Protection:USE CHEMICAL SAFETY GOGGLES & FACESHIELD

Other Protective Equipment:SAFETY SHOES, EYE WASH STATION AND SAFETY

SHOWER.

Work Hygienic Practices:DO NOT TAKE INTERNALLY. AVOID SKIN CONTACT.

WASH SKIN AFTER USING PRODUCT. DO NOT EAT, DRINK OR SMOKE IN WORK

AREA.

Supplemental Safety and Health  
NONE

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

HCC:F2

Boiling Pt:B.P. Text:194F,90C

Vapor Pres:38

Vapor Density:2.0

Spec Gravity:0.82

Evaporation Rate & Reference:2.8 (BUTYL ACETATE = 1)

Solubility in Water:100%

Appearance and Odor:CLEAR, COLORLESS LIQUID WITH AN ALCOHOL ODOR.

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

Stability Indicator/Materials to Avoid:YES

STRONG OXIDIZING AGENTS, REACTIVE ALKALI METALS.

Stability Condition to Avoid:HIGH HEAT, OPEN FLAMES AND OTHER SOURCES

OF IGNITION. ALSO AVOID VAPOR ACCUMULATION.

Hazardous Decomposition Products:CARBON MONOXIDE, CARBON DIOXIDE, INCOMPLETELY BURNED CARBON PRODUCTS.

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

Waste Disposal Methods:DISPOSE OF ALL WASTE IN ACCORDANCE WITH LOCAL,  
STATE AND FEDERAL REGULATIONS. INCINERATION IS RECOMMENDED.

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