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MSDS

Hazard Communication Program

Company Policy

Primary Electrical Contractors, Inc recognizes it is their responsibility to provide all employees with the necessary information to safely work with or around hazardous chemicals on the job site. It is the employee's responsibility to utilize the information to avoid accidents to themselves an/or co-workers and prevent property damage.

In compliance with federal OSHA standards 1926.59 this manual contains the hazardous chemical inventory list for hazardous materials brought onto our project sites. All hazardous material are listed in the index on page 1.



HAZARD COMMUNICATION STANDARD CHEMICAL INDEX

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HAZARD COMMUNICATION WRITTEN PROGRAM

This program has been prepared to comply with the requirements of the Federal OSHA Standard 1926.59 and to insure that information necessary for the safe use, handling and storage of hazardous chemicals is provided to and made available to employees.

This program includes guidelines on identification of chemical hazards and the preparation and proper use of container labels, placards, and other types of warning labels.

A. CHEMICAL INVENTORY

1. Primary Electrical Contractors, Inc. maintains an inventory of all known chemical in use on work site. A chemical inventory list is available from the Project Superintendent.
2. Hazardous chemicals brought onto the work site by Primary Electrical Contractors, Inc. will be included on the hazardous chemical inventory list.

B. CONTAINER LABELING

1. All chemicals on site will be stored in their original or approved containers with a proper label attached, except small quantities for immediate use. Any container not properly labeled should be given to the Safety Director for labeling or proper disposal.
2. Workers may dispense chemicals from original containers only in small quantities intended for immediate use. Any chemical left after work is completed must be returned to the original container.
3. No unmarked containers of any size are to be left in the work area unattended.
4. Primary Electrical Contractors, Inc. will rely on manufacturer applied labels whenever possible, and will ensure that these labels are maintained. Containers that are not labeled or on which the manufacturer's label has been removed will be re-labeled.
5. Primary Electrical Contractors, Inc. will insure that each container is labeled with the identity of hazardous chemical contained and any appropriate hazard warnings.

C. MATERIAL SAFETY DATA SHEETS (MSDS)

1. Employees working with a hazardous chemical may request a copy of the Material Safety Data Sheet (MSDS). Requests for MSDS's should be made to the Safety Director.
2. MSDS should be available and standard chemical reference may also be available on the Site to provide immediate reference to chemical safety information.
3. An emergency procedure to gain access to MSDS information will be established.

D. EMPLOYEE TRAINING

Employees will be trained to work safely with hazardous chemicals. Employee training will include:

1. Methods that may be used to detect a release of a hazardous chemical in the workplace.
2. Physical and health hazards associated with chemicals.
3. Protective measures to be taken.
4. Safe work practices, emergency responses and use of personnel protective equipment.
5. Information on the hazard Communication Standard including:
 - Labeling and warning systems, and
 - An explanation of Material Safety Data Sheets (MSDS).

E. PERSONNEL PROTECTIVE EQUIPMENT (PPE)

1. Required PPE is available from the Project Superintendent. Any employee found in violation of PPE requirements may be subject to disciplinary actions up to and including discharge.

F. EMERGENCY RESPONSE

1. Any incident of over exposure or spill of a hazardous chemical/substance must be reported to the project foreman at once.
2. The foreman of the immediate supervisor will be responsible for insuring that proper emergency response actions are taken in leak/spill situations.

G. HARARD OF NON-ROUTINE TASKS

1. Supervisors will inform employees of any special tasks that may arise which would involve possible exposure to hazardous chemicals.
2. Review of safe work procedures and use of required PPE will be conducted prior to the start of such tasks. Where necessary, areas will be posted to indicate the nature of the hazard involved.

H. INFORMING OTHER EMPLOYERS

1. Other on site employers are required to adhere to the provisions of the Hazard Communication Standard.
2. Information on hazardous chemicals known to be present will be exchanged with other employees.
3. Other on site employers will be provided with a copy of Primary Electrical Contractors, Inc's Hazard Communication Program.

I. POSTING

Primary Electrical Contractors, Inc. has posted information for employees at all job sites on the Hazard Communication Standard. This information can be found at the Primary Electrical Contractors, Inc. job site office or trailer.

MSDS No: CAR020C5
 Issue Date: 25 Aug. 2005
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MATERIAL SAFETY DATA SHEET

SECTION 1

PRODUCT AND COMPANY IDENTIFICATION

Trade Name: CARLON ELECTRICAL PRODUCTS ALL WEATHER QUICKSET CLEAR CEMENT
 Product Numbers: VC9981P, VC9982, VC9983, VC9984, VC9983, VC9985C, VC9983C
 Product Use: Cement for PVC Plastic Pipe
 Formula: PVC Resin in Solvent Solution
 Synonyms: PVC Plastic Pipe Cement
 Firm Name & Mailing Address: CARLON ELECTRICAL PRODUCTS c/o OATEY CO. 4700 West 160th Street
 P.O. Box 35906 Cleveland, Ohio 44135, U.S.A.
<http://www.oatey.com>
 Oatey Phone Number: (216) 267-7100 or (800) 321-9532
 Emergency Phone Numbers: For Emergency First Aid call 1-303-623-5716 COLLECT. For chemical transportation emergencies ONLY, call Chemtrec at 1-800-424-9300. Outside the U.S. 1-703-527-3887.
 Prepared By: Corporate Director - Safety and Environmental Compliance
 Preparation Date: August 25, 2005

SECTION 2

COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENTS:	%wt/wt:	CAS NUMBER:	ACGIH TLV TWA:	OSHA PEL TWA:	OTHER:
Tetrahydrofuran	40 - 55%	109-99-9	50 ppm(skin) 100 ppm STEL	200 ppm	25 ppm (Mfg)
PVC Resin (Non-hazardous)	12 - 24%	9002-86-2	10 mg/m3	15 mg/m3	None
Acetone	10 - 25%	67-64-1	500 ppm 750 ppm STEL	1000 ppm	None
Cyclohexanone	10 - 20%	108-94-1	20 ppm(skin) 50 ppm STEL	50 ppm	None
Amorphous Fumed Silica (Non-hazardous)	1 - 5%	112945-52-5	10 mg/m3	None	None
OSHA Hazard Classification:			Established		
			Flammable, irritant, organ effects		

SECTION 3

HAZARDS IDENTIFICATION

Emergency Overview:
 Clear liquid with an ether-like odor. Extremely flammable liquid and vapor. Vapors may cause flash fire. May cause eye and skin irritation. Inhalation of vapors or mist may cause respiratory irritation and central nervous system effects. Swallowing may cause irritation, nausea, vomiting, diarrhea and kidney or liver disorders. Aspiration hazard. May be fatal if swallowed. Symptoms may be delayed.

SECTION 4

FIRST AID MEASURES

CALL 1-303-623-5716 COLLECT

Skin: Remove contaminated clothing immediately. Wash all exposed areas with soap and water. Get medical attention if irritation develops. Remove dried cement with Oatey Plumber's Hand Cleaner or baby oil.

Eyes: If material gets into eyes or if fumes cause irritation, immediately flush eyes with plenty of water until chemical is removed. If irritation persists, get medical attention immediately.

Inhalation: If symptoms of exposure develop, remove to fresh air. If breathing becomes difficult, administer oxygen. Administer artificial respiration if breathing has stopped. Seek immediate medical attention.

Ingestion: **DO NOT INDUCE VOMITING.** Rinse mouth with water. Never give anything by mouth to a person who is unconscious or drowsy. Get immediate medical attention by calling a Poison Control Center, or hospital emergency room. If medical advice cannot be obtained, then take the person and product to the nearest medical emergency treatment center or hospital.

SECTION 5 FIRE FIGHTING MEASURES

Flashpoint / Method: 0 - 5 Degrees F. (-18 - -15 Degrees C / PMCC
Flammability: LEL = 1.8 % Volume, UEL = 11.8 % Volume
Extinguishing: Use dry chemical, CO₂, or foam to extinguish fire. Cool fire
Media: exposed container with water. Water may be ineffective as an
extinguishing agent.
Special Fire: Firefighters should wear positive pressure self-contained
Fighting: breathing apparatus and full protective clothing for fires in
Procedure: areas where chemicals are used or stored
Unusual Fire and: Extremely flammable liquid. Keep away from heat and all
Explosion: sources of ignition including sparks, flames, lighted
Hazards: cigarettes and pilot lights. Containers may rupture or
explode in the heat of a fire. Vapors are heavier than air
and may travel to a remote ignition source and flash back.
This product contains tetrahydrofuran that may form explosive
organic peroxide when exposed to air or light or with age.
Hazardous: Combustion will produce toxic and irritating vapors including
Decomposition: carbon monoxide, carbon dioxide and hydrogen chloride.
Products:

SECTION 6 ACCIDENTAL RELEASE MEASURES

Spill or: Remove all sources of ignition and ventilate area. Stop leak if it
Leak: can be done without risk. Personnel cleaning up the spill should
Procedures: wear appropriate personal protective equipment, including respirators
if vapor concentrations are high. Soak up spill with an inert
absorbent such as sand, earth or other non-combusting material. Put
absorbent material in covered, labeled metal containers. Prevent
liquid from entering watercourses, sewers and natural waterways.
Report releases to authorities as required. See Section 13 for
disposal information.

SECTION 7 HANDLING AND STORAGE

Handling: Avoid contact with eyes, skin and clothing. Avoid breathing vapors
or mists. Use with adequate ventilation (equivalent to outdoors).
Wash thoroughly after handling. Do not eat, drink or smoke in the
work area. Keep product away from heat, sparks, flames and all other
sources of ignition. No smoking in storage or use areas. Keep
containers closed when not in use.
Storage: Store in a cool, dry, well-ventilated area away from incompatible
materials. Keep containers closed when not in use.
Other: "Empty" containers retain product residue and can be hazardous.
Follow all MSDS precautions in handling empty containers. Do not cut
or weld on or near empty or full containers.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Ventilation: Open doors & windows. Provide ventilation capable of maintaining
emissions at the point of use below recommended exposure limits. If
used in enclosed area, use exhaust fans. Exhaust fans should be
explosion-proof or set up in a way that flammable concentrations of
solvent vapors are not exposed to electrical fixtures or hot
surfaces.
Respiratory: For operations where the exposure limit may be exceeded, a NIOSH
Protection: approved organic vapor respirator or supplied air respirator is
recommended. Equipment selection depends on contaminant type and
concentration, select in accordance with 29 CFR 1910.134 and good
industrial hygiene practice. For firefighting, use self-contained
breathing apparatus.
Skin: Rubber gloves are suitable for normal use of the product. For long
Protection: exposures chemical resistant gloves may be required such as
4H(tm) or Silver Shield(tm) to avoid prolonged skin contact.

SECTION 8 (Continued)

Eye Protection: Safety glasses with sideshields or safety goggles.
Other: Eye wash and safety shower should be available.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point: 151 Degrees F / 66 Degrees C
Melting Point: Not Applicable
Vapor Pressure: 145 mmHg @ 20 Degrees C
Vapor Density: (Air = 1) 2.5
Volatile Components: 81-85%
Solubility In Water: Negligible
pH: Not Applicable
Specific Gravity: 0.94 +/- 0.01 @ 20 Degrees C
Evaporation Rate: (BUAC = 1) = 5.5 - 8.0
Appearance: Clear Liquid
Odor: Ether-Like
Will Dissolve In: Tetrahydrofuran
Material Is: Liquid

SECTION 10 STABILITY AND REACTIVITY

Stability: Stable.
Conditions To Avoid: Avoid heat, sparks, flames and other sources of ignition.
Hazardous Combustion will produce toxic and irritating vapors
Decomposition including carbon monoxide, carbon dioxide and hydrogen
Products: chloride.
Incompatibility/ Oxidizing agents, alkalis, amines, ammonia, acids, chlorine
Materials To Avoid: compounds, chlorinated inorganics (potassium, calcium and
sodium hypochlorite) and hydrogen peroxides. May attack
plastic, resins and rubber.
Hazardous Will not occur.
Polymerization:

SECTION 11 TOXICOLOGICAL INFORMATION

Inhalation: Vapors or mists may cause mucous membrane and respiratory irritation, coughing, headache, dizziness, dullness, nausea, shortness of breath and vomiting. High concentrations may cause central nervous system depression, narcosis and unconsciousness. May cause kidney, liver and lung damage.
Skin: May cause irritation with redness, itching and pain. Cyclohexanone may be absorbed through the skin causing effects similar to those listed under inhalation.
Eye: Vapors may cause irritation. Direct contact may cause irritation with redness, stinging and tearing of the eyes. May cause eye damage.
Ingestion: Swallowing may cause abdominal pain, nausea, vomiting and diarrhea. Aspiration during swallowing or vomiting can cause chemical pneumonia and lung damage. May cause kidney and liver damage.
Chronic Prolonged or repeated overexposure cause dermatitis and damage
Toxicity: to the kidney, liver, lungs and central nervous system.
Toxicity Data: Acetone: Oral rat LD50: 5,800 mg/kg
Inhalation rat LC50: 50,100 mg/m3/8 hours
Cyclohexanone: Oral rat LD50: 1,620 mg/kg
Inhalation rat LC50: 8,000 ppm/4 hours
Skin rabbit LD50: 1 mL/kg
Tetrahydrofuran: Oral rat LD50: 1,650 mg/kg
Inhalation rat LC50: 21,000 ppm/3 hours

SECTION 11 (Continued)

Sensitization: None of the components are known to cause sensitization.

Carcinogenicity: None of the components are listed as a carcinogen or suspect carcinogen by NTP, IARC or OSHA. The National Toxicology Program has reported that exposure of mice and rats to tetrahydrofuran (THF) vapor levels up to 1800 ppm 6 hr/day, 5 days/week for their lifetime caused an increased incidence of kidney tumors in male rats and liver tumors in female mice. The significance of these findings for human health is unclear at this time, and may be related to "species specific" effects. Elevated incidences of tumors in humans have not been reported for THF. ACGIH has classified cyclohexanone (CYH) and tetrahydrofuran as "A3," Confirmed Animal Carcinogens with Unknown Relevance to Humans.

Mutagenicity: Cyclohexanone has been positive in bacterial and mammalian assays. Acetone and tetrahydrofuran are generally thought not to be mutagenic.

Reproductive Toxicity: Cyclohexanone has been shown to cause embryofetal toxicity and birth defects in laboratory animals. Acetone and tetrahydrofuran have been found to cause adverse developmental effects only when exposure levels cause other toxic effects to the mother.

Medical Conditions Aggravated By Exposure: Persons with pre-existing skin, lung, kidney or liver disorders may be at increased risk from exposure to this product.

SECTION 12 ECOLOGICAL INFORMATION

This product is not expected to be toxic to aquatic organisms.

Cyclohexanone: 96 hour LC50 values for fish is over 100 mg/l.

Tetrahydrofuran: 96 hour LC50 fathead minnow: 2160 mg/L.

Acetone: 96 hour LC50 for fish is greater than 100 mg/L.

VOC Information: This product emits VOC's (volatile organic compounds) in its use. Make sure that use of this product complies with local VOC emission regulations, where they exist.

VOC Level: 600 g/l per SCAQMD Test Method 316A.

SECTION 13 DISPOSAL CONSIDERATIONS

Waste Disposal: Dispose in accordance with current local, state and federal regulations.

RCRA Hazardous Waste Number: U002, U057, U213

EPA Hazardous Waste ID Number: D001, F003

EPA Hazard Waste Class: Ignitable Waste.

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SECTION 14 TRANSPORT INFORMATION

DOT Less than 1 Liter (0.3 gal) Greater than 1 Liter (0.3 gal)

Proper Shipping Name:	Consumer Commodity	Adhesives
Hazard Class/Packing Group:	ORM-D	3, PGII
UN/NA Number:	None	UN1133
Hazard Labels:	None	Flammable Liquid

IMDG

Proper Shipping Name:	Adhesives	Adhesives
Hazard Class/Packing Group:	3, II	3, II
UN Number:	UN1133	UN1133
Label:	None (Limited Quantities are excepted from labeling)	Class 3 (Flammable Liquid)

2004 North American Emergency Response Guidebook Number: 127 or 128

SECTION 15 REGULATORY INFORMATION

Hazard Category for Section 311/312: Acute Health, Chronic Health, Flammable

Section 302 Extremely Hazardous Substances (TPQ): This product does not contain chemicals regulated under SARA Section 302.

Section 313 Toxic Chemicals: This product contains no chemicals subject to SARA Title III Section 313 Reporting requirements.

CERCLA 103 Reportable Quantity: Spills of this product over the RQ (reportable quantity) must be reported to the National Response Center. The RQ for the product, based on the RQ for Tetrahydrofuran (55% maximum) of 1,000 lbs, is 1,818 lbs. Many states have more stringent release reporting requirements. Report spills required under federal, state and local regulations.

California Proposition 65: This product contains trace amounts of chemicals known to the State of to cause cancer. Under normal Use conditions, exposure to these chemicals at levels above the State of California "No Significant Risk Level" (NSRL) are unlikely. Oatey strongly encourages the use of proper personal protective equipment (PPE) and ventilation guidelines noted in Section 8 to minimize exposure to these chemicals.

TSCA Inventory: All of the components of this product are listed on the TSCA inventory.

Canadian WHIMS Classification: Class B, Division 2; Class D, Division 2, Subdivision B. This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

SECTION 16

NFPA and HMIS:

NFPA Hazard Signal: Health: 2 Flammability: 3 Reactivity: 1 Special: None

HMIS Hazard Signal: Health: 2* Flammability: 3 Reactivity: 1 PPE: G

Disclaimer:

The information herein has been compiled from sources believed to be reliable, up-to-date, and is accurate to the best of our knowledge. However, Oatey cannot give any guarantees regarding information from other sources, and expressly does not make warranties, nor assumes any liability for its use.

MATERIAL SAFETY DATA SHEET

SECTION 1

PRODUCT AND COMPANY IDENTIFICATION

Trade Name: CARLON ALL WEATHER ENT BLUE PVC CEMENT
Product Numbers: VC9992
Product Use: Cement for PVC Plastic Pipe
Formula: PVC Resin in Solvent Solution
Synonyms: PVC Plastic Pipe Cement
Firm Name & Mailing Address: CARLON ELECTRICAL PRODUCTS c/o OATEY CO. 4700 West 160th Street
P.O. Box 35906 Cleveland, Ohio 44135, U.S.A.
<http://www.oatey.com>
Oatey Phone Number: (216) 267-7100 or (800) 321-9532
Emergency Phone Numbers: For Emergency First Aid call 1-303-623-5716 COLLECT. For chemical transportation emergencies ONLY, call Chemtrec at 1-800-424-9300. Outside the U.S. 1-703-527-3887.
Prepared By: Corporate Director - Safety and Environmental Compliance
Preparation Date: September 30, 2005

SECTION 2

COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENTS:	%wt/wt :	CAS NUMBER:	ACGIH TLV TWA:	OSHA PEL TWA:	OTHER:
Tetrahydrofuran	40 - 70%	109-99-9	50 ppm(skin) 100 ppm STEL	200 ppm	25 ppm (Mfg)
PVC Resin (Non-hazardous)	10 - 20%	9002-86-2	10 mg/m3	15 mg/m3	None
Cyclohexanone	10 - 20%	108-94-1	20 ppm(skin) 50 ppm STEL	50 ppm	None
Amorphous Fumed Silica (Non-hazardous)	1 - 4%	112945-52-5	10 mg/m3	None Established	None

OSHA Hazard Classification: Flammable, irritant, organ effects

SECTION 3

HAZARDS IDENTIFICATION

Emergency Overview:
Clear blue liquid with an ether-like odor. Extremely flammable liquid and vapor. Vapors may cause flash fire. May cause eye and skin irritation. Inhalation of vapors or mist may cause respiratory irritation and central nervous system effects. Swallowing may cause irritation, nausea, vomiting, diarrhea and kidney or liver disorders. Aspiration hazard. May be fatal if swallowed. Symptoms may be delayed.

SECTION 4

FIRST AID MEASURES

CALL 1-303-623-5716 COLLECT

Skin: Remove contaminated clothing immediately. Wash all exposed areas with soap and water. Get medical attention if irritation develops. Remove dried cement with Oatey Plumber's Hand Cleaner or baby oil.

Eyes: If material gets into eyes or if fumes cause irritation, immediately flush eyes with plenty of water until chemical is removed. If irritation persists, get medical attention immediately.

Inhalation: If symptoms of exposure develop, remove to fresh air. If breathing becomes difficult, administer oxygen. Administer artificial respiration if breathing has stopped. Seek immediate medical attention.

Ingestion: **DO NOT INDUCE VOMITING.** Rinse mouth with water. Never give anything by mouth to a person who is unconscious or drowsy. Get immediate medical attention by calling a Poison Control Center, or hospital emergency room. If medical advice cannot be obtained, then take the person and product to the nearest medical emergency treatment center or hospital.

SECTION 5 FIRE FIGHTING MEASURES

Flashpoint / Method: 0 - 5 Degrees F. (-18 - -15 Degrees C / PMCC
Flammability: LEL = 1.8 % Volume, UEL = 11.8 % Volume
Extinguishing: Use dry chemical, CO2, or foam to extinguish fire. Cool fire
Media: exposed container with water. Water may be ineffective as an
extinguishing agent.
Special Fire: Firefighters should wear positive pressure self-contained
Fighting: breathing apparatus and full protective clothing for fires in
Procedure: areas where chemicals are used or stored
Unusual Fire and: Extremely flammable liquid. Keep away from heat and all
Explosion: sources of ignition including sparks, flames, lighted
Hazards: cigarettes and pilot lights. Containers may rupture or
explode in the heat of a fire. Vapors are heavier than air
and may travel to a remote ignition source and flash back.
This product contains tetrahydrofuran that may form explosive
organic peroxide when exposed to air or light or with age.
Hazardous: Combustion will produce toxic and irritating vapors including
Decomposition: carbon monoxide, carbon dioxide and hydrogen chloride.
Products:

SECTION 6 ACCIDENTAL RELEASE MEASURES

Spill or: Remove all sources of ignition and ventilate area. Stop leak if it
Leak: can be done without risk. Personnel cleaning up the spill should
Procedures: wear appropriate personal protective equipment, including respirators
if vapor concentrations are high. Soak up spill with an inert
absorbent such as sand, earth or other non-combusting material. Put
absorbent material in covered, labeled metal containers. Prevent
liquid from entering watercourses, sewers and natural waterways.
Report releases to authorities as required. See Section 13 for
disposal information.

SECTION 7 HANDLING AND STORAGE

Handling: Avoid contact with eyes, skin and clothing. Avoid breathing vapors
or mists. Use with adequate ventilation (equivalent to outdoors).
Wash thoroughly after handling. Do not eat, drink or smoke in the
work area. Keep product away from heat, sparks, flames and all other
sources of ignition. No smoking in storage or use areas. Keep
containers closed when not in use.
Storage: Store in a cool, dry, well-ventilated area away from incompatible
materials. Keep containers closed when not in use.
Other: "Empty" containers retain product residue and can be hazardous.
Follow all MSDS precautions in handling empty containers. Do not cut
or weld on or near empty or full containers.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Ventilation: Open doors & windows. Provide ventilation capable of maintaining
emissions at the point of use below recommended exposure limits. If
used in enclosed area, use exhaust fans. Exhaust fans should be
explosion-proof or set up in a way that flammable concentrations of
solvent vapors are not exposed to electrical fixtures or hot
surfaces.
Respiratory: For operations where the exposure limit may be exceeded, a NIOSH
Protection: approved organic vapor respirator or supplied air respirator is
recommended. Equipment selection depends on contaminant type and
concentration, select in accordance with 29 CFR 1910.134 and good
industrial hygiene practice. For firefighting, use self-contained
breathing apparatus.
Skin: Rubber gloves are suitable for normal use of the product. For long
Protection: exposures chemical resistant gloves may be required such as
4H(tm) or Silver Shield(tm) to avoid prolonged skin contact.

SECTION 8 (Continued)

Eye Safety glasses with side shields or safety goggles.
Protection:
Other: Eye wash and safety shower should be available.

SECTION 9**PHYSICAL AND CHEMICAL PROPERTIES**

Boiling Point: 151 Degrees F / 66 Degrees C
Melting Point: Not determined
Vapor Pressure: 145 mmHg @ 20 Degrees C
Vapor Density: (Air = 1) 2.5
Volatile Components: 80-85%
Solubility In Water: Negligible
pH: Not determined
Specific Gravity: 0.94 +/- 0.02 @ 20 Degrees C
Evaporation Rate: (BUAC = 1) = 5.5 - 8.0
Appearance: Clear Blue Liquid
Odor: Ether-Like
Will Dissolve In: Tetrahydrofuran
Material Is: Liquid

SECTION 10**STABILITY AND REACTIVITY**

Stability: Stable.
Conditions To Avoid: Avoid heat, sparks, flames and other sources of ignition.
Hazardous Combustion will produce toxic and irritating vapors
Decomposition including carbon monoxide, carbon dioxide and hydrogen
Products: chloride.
Incompatibility/ Oxidizing agents, alkalis, amines, ammonia, acids, chlorine
Materials To Avoid: compounds, chlorinated inorganics (potassium, calcium and
sodium hypochlorite) and hydrogen peroxides. May attack
plastic, resins and rubber.
Hazardous Will not occur.
Polymerization:

SECTION 11**TOXICOLOGICAL INFORMATION**

Inhalation: Vapors or mists may cause mucous membrane and respiratory
irritation, coughing, headache, dizziness, dullness, nausea,
shortness of breath and vomiting. High concentrations may cause
central nervous system depression, narcosis and unconsciousness.
May cause kidney, liver and lung damage.
Skin: May cause irritation with redness, itching and pain.
Cyclohexanone may be absorbed through the skin causing effects
similar to those listed under inhalation.
Eye: Vapors may cause irritation. Direct contact may cause irritation
with redness, stinging and tearing of the eyes. May cause eye
damage.
Ingestion: Swallowing may cause abdominal pain, nausea, vomiting and
diarrhea. Aspiration during swallowing or vomiting can cause
chemical pneumonia and lung damage. May cause kidney and liver
damage.
Chronic Prolonged or repeated overexposure cause dermatitis and damage
Toxicity: to the kidney, liver, lungs and central nervous system.
Toxicity Data: Cyclohexanone: Oral rat LD50: 1,620 mg/kg
Inhalation rat LC50: 8,000 ppm/4 hours
Skin rabbit LD50: 1 mL/kg
Tetrahydrofuran: Oral rat LD50: 1,650 mg/kg
Inhalation rat LC50: 21,000 ppm/3 hours

MSDS No: CAR040E5
 Issue Date: 30 Sept. 2005
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SECTION 11 (Continued)

Sensitization: None of the components are known to cause sensitization.
 Carcinogenicity: None of the components are listed as a carcinogen or suspect carcinogen by NTP, IARC or OSHA. The National Toxicology Program has reported that exposure of mice and rats to tetrahydrofuran (THF) vapor levels up to 1800 ppm 6 hr/day, 5 days/week for their lifetime caused an increased incidence of kidney tumors in male rats and liver tumors in female mice. The significance of these findings for human health is unclear at this time, and may be related to "species specific" effects. Elevated incidences of tumors in humans have not been reported for THF. ACGIH has classified cyclohexanone (CYH) and tetrahydrofuran as "A3," Confirmed Animal Carcinogens with Unknown Relevance to Humans.
 Mutagenicity: Cyclohexanone has been positive in bacterial and mammalian assays. Tetrahydrofuran is generally thought not to be mutagenic.
 Reproductive Toxicity: Cyclohexanone has been shown to cause embryofetal toxicity and birth defects in laboratory animals. Tetrahydrofuran has been found to cause adverse developmental effects only when exposure levels cause other toxic effects to the mother.
 Medical Conditions Aggravated By Exposure: Persons with pre-existing skin, lung, kidney or liver disorders may be at increased risk from exposure to this product.

SECTION 12 ECOLOGICAL INFORMATION

This product is not expected to be toxic to aquatic organisms.
 Cyclohexanone: 96 hour LC50 values for fish is over 100 mg/l.
 Tetrahydrofuran: 96 hour LC50 fathead minnow: 2160 mg/L.
 VOC Information: This product emits VOC's (volatile organic compounds) in its use. Make sure that use of this product complies with local VOC emission regulations, where they exist.
 VOC Level: 650 g/l per SCAQMD Test Method 316A.

SECTION 13 DISPOSAL CONSIDERATIONS

Waste Disposal: Dispose in accordance with current local, state and federal regulations.
 RCRA Hazardous Waste Number: U002, U057, U213
 EPA Hazardous Waste ID Number: D001, F003
 EPA Hazard Waste Class: Ignitable Waste.

SECTION 14 TRANSPORT INFORMATION

DOT	<u>Less than 1 Liter (0.3 gal)</u>	<u>Greater than 1 Liter (0.3 gal)</u>
Proper Shipping Name:	Consumer Commodity	Adhesives
Hazard Class/Packing Group:	ORM-D	3, PGII
UN/NA Number:	None	UN1133
Hazard Labels:	None	Flammable Liquid
IMDG		
Proper Shipping Name:	Adhesives	Adhesives
Hazard Class/Packing Group:	3, II	3, II
UN Number:	UN1133	UN1133
Label:	None (Limited Quantities are excepted from labeling)	Class 3 (Flammable Liquid)

2004 North American Emergency Response Guidebook Number: 127 or 128

SECTION 15 REGULATORY INFORMATION

Hazard Category for Section 311/312: Acute Health, Chronic Health, Flammable

Section 302 Extremely Hazardous Substances (TPQ): This product does not contain chemicals regulated under SARA Section 302.

Section 313 Toxic Chemicals: This product contains the following chemicals subject to SARA Title III Section 313 Reporting requirements:

Chemical	CAS #	% by wt.
None		

CERCLA 103 Reportable Quantity: Spills of this product over the RQ (reportable quantity) must be reported to the National Response Center. The RQ for the product, based on the RQ for Tetrahydrofuran (70% maximum) of 1,000 lbs, is 1,430 lbs. Many states have more stringent release reporting requirements. Report spills required under federal, state and local regulations.

California Proposition 65: This product contains trace amounts of chemicals known to the State of to cause cancer. Under normal Use conditions, exposure to these chemicals at levels above the State of California "No Significant Risk Level" (NSRL) are unlikely. Oatey strongly encourages the use of proper personal protective equipment (PPE) and ventilation guidelines noted in Section 8 to minimize exposure to these chemicals.

TSCA Inventory: All of the components of this product are listed on the TSCA inventory.

Canadian WHIMS Classification: Class B, Division 2; Class D, Division 2, Subdivision B. Class D, Division 2, Subdivision A. This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

SECTION 16 OTHER INFORMATION

NFPA and HMIS:

NFPA Hazard Signal: Health: 2 Flammability: 3 Reactivity: 1 Special: None

HMIS Hazard Signal: Health: 2* Flammability: 3 Reactivity: 1 PPE: G

Disclaimer:

The information herein has been compiled from sources believed to be reliable, up-to-date, and is accurate to the best of our knowledge. However, Oatey cannot give any guarantees regarding information from other sources, and expressly does not make warranties, nor assumes any liability for its use.



Material Safety Data Sheet

CHEMTREC Transportation
Emergency Phone: 800-424-9300

Pittsburgh Poison Control
Center
Health Emergency No.: 412-681-6669

•NOTE: The CHEMTREC Transportation
•Emergency Phone is to be used only in the
•event of chemical emergencies involving a
•spill, leak, fire, exposure or accident involving
•chemicals

Section 1 - Chemical Product / Company Information

Product Name: BITUMASTIC 300 M PART B
Identification Number: PLMSDS 0165B5NL
Product Use/Class: Coal Tar Epoxy - FOR INDUSTRIAL USE ONLY
Revision Date: 07/29/2005
Supersedes : 07/22/2005
Preparer: Regulatory, Department
Manufacturer: Carboline Company
350 Hanley Industrial Ct.
St. Louis, MO 63144

Section 2 - Composition / Information On Ingredients

Chemical Name	CAS Number	Weight % Less Than	ACGIH TLV-TWA	ACGIH TLV-STEL	OSHA PEL-TWA	OSHA-CEIL
EPOXY RESIN	025068-38-6	100.0	NE	NE	NE	NE

Section 3 - Hazards Identification

Emergency Overview: Warning! May cause allergic skin reactions. May cause irritation.

Effects Of Overexposure - Eye Contact: May cause eye irritation.

Effects Of Overexposure - Skin Contact: May cause skin irritation. May cause allergic skin reaction.

Effects Of Overexposure - Inhalation: May cause nose and throat irritation.

Effects Of Overexposure - Ingestion: May be harmful if swallowed.

Effects Of Overexposure - Chronic Hazards: Under normal use conditions, this product is not expected to cause adverse health effects.

Primary Route(s) Of Entry: Skin Contact, Skin Absorption, Inhalation, Ingestion, Eye Contact

Medical Conditions Prone to Aggravation by Exposure: If sensitized to amines, epoxies, or other chemicals do not use. See a physician if a medical condition exists.

Section 4 - First Aid Measures

First Aid - Eye Contact: If material gets into eyes, flush with water immediately for 15 minutes. Consult a

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physician.

First Aid - Skin Contact: In case of contact, wash skin immediately with soap and water.

First Aid - Inhalation: If inhaled, remove to fresh air. Administer oxygen if necessary. Consult a physician if symptoms persist or exposure was severe.

First Aid - Ingestion: If swallowed do not induce vomiting. Seek immediate medical attention.

Section 5 - Fire Fighting Measures

Flash Point, F: 490F (254C)
(Setaflash)

Lower Explosive Limit, %: N/A
Upper Explosive Limit, %: N/A

Extinguishing Media: Carbon Dioxide, Dry Chemical, Foam, Water Fog

Unusual Fire And Explosion Hazards: None known.

Special Firefighting Procedures: Non-flammable. Cool fire-exposed containers using water spray.

Section 6 - Accidental Release Measures

Steps To Be Taken If Material Is Released Or Spilled: Use personal protective equipment as necessary. Absorb with suitable chemical absorbent. Dispose of material in accordance with all federal, state and local regulations.

Section 7 - Handling And Storage

Handling: Do not get in eyes, on skin, or on clothing. Keep container tightly closed when not in use. Wear personal protection equipment. Do not breathe vapors. Wash thoroughly after handling. If pouring or transferring materials, ground all containers and tools. Do not weld, heat, cut or drill on full or empty containers. Use only in accordance with Carboline application instructions, container label and Product Data Sheet.

Storage: Keep container closed when not in use.

Section 8 - Exposure Controls / Personal Protection

Engineering Controls: Use explosion-proof ventilation when required to keep below health exposure guidelines and Lower Explosion Limit (LEL).

Respiratory Protection: Use only with ventilation to keep levels below exposure guidelines listed in Section 2. User should test and monitor exposure levels to ensure all personnel are below guidelines. If not sure, or not able to monitor, use MSHA/NIOSH approved supplied air respirator. Follow all current OSHA requirements for respirator use.

Skin Protection: Recommend impervious gloves and clothing to avoid skin contact. If material penetrates to skin, change gloves and clothing. The use of protective creams may be beneficial to certain individuals. Protective creams should be applied before exposure.

Eye Protection: Recommend safety glasses with side shields or chemical goggles to avoid eye contact.

Other protective equipment: Eye wash and safety showers should be readily available.

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Hygienic Practices: Wash with soap and water before eating, drinking, smoking, applying cosmetics, or using toilet facilities. Use of a hand cleaner is recommended. Launder contaminated clothing before reuse. Leather shoes can absorb and allow hazardous materials to pass through. Check shoes carefully after soaking before reuse.

Section 9 - Physical And Chemical Properties

Boiling Range:	N/A -	Vapor Density:	Heavier than Air
Odor:	Mild Odor	Odor Threshold:	N/D
Appearance:	Viscous Clear to Amber Liquid	Evaporation Rate:	Slower Than Ether
Solubility in H2O:	N/D		
Freeze Point:	N/D	Specific Gravity:	1.16
Vapor Pressure:	N/D	PH:	N/D
Physical State:	Liquid		

(See section 16 for abbreviation legend)

Section 10 - Stability And Reactivity

Conditions To Avoid: None

Incompatibility: Avoid contact with strong oxidizing agents.

Hazardous Decomposition Products: Carbon monoxide, nitrogen oxides, and unidentified organic compounds. Consider all smoke and fumes from burning material as very hazardous. Welding, cutting or abrasive grinding can create smoke and fumes. Do not breathe any fumes or smoke from these operations.

Hazardous Polymerization: Will not occur under normal conditions.

Stability: This product is stable under normal storage conditions.

Section 11 - Toxicological Information

Product LD50: N/D

Product LC50: N/D

Chemical Name	CAS Number	LD50	LC50
EPOXY RESIN	025068-38-6	11.4G/KG RAT,ORAL	>20ML/KG SKIN,SENSITIZER

Section 12 - Ecological Information

Ecological Information: No data

Section 13 - Disposal Information

Disposal Information: Dispose of in accordance with State, Local, and Federal Environmental regulations. Responsibility for proper waste disposal is with the owner of the waste.

Section 14 - Transportation Information

DOT Proper Shipping Name: Not Regulated
DOT Technical Name: N/A

Packing Group: N/A
Hazard Subclass: N/A

DOT Hazard Class: None**Resp. Guide** N/A**DOT UN/NA Number:** N/A**Page:**

Section 15 - Regulatory Information

CERCLA - SARA HAZARD CATEGORY

This product has been reviewed according to the EPA Hazard Categories promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

IMMEDIATE HEALTH HAZARD, CHRONIC HEALTH HAZARD

SARA SECTION 313

This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendment and Reauthorization Act of 1986 and 40 CFR part 372:

No Section 313 Substances exist in this product

TOXIC SUBSTANCES CONTROL ACT

All components of this product are listed on the TSCA inventory.

This product contains the following chemical substances subject to the reporting requirements of TSCA 12(B) if exported from the United States:

No TSCA 12(B) Substances exist in this product

U.S. STATE REGULATIONS AS FOLLOWS:

NEW JERSEY RIGHT-TO-KNOW

The following materials are non-hazardous, but are among the top five components in this product.

PENNSYLVANIA RIGHT-TO-KNOW

The following non-hazardous ingredients are present in the product at greater than 3%.

CALIFORNIA PROPOSITION 65

Warning: The following ingredients present in the product are known to the state of California to cause Cancer:

No California Proposition 65 Carcinogens exist

Warning: The following ingredients present in the product are known to the state of California to cause birth defects, or other reproductive hazards:

No California Proposition 65 Reproductive Toxins exist

INTERNATIONAL REGULATIONS AS FOLLOWS:

CANADIAN WHMIS

This MSDS has been prepared in compliance with Controlled Product Regulations except for the use of the 16 headings.

CANADIAN WHMIS CLASS: D2B

Section 16 - Other Information**HMIS Ratings**

Health: 2

Flammability: 1

Reactivity: 0

Personal Protection: X

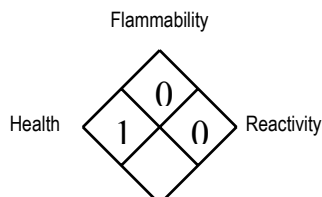
VOLATILE ORGANIC COMPOUNDS, GR/LTR MIXED (UNTHINNED): 222

REASON FOR REVISION: Changed to 16 Section Format.

Legend: N.A. - Not Applicable, N.E. - Not Established, N.D. - Not Determined

The information contained herein is, to the best of our knowledge and belief accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by use of this material. It is the responsibility of the user to comply with all applicable federal, state, and local laws and regulations

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HMIS Rating
 WHMIS Hazard
 Class: Non-Hazardous

MATERIAL SAFETY DATA SHEET

GENERAL INFORMATION

PRODUCT NAME OR NUMBER (as it appears on label) YELLOW 77® Wire Pulling Lubricant		CATALOG NUMBER All "31" Series
MANUFACTURER'S NAME IDEAL INDUSTRIES, INC.		EMERGENCY TELEPHONE NO. (815) 895-5181
ADDRESS (Number, Street, City, State, Zip Code) Becker Place, Sycamore, IL 60178		
HAZARDOUS MATERIAL DESCRIPTION, PROPER SHIPPING NAME, HAZARD CLASS, HAZARD CLASS, HAZARD ID NO. (49 CFR 172.101) None		
CHEMICAL DESCRIPTION Water-Wax Emulsion	FORMULA Proprietary	

SECTION I - INGREDIENTS

CAS REGISTRY NO.	%W	CHEMICAL NAME(S)*	Listed as a carcinogen in NTP, IARC or OSHA 1910(z) (specify)
7732-18-5	<90	Water	No
64742-43-4	<5	Paraffin Wax	No
8009-03-8	<3	Petrolatum	No
64742-53-6	<3	Napthenic Mineral Oil (See *A)	No
9005-08-7	<4	Polyethylene Glycol Ester	No
61791-44-4	<1	Ethoxylated Tallow Amine	No
25265-71-8	<0.1	Perfume	No
8042-47-5 24838-91-8	<1	Acrylamide Sodium Acrylate Copolymer with Trideceth-6	No
52-51-7	<0.1	Antimicrobial Agent	No
6358-31-2	<0.1	Yellow Pigment	No

SECTION II - PHYSICAL DATA

BOILING POINT 212°F 100°C	SPECIFIC GRAVITY (H ₂ O=1) 0.98	PERCENT VOLATILE BY VOLUME (%) <90
SOLUBILITY IN WATER Moderate	pH = 7.0 - 8.5	PERCENT SOLID BY WEIGHT (%) ~20
APPEARANCE AND ODOR Yellow paste, slight perfume odor	IS MATERIAL: LIQUID SOLID GEL GAS <u>PASTE</u> POWDER	

SECTION III - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT None	method used C.C.C.	FLAMMABLE LIMITS LEL None	UEL None
EXTINGUISHING MEDIA Use extinguishing media suitable for surrounding materials			
SPECIAL FIRE FIGHTING PROCEDURES Self-contained respiratory protection should be provided for fire fighters. Keep fire exposed containers cool with water.			
UNUSUAL FIRE AND EXPLOSION HAZARDS None			

* None of the chemical raw materials contained in this formulation are considered hazardous under the Federal Hazards Communication Standard 29 C. F. R 1910.1200

*A Oil is Severely hydrotreated with a polymorphonuclear content at less than 0.1% and meets OSHA 29 C.F.R. 1910.1200.

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SECTION IV - HEALTH HAZARD INFORMATION

EFFECTS OF OVEREXPOSURE - Conditions to Avoid	
None normally expected. Upon prolonged contact may cause temporary eye discomfort.	
THRESHOLD LIMIT VALUE	
None	
PRIMARY ROUTES OF ENTRY Inhalation <input type="checkbox"/> Skin Contact <input checked="" type="checkbox"/> Other (specify)	
EMERGENCY FIRST AID PROCEDURES	
SKIN CONTACT:	Wash with soap and water for 15 minutes
EYE CONTACT:	Flush with water for 15 minutes Inhalation - Move to fresh air
INGESTION:	Induce vomiting. Consult physician or local poison control center

SECTION V - REACTIVITY DATA

STABILITY	UNSTABLE	X	CONDITIONS TO AVOID
	STABLE		None
INCOMPATIBILITY (materials to avoid)			
Avoid strong oxidizers			
HAZARDOUS DECOMPOSITION PRODUCTS:			
Excessive heat and burning may release oxides of carbon and nitrogen			
HAZARDOUS POLYMERIZATION	MAY OCCUR	X	CONDITIONS TO AVOID
	WILL NOT OCCUR		None

SECTION VI - SPILL AND LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED	
Wipe up, shovel or vacuum spilled material. Clean up spills immediately as they can be dangerously slippery.	
WASTE DISPOSAL METHOD	
Comply with Federal, state and local regulations for solid landfill	
CERCLA (Superfund) REPORTABLE QUANTITY (in lbs)	
None Required	
RCRA HAZARDOUS WASTE NO. (40CFR 261.33)	
None Required	
VOLATILE ORGANIC COMPOUND (VOC) (as packaged, minus water)	
None	
^a Theoretical _____ lb/gal	N/A
^b Analytical _____ lb/gal	N/A

SECTION VII - PERSONAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (specify type)			
None normally required			
VENTILATION	LOCAL EXHAUST (Specify Rate)	None	SPECIAL
	MECHANICAL (General) (Specify Rate)	Recommended in closed areas	OTHER
PROTECTIVE GLOVES (specify type)		EYE PROTECTION (specify type)	
None normally needed - Neoprene if necessary		Safety glasses or splash goggles	
OTHER PROTECTIVE EQUIPMENT			
Eye fountain in work area is recommended			

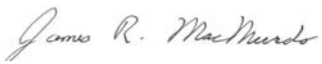
SECTION VIII - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	
Store at temperatures between 40 - 120° F. Avoid freezing	
OTHER PRECAUTIONS	
Keep away from children, infants and pets	

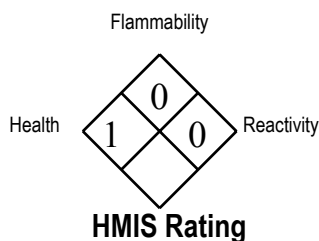
SECTION IX - ADDITIONAL INFORMATION

If material is used in extreme heat (>120° F), prolonged and repeated exposure could pose a risk of pulmonary disease. Exposure below mist TLV (5mg/m) appears to be without risk.	
All components used in this product are exempt from the T.O.S.C.A chapter 15 reporting requirements.	
N/A = Not Applicable, N.E. = None Established	

THIS MATERIAL SAFETY DATA SHEET PREPARED BY:

NAME	James R. MacMurdo	SIGNATURE 
TITLE	Director, Corporate Quality Assurance	
DATE	12/21/2005	

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MATERIAL SAFETY DATA SHEET

GENERAL INFORMATION

PRODUCT NAME OR NUMBER (as it appears on label) Aqua-Gel® II Utility Cable Pulling Lubricant	CATALOG NUMBER All "31" Series
MANUFACTURER'S NAME IDEAL INDUSTRIES, INC.	EMERGENCY TELEPHONE NO. (815) 895-5181
ADDRESS (Number, Street, City, State, Zip Code) Becker Place, Sycamore, IL 60178	
HAZARDOUS MATERIAL DESCRIPTION, PROPER SHIPPING NAME, HAZARD CLASS, HAZARD CLASS, HAZARD ID NO. (49 CFR 172.101) None	
CHEMICAL DESCRIPTION Polymer-based Mixture	FORMULA Proprietary

SECTION I - INGREDIENTS

CAS REGISTRY NO.	%W	CHEMICAL NAME(S)*	Listed as a carcinogen in NTP, IARC or OSHA 1910(z) (specify)
7732-18-5	<90	Water	No
9038-95-3	<10	Oxirane, Methyl-, Polymer With Oxirane, Monobutyl Ether	No
9003-11-6	<5	Polyoxypropylene-polyoxyethylene Block Copolymer	No
1310-58-3	<1	1-Propanol, 2-amino-2-methyl	No
9003-01-4	<1	2-Propanoic Acid	No
102-71-6	<2	20% Potassium Hydroxide	No
52-51-7	<0.1	2-Bromo-2-Nitropropane 1,3 Diol	No
3844-45-9 7757-82-6 7647-14-5	<0.1	Blue Pigment	No

SECTION II - PHYSICAL DATA

BOILING POINT 212 °F 100 °C	SPECIFIC GRAVITY (H ₂ O=1) 0.98	PERCENT VOLATILE BY VOLUME (%) <90
SOLUBILITY IN WATER Infinite	pH = 7.0 - 8.0	PERCENT SOLID BY WEIGHT (%) ~10
APPEARANCE AND ODOR Clear blue gel, mild odor	IS MATERIAL: LIQUID SOLID <u>GEL</u> GAS PASTE	

SECTION III - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT None	method used C.O.C	FLAMMABLE LIMITS	LEL None	UEL None
EXTINGUISHING MEDIA Use extinguishing media suitable for surrounding materials				
SPECIAL FIRE FIGHTING PROCEDURES None				
UNUSUAL FIRE AND EXPLOSION HAZARDS None				

* None of the chemical raw materials contained in this formulation are considered hazardous under the Federal Hazards Communication Standard 29 C. F. R 1910.1200

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01, rev. date 3/10/06

SECTION IV - HEALTH HAZARD INFORMATION

EFFECTS OF OVEREXPOSURE - Conditions to Avoid	None normally expected. Upon prolonged contact, may cause temporary eye discomfort.
THRESHOLD LIMIT VALUE	NF
PRIMARY ROUTES OF ENTRY	Inhalation <input type="checkbox"/> Skin Contact <input checked="" type="checkbox"/> Other (specify)
EMERGENCY FIRST AID PROCEDURES	
SKIN CONTACT:	Wash with soap and water
EYE CONTACT:	Flush with water
INGESTION:	Do not induce vomiting. Consult physician or local poison control center

SECTION V - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Avoid prolonged storage at temperatures exceeding 190 F.
INCOMPATIBILITY (materials to avoid)			
Avoid strong oxidizers and nitrites			
HAZARDOUS DECOMPOSITION PRODUCTS:			
In the unlikely event of combustion of dried residue, oxides and nitrogen may be released			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None

SECTION VI - SPILL AND LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED	Wipe up, shovel or vacuum spilled material. Clean up spills immediately as they can be dangerously slippery.
WASTE DISPOSAL METHOD	Comply with Federal, state and local regulations for solid landfill
CERCLA (Superfund) REPORTABLE QUANTITY (in lbs)	N/A
RCRA HAZARDOUS WASTE NO. (40CFR 261.33)	N/A
VOLATILE ORGANIC COMPOUND (VOC) (as packaged, minus water)	None
^a Theoretical _____ lb/gal	N/A
^a Analytical _____ lb/gal	N/A

SECTION VII - PERSONAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (specify type)			
None normally required			
VENTILATION	LOCAL EXHAUST (Specify Rate)	None	SPECIAL
	MECHANICAL (General) (Specify Rate)	None	OTHER
PROTECTIVE GLOVES (specify type)		EYE PROTECTION (specify type)	
None normally needed - Neoprene if necessary		None normally required. Safety glasses or splash goggles recommended.	
OTHER PROTECTIVE EQUIPMENT			
Eye fountain in work area is recommended but not necessary			


SECTION VIII - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	Store at temperatures between 40 - 180 F. Avoid freezing
OTHER PRECAUTIONS	Keep away from children, infants and pets

SECTION IX - ADDITIONAL INFORMATION

Extreme temperatures of combustion or burning and contact with nitrites could result in the formation of nitrosamines which are potential carcinogens. This condition is unlikely to occur.

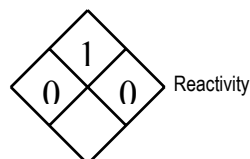
N/A = Not Applicable, N.E. = None Established

THIS MATERIAL SAFETY DATA SHEET PREPARED BY:	
NAME	James R. MacMurdo
TITLE	Director, Corporate Quality Assurance
DATE	03/20/2007
SIGNATURE	
	



Flammability

Health



HMIS Rating

MATERIAL SAFETY DATA SHEET

GENERAL INFORMATION

PRODUCT NAME OR NUMBER (as it appears on label)		CATALOG NUMBER
Twister® Wet Location Wire Connectors		30-x61, 30-x62, 30-x63
MANUFACTURER'S NAME		EMERGENCY TELEPHONE NO.
IDEAL INDUSTRIES, INC.		(815) 895-5181
ADDRESS (Number, Street, City, State, Zip Code)		
Becker Place, Sycamore, IL 60178		
HAZARDOUS MATERIAL DESCRIPTION, PROPER SHIPPING NAME, HAZARD CLASS, HAZARD CLASS, HAZARD ID NO. (49 CFR 172.101)		
None		
CHEMICAL DESCRIPTION	FORMULA	
PBT, Zinc Plated Steel, Silicone Grease, Polypropylene	Proprietary	

SECTION I - INGREDIENTS

SELECTED INGREDIENTS			
CAS REGISTRY NO.	%W	CHEMICAL NAME(S)*	Listed as a carcinogen in NTP, IARC or OSHA 1910(z) (specify)
26062-94-2	<55	Polybutylene Terephthalate	No
63148-62-9	<30	Silicone Compound	No
7439-89-6	<15	Steel	No
9003-07-0	<5	Polypropylene	No
7440-66-6	<0.2	Zinc	No

SECTION II - PHYSICAL DATA

BOILING POINT	SPECIFIC GRAVITY (H ₂ O=1)	PERCENT VOLATILE BY VOLUME (%)
N/A °F °C	N/A	<10
SOLUBILITY IN WATER	pH =	PERCENT SOLID BY WEIGHT (%)
Insoluble	N/A	~100
APPEARANCE AND ODOR		IS MATERIAL: LIQUID SOLID GEL GAS PASTE

SECTION III - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT	None	method used	C.O.C.	FLAMMABLE LIMITS	LEL	UEL
					None	None
EXTINGUISHING MEDIA						
None normally required						
SPECIAL FIRE FIGHTING PROCEDURES						
Use extinguishing media suitable for surrounding materials						
UNUSUAL FIRE AND EXPLOSION HAZARDS						
Use self-contained breathing apparatus with full face shield. Polybutylene Terephthalate material is a UL listed 94 V-0 flame rated product.						

* None of the chemical raw materials contained in this formulation are considered hazardous under the Federal Hazards Communication Standard 29 C. F. R 1910.1200

SECTION IV - HEALTH HAZARD INFORMATION

EFFECTS OF OVEREXPOSURE - Conditions to Avoid	
Prolonged repeated skin contact with grease may slight skin discomfort	
THRESHOLD LIMIT VALUE	
N/E	
PRIMARY ROUTES OF ENTRY Inhalation <input type="checkbox"/> Skin Contact <input checked="" type="checkbox"/> Other (specify) Ingestion	
EMERGENCY FIRST AID PROCEDURES	
SKIN CONTACT: See other precautions at bottom of page	
EYE CONTACT: None	
INGESTION: Consult physician	

SECTION V - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct exposure to flame or excessive heat.
INCOMPATIBILITY (materials to avoid)			
Strong oxidizing agents			
HAZARDOUS DECOMPOSITION PRODUCTS:			
Oxides of carbon			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None

SECTION VI - SPILL AND LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED	
Sweep up to prevent tripping	
WASTE DISPOSAL METHOD	
Landfill or incinerate in accordance with local state and federal guidelines	
CERCLA (Superfund) REPORTABLE QUANTITY (in lbs)	
N/A	
RCRA HAZARDOUS WASTE NO. (40CFR 261.33)	
N/A	
VOLATILE ORGANIC COMPOUND (VOC) (as packaged, minus water)	
N/A	
^a Theoretical _____ lb/gal	N/A
^b Analytical _____ lb/gal	N/A


SECTION VII - PERSONAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (specify type)			
None normally required			
VENTILATION	LOCAL EXHAUST (Specify Rate)	None normally required	SPECIAL N/A
	MECHANICAL (General) (Specify Rate)	Recommended in closed areas	OTHER N/A
PROTECTIVE GLOVES (specify type)		EYE PROTECTION (specify type)	
		Per company policy	
OTHER PROTECTIVE EQUIPMENT			
None			

SECTION VIII - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	
Avoid excessive heat or open flames	
OTHER PRECAUTIONS	
None	

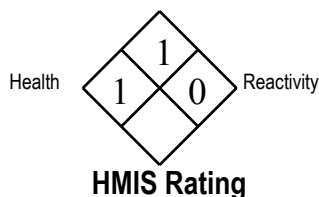
SECTION IX - ADDITIONAL INFORMATION

None	
N/A = Not Applicable, N.E. = None Established	
THIS MATERIAL SAFETY DATA SHEET PREPARED BY:	
NAME James R. MacMurdo	SIGNATURE 
TITLE Director, Corporate Quality Assurance	
DATE 03/10/2006	

ITEM - 07



Flammability Document # 6810-005



MATERIAL SAFETY DATA SHEET

GENERAL INFORMATION

PRODUCT NAME OR NUMBER (as it appears on label) Noalox® Anti-Oxidant		CATALOG NUMBER All "30" Series
MANUFACTURER'S NAME IDEAL INDUSTRIES, INC.		EMERGENCY TELEPHONE NO. (815) 895-5181
ADDRESS (Number, Street, City, State, Zip Code) Becker Place, Sycamore, IL 60178		
HAZARDOUS MATERIAL DESCRIPTION, PROPER SHIPPING NAME, HAZARD CLASS, HAZARD CLASS NO., HAZARD ID NO. (49 CFR 172.101) None		
CHEMICAL DESCRIPTION Petroleum-Based Mixture	FORMULA Proprietary	

SECTION I - INGREDIENTS

CAS REGISTRY NO.	%W	CHEMICAL NAME(S)*	Listed as a carcinogen in NTP, IARC or OSHA 1910(z) (specify)
9003-29-6	<80	Polybutene	No
7440-66-6	20	Zinc Dust	No
7631-86-9	<5	Silicon Dioxide	No

SECTION II - PHYSICAL DATA

BOILING POINT >500°F °C	SPECIFIC GRAVITY (H ₂ O=1) 1.04	PERCENT VOLATILE BY VOLUME (%) N F
SOLUBILITY IN WATER Moderate	pH = 6.5 - 8.0	PERCENT SOLID BY WEIGHT (%) 100
APPEARANCE AND ODOR Grav solid paste, mild odor		IS MATERIAL: LIQUID SOLID GEL GAS <u>PASTE</u>

SECTION III - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT 310 F	method used C.O.C	FLAMMABLE LIMITS	LEL	UEL
EXTINGUISHING MEDIA		Use dry chemical, carbon dioxide or foam.		
SPECIAL FIRE FIGHTING PROCEDURES		Self-contained respiratory protection should be provided for fire fighters. Keep fire exposed containers cool with water.		
UNUSUAL FIRE AND EXPLOSION HAZARDS		Water or foam may cause a frothing reaction. (Water reacts with zinc dust).		

* None of the chemical raw materials contained in this formulation are considered hazardous under the Federal Hazards Communication Standard 29 C. F. R 1910.1200

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, rev. date 3/10/06

SECTION IV - HEALTH HAZARD INFORMATION**ITEM - 07**

EFFECTS OF OVEREXPOSURE - Conditions to Avoid	
None normally expected. Upon prolonged contact, may cause temporary eye discomfort.	
THRESHOLD LIMIT VALUE	
Zinc dust or silicon dioxide as dust: 10mg/m.	
PRIMARY ROUTES OF ENTRY Inhalation <input type="checkbox"/> Skin Contact <input checked="" type="checkbox"/> Other (specify)	
EMERGENCY FIRST AID PROCEDURES	
SKIN CONTACT:	Wash with soap and water for 15 minutes
EYE CONTACT:	Flush with water for 15 minutes
INGESTION:	
Induce vomiting and consult physician or local poison control center.	

SECTION V - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Avoid conditions of moisture or high humidity.
INCOMPATIBILITY (materials to avoid)			
Avoid strong oxidizers, strong acids and water.			
HAZARDOUS DECOMPOSITION PRODUCTS:			
Excessive heat and burning may release oxides of carbon.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None

SECTION VI - SPILL AND LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED	
Wipe up, shovel or vacuum spilled material. Clean up spills immediately.	
Use absorbent media.	
WASTE DISPOSAL METHOD	
Comply with Federal, state and local regulations for solid landfill.	
CERCLA (Superfund) REPORTABLE QUANTITY (in lbs)	
None Required	
RCRA HAZARDOUS WASTE NO. (40CFR 261.33)	
None Required	
VOLATILE ORGANIC COMPOUND (VOC) (as packaged, minus water)	
120 g/l, calculated	
^a Theoretical _____ lb/gal	N/A
^b Analytical _____ lb/gal	N/A


SECTION VII - PERSONAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (specify type)			
If TLV exceeded use NIOSH respirator			
VENTILATION	LOCAL EXHAUST (Specify Rate)	Necessary above TLV	SPECIAL None
	MECHANICAL (General) (Specify Rate)		OTHER None
PROTECTIVE GLOVES (specify type)		EYE PROTECTION (specify type)	
None normally needed -Neoprene if necessary		Safety glasses or splash goggles.	
OTHER PROTECTIVE EQUIPMENT			
Eye fountain in work area is recommended.			

SECTION VIII - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	
Store in dry conditions at temperatures between 40 - 120 F.	
OTHER PRECAUTIONS	
Keep away from children, infants and pets.	

SECTION IX - ADDITIONAL INFORMATION

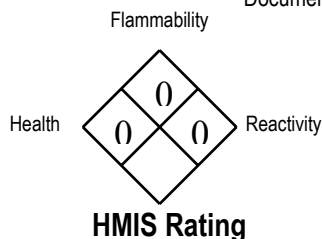
This product contains the following materials that are subject to the reporting requirements of Section 313 of EPCRA:	
CAS # 7440-66-6, Zinc Dust, 20%	
N/A = Not Applicable, N.E. = None Established	
THIS MATERIAL SAFETY DATA SHEET PREPARED BY:	
NAME	James R. MacMurdo
TITLE	Director, Corporate Quality Assurance
DATE	03/10/2006
SIGNATURE	
	

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Document # 6410-009



MATERIAL SAFETY DATA SHEET

GENERAL INFORMATION

PRODUCT NAME OR NUMBER (as it appears on label) Thermo-Shrink® (Heat Shrink Tubing & End Caps)		CATALOG NUMBER All "46" Series
MANUFACTURER'S NAME IDEAL INDUSTRIES, INC.		EMERGENCY TELEPHONE NO. (815) 895-5181
ADDRESS (Number, Street, City, State, Zip Code) Becker Place, Sycamore, IL 60178		
HAZARDOUS MATERIAL DESCRIPTION, PROPER SHIPPING NAME, HAZARD CLASS, HAZARD CLASS, HAZARD ID NO. (49 CFR 172.101) None		
CHEMICAL DESCRIPTION Flame Retarded Modified Polyolefin	FORMULA Proprietary	

SECTION I - INGREDIENTS

CAS REGISTRY NO.	%W	CHEMICAL NAME(S)*	Listed as a carcinogen in NTP, IARC or OSHA 1910(z) (specify)
		This product contains no hazardous ingredients under Federal Hazard Communication Standard 29 C.F.R. - 1910.1200.	

SECTION II - PHYSICAL DATA

BOILING POINT °F °C Solid	SPECIFIC GRAVITY (H ₂ O=1) 0.98 - 1.47	PERCENT VOLATILE BY VOLUME (%) N/A
SOLUBILITY IN WATER Insoluble	pH = N/A	PERCENT SOLID BY WEIGHT (%) 100
APPEARANCE AND ODOR Flexible plastic tubing, slight odor	IS MATERIAL: LIQUID (SOLID) GEL GAS PASTE	

SECTION III - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT N/A	method used	FLAMMABLE LIMITS	LEL N.E.	UEL N.E.
EXTINGUISHING MEDIA Dry chemical, CO ₂ , Foam, Water				
SPECIAL FIRE FIGHTING PROCEDURES None				
UNUSUAL FIRE AND EXPLOSION HAZARDS At temperatures above 600°F or burning in open flame, product may give off CO ₂ , CO, methyl and ethyl chlorocarbons, hydrogen chloride or hydrogen bromide.				

* None of the chemical raw materials contained in this formulation are considered hazardous under the Federal Hazards Communication Standard 29 C. F. R 1910.1200

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1, rev. date 3/10/06

SECTION IV - HEALTH HAZARD INFORMATION

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EFFECTS OF OVEREXPOSURE - Conditions to Avoid	None known
THRESHOLD LIMIT VALUE	N/F
PRIMARY ROUTES OF ENTRY Inhalation <input type="checkbox"/> Skin Contact <input checked="" type="checkbox"/> Other (specify)	
EMERGENCY FIRST AID PROCEDURES	
SKIN CONTACT:	See other precautions at bottom of page
EYE CONTACT:	None
INGESTION:	Consult physician

SECTION V - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Direct exposure to flame or excessive heat.
INCOMPATIBILITY (materials to avoid)			
None			
HAZARDOUS DECOMPOSITION PRODUCTS:			
C.O ₂ C.O methyl and ethyl chlorocarbons hydrogen chloride and hydrogen bromide			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None

SECTION VI - SPILL AND LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED	
Sweep up to prevent entanglement or tripping	
WASTE DISPOSAL METHOD	
Landfill or incinerate in equipment designed to handle hydrogen chloride as a product of combustion	
Follow local, state and federal guidelines.	
CERCLA (Superfund) REPORTABLE QUANTITY (in lbs)	
N/A	
RCRA HAZARDOUS WASTE NO. (40CFR 261.33)	
N/A	
VOLATILE ORGANIC COMPOUND (VOC) (as packaged, minus water)	
N/A	
^a Theoretical _____ lb/gal	N/A
^b Analytical _____ lb/gal	N/A


SECTION VII - PERSONAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (specify type)			
None normally required			
VENTILATION	LOCAL EXHAUST (Specify Rate)	None normally required.	SPECIAL N/A
	MECHANICAL (General) (Specify Rate)	Recommended in closed areas	OTHER N/A
PROTECTIVE GLOVES (specify type)		EYE PROTECTION (specify type)	
None		Per company policy	
OTHER PROTECTIVE EQUIPMENT			
N/A			

SECTION VIII - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	
Avoid burning in flame Avoid storage above 100°F due to recovery of expanded tubing	
OTHER PRECAUTIONS	
The adhesive in molten state can cause skin burns Immediately immerse affected area in cold clean water	
Do not attempt to pull away solidified material adhering to skin. Seek medical attention.	

SECTION IX - ADDITIONAL INFORMATION

None	
N/A = Not Applicable, N.E. = None Established	
THIS MATERIAL SAFETY DATA SHEET PREPARED BY:	
NAME James R. MacMurdo	SIGNATURE 
TITLE Director, Corporate Quality Assurance	
DATE 03/10/2006	



ITEM - 09

Material Safety Data Sheet

Section 1: Product & Company Identification

Product Name: CO® Contact Cleaner (Aerosol)

Product Number (s): 02016, 82016

Manufactured By:

CRC Industries, Inc.
885 Louis Drive
Warminster, PA 18974
www.crcindustries.com

General Information	(215) 674-4300
Technical Assistance	(800) 521-3168
Customer Service	(800) 272-4620
24-Hr Emergency (CHEMTREC)	(800) 424-9300

Section 2: Hazards Identification

Emergency Overview

Appearance & Odor: Colorless volatile liquid with ethereal and faint sweetish odor

WARNING

Contents under pressure.

As defined by OSHA's Hazard Communication Standard, this product is hazardous.

Potential Health Effects:

EYE: May cause eye irritation with tearing, pain or blurred vision.

SKIN: Immediate effects may include irritation, itching, redness and swelling. Prolonged or repeated contact can cause defatting of the skin, with redness and rash.

INHALATION: Overexposure to vapor may cause dizziness, loss of concentration and irritation. With high exposure levels, effects can include central nervous system (CNS) depression and cardiac arrhythmia. Product vapors displace air and can cause suffocation especially in a confined space.

INGESTION: The major hazard is aspiration of the liquid into the lungs during swallowing or vomiting. This may result in chemical pneumonia. Symptoms include coughing, gasping, shortness of breath, bluish discoloration of the skin, and fever. Pulmonary edema, confusion, coma and seizures may occur in more serious cases.

CHRONIC EFFECTS: None identified.

TARGET ORGANS: None identified.

Medical Conditions Aggravated by Exposure:

Pre-existing disease of the central nervous system or cardiovascular system.

See Section 11 for toxicology and carcinogenicity information on product ingredients.

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Section 3: Composition/Information on Ingredients

COMPONENT	CAS NUMBER	% by Wt.
Decafluoropentane (HFC-43-10mee)	138495-42-8	55 - 65
1,1,1,2-Tetrafluoroethane (HFC-134a)	811-97-2	35 - 45

Section 4: First Aid Measures

Eye Contact:	Immediately flush with plenty of water for 15 minutes, lifting eyelids occasionally to facilitate irrigation. Get medical attention.
Skin Contact:	Remove contaminated clothing and wash affected area with soap and water. Call a physician if irritation persists. Wash contaminated clothing prior to re-use.
Inhalation:	Remove person to fresh air. Keep person calm. If not breathing, give artificial respiration. If breathing is difficult give oxygen. Do NOT give epinephrine (adrenaline). Call a physician.
Ingestion:	Do NOT induce vomiting unless instructed to do so by a physician. Immediately give 2 glasses of water. Do NOT give stimulants. Get medical attention immediately.
<i>Note to Physicians:</i>	Because of possible disturbances of cardiac rhythm, catecholamine drugs such as adrenaline should be used with special caution and only in situations of emergency life support. Treatment of overexposure should be directed at the control of symptoms and the clinical conditions.

Section 5: Fire-Fighting Measures

Flammable Properties: This product is nonflammable in accordance with aerosol flammability definitions (16 CFR 1500.3(c)(6)).

Flash Point:	None	Upper Explosive Limit:	None
Autoignition Temperature:	ND	Lower Explosive Limit:	None

Suitable Extinguishing Media: Choose an extinguishing agent appropriate for the surrounding fire.

Products of Combustion: Product will decompose at high temperatures. Decomposition products include hydrofluoric acid and carbonyl halides, such as phosgene.

Protection of Fire-Fighters: Firefighters should wear self-contained, NIOSH-approved breathing apparatus for protection against suffocation and possible toxic decomposition products. Proper eye and skin protection should be provided. Use water spray to keep fire-exposed containers cool and to knock down vapors which may result from product decomposition.

Section 6: Accidental Release Measures

Personal Precautions: Use personal protection recommended in Section 8. Avoid inhaling vapors.

Environmental Precautions: Take precautions to prevent contamination of ground and surface waters. Do not flush

into sewers or storm drains.

Methods for Containment & Clean-up: Dike area to contain spill. Ventilate the area with maximum ventilation. If in confined space or limited air circulation area, clean-up workers should wear appropriate respiratory protection and other personal protective equipment. Recover or absorb spilled material using an absorbent designed for chemical spills. Place used absorbents into proper waste containers.

Section 7: Handling and Storage

Handling Procedures: Minimize vapor accumulation by providing air circulation. Avoid breathing vapors or mist. Wear eye protection. Wash thoroughly after handling.

Storage Procedures: Store in a cool dry area out of direct sunlight. Aerosol cans must be maintained below 120 F to prevent cans from rupturing. If stored below 14 F, mix prior to use.

Aerosol Storage Level: I

Section 8: Exposure Controls/Personal Protection

Exposure Guidelines:

COMPONENT	OSHA		ACGIH		OTHER		UNIT
	TWA	STEL	TWA	STEL	TWA	SOURCE	
Decafluoropentane	NE	NE	NE	NE	200	mfg*	ppm
1,1,1,2-Tetrafluoroethane	NE	NE	NE	NE	1000	AIHA	ppm
N.E. – Not Established (c) – ceiling (s) – skin (v) – vacated							

* manufacturer's exposure limit

Engineering Controls: Area should have ventilation to provide fresh air. Use local exhaust to prevent accumulation of vapors. Use mechanical means if necessary to maintain vapor levels below the exposure guidelines. If working in a confined space, follow applicable OSHA regulations

Respiratory Protection: None required for normal work where adequate ventilation is provided. Use a NIOSH-approved cartridge respirator with organic vapor cartridge if vapors exceed exposure limits. Use a self-contained breathing apparatus in confined spaces and for emergencies.

Eye/face Protection: For normal conditions, wear safety glasses. Where there is reasonable probability of liquid contact, wear splash-proof goggles.

Skin Protection: Use protective gloves such as nitrile, PVA or neoprene. Also, use full protective clothing if there is prolonged or repeated contact of liquid with skin.

Section 9: Physical and Chemical Properties

Physical State: liquid

Color: clear, colorless

Odor: ethereal and sweetish odor

Specific Gravity: 1.58

Initial Boiling Point: 131 F

Freezing Point: ND

Vapor Pressure: 226 mmHg @ 77 F

Vapor Density: > 1 (air = 1)
Evaporation Rate: > 1 (ether = 1)
Solubility: 140 ppm (water)
pH: NA

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Volatile Organic Compounds:	Federal:	<u>wt %:</u> 0	<u>g/L:</u> 0	<u>lbs./gal:</u> 0
	CARB:	<u>wt %:</u> 60	<u>g/L:</u> 948	<u>lbs./gal:</u> 7.9

Section 10: Stability and Reactivity

Stability: Stable

Conditions to Avoid: Avoid temperature extremes. Exposure of this product to high energy sources may yield toxic and/or corrosive decomposition products.

Incompatible Materials: Alkali or alkaline earth metals such as powdered or freshly abraded aluminum, sodium, magnesium, zinc, beryllium, etc.; strong bases such as sodium hydroxide, potassium hydroxide, etc.

Hazardous Decomposition Products: Hydrofluoric acids and carbonyl halides, such as phosgene.
Decafluoropentane is incompatible with strong bases and can react to form salts of hydrofluoric acid.

Possibility of Hazardous Reactions: No

Section 11: Toxicological Information

Long-term toxicological studies have not been conducted for this product. The following information is available for components of this product.

ACUTE EFFECTS

<u>Component</u>	<u>Test</u>	<u>Result</u>	<u>Route</u>	<u>Species</u>
Decafluoropentane	LC50	11,100 ppm/4H	Inhalation	rat
Decafluoropentane	LD50	> 5 g/kg	Oral	rat
Decafluoropentane	LD50	> 5 g/kg	Dermal	rabbit
1,1,1,2-Tetrafluoroethane	LC50	1500 g/m ³ /4H	Inhalation	rat

CHRONIC EFFECTS

Carcinogenicity:

	<u>Component</u>	<u>Result</u>
OSHA:	None listed	
IARC:	None listed	
NTP:	None listed	

Mutagenicity: No information

Other: Decafluoropentane mild eye irritant and slight skin irritant in animal testing

Section 12: Ecological Information

Ecological studies have not been conducted for this product. The following information is available for components of this product.

Product Name: CO® Contact Cleaner (Aerosol)**Product Number (s): 02016, 82016**

Ecotoxicity:	Decafluoropentane – daphnia magna: 11.7 mg/L fathead minnow: 27.2 mg/L
Persistence / Degradability:	No data
Bioaccumulation / Accumulation:	No data
Mobility in Environment:	No data

Section 13: Disposal Considerations

Disposal: The dispensed liquid product is not a RCRA hazardous waste. (See 40 CFR Part 261.20 – 261.33) Aerosol containers should be emptied and depressurized before disposal. Empty containers may be recycled.

All disposal activities must comply with federal, state and local regulations. Local regulations may be more stringent than state or national requirements.

Section 14: Transport Information

Proper shipping description:

US DOT (ground): Consumer Commodity, ORM-D

Special Provisions: None

Section 15: Regulatory Information**U.S. Federal**Toxic Substances Control Act (TSCA):

All ingredients are either listed on the TSCA inventory or are exempt. Decafluoropentane is controlled by TSCA Section 5, Significant New Use Rule (SNUR: 40 CFR 721.5645).

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA):

Reportable Quantities (RQ's) exist for the following ingredients: None

Spills or releases resulting in the loss of any ingredient at or above its RQ require immediate notification to the National Response Center (800-424-8802) and to your Local Emergency Planning Committee.

Superfund Amendments Reauthorization Act (SARA) Title III:

Section 302 Extremely Hazardous Substances (EHS): None

Section 311/312 Hazard Categories:	Fire Hazard	No
	Reactive Hazard	No
	Release of Pressure	Yes
	Acute Health Hazard	Yes
	Chronic Health Hazard	No

Section 313 Toxic Chemicals: This product contains the following substances 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:
None

Clean Air Act:

Section 112 Hazardous Air Pollutants (HAPs): None

ITEM - 09**State Regulations**California Safe Drinking Water and Toxic Enforcement Act (Prop 65):

This product may contain the following chemicals known to the state of California to cause cancer, birth defects or other reproductive harm: NONE

State Right to Know:

New Jersey: None
Pennsylvania: None
Massachusetts: None
Rhode Island : None

Additional Regulatory Information: None

Section 16: Other Information

NFPA: Health: 1 Flammability: 0 Reactivity: 1
HMIS: Health: 1 Flammability: 0 Reactivity: 1 PPE: B

Prepared By: Michelle Rudnick
CRC #: 508D
Revision Date: 9/06/2006

Changes since last revision: Section 3: Component name corrected.

The information contained in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. This information is accurate to the best of CRC Industries' knowledge or obtained from sources believed by CRC to be accurate. Before using any product, read all warnings and directions on the label.

CAS:	Chemical Abstract Service	NA:	Not Applicable
ppm:	Parts per Million	ND:	Not Determined
TCC:	Tag Closed Cup	NE:	Not Established
PMCC:	Pensky-Martens Closed Cup	g/L:	grams per Liter
PPE:	Personal Protection Equipment	lbs./gal:	pounds per gallon
TWA:	Time Weighted Average	STEL:	Short Term Exposure Limit
OSHA:	Occupational Safety and Health Administration	AIHA:	American Industrial Hygiene Assoc.
NIOSH:	National Institute of Occupational Safety & Health	CARB:	California Air Resources Board
ACGIH:	American Conference of Governmental Industrial Hygienists		



Material Safety Data Sheet

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This material safety data sheet (MSDS) is provided as a courtesy in response to a customer request. This product is not regulated under, and a MSDS is not required for this product by the OSHA Hazard Communication Standard (29 CFR 1910.1200) because, when used as recommended or under ordinary conditions, it should not present a health and safety hazard. However, use or processing of the product not in accordance with the product's recommendations or not under ordinary conditions may affect the performance of the product and may present potential health and safety hazards.

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: 3M Super 33+ and Super 88 and 37 and 15 Vinyl Electrical Tape-No Lead

MANUFACTURER: 3M

DIVISION: Electrical Markets Division

ADDRESS: 3M Center
St. Paul, MN 55144-1000

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

Issue Date: 02/11/2005

Supersedes Date: 02/10/2005

Document Group: 16-6314-5

Product Use:

Intended Use: Electrical

SECTION 2: INGREDIENTS

<u>Ingredient</u>	<u>C.A.S. No.</u>	<u>% by Wt</u>
POLY(VINYL CHLORIDE)	9002-86-2	40 - 50
Polyester resin	Trade Secret	15 - 25
phenolic-cured rubber adhesive	Trade Secret	10 - 20
Tackifying resin	Trade Secret	5 - 10
synthetic rubber	Trade Secret	1 - 5
resin	Trade Secret	1 - 5
CARBON BLACK	1333-86-4	1 - 3
ANTIMONY TRIOXIDE	1309-64-4	1 - 3
Epoxidized vegetable oil	8013-07-8	1 - 3
DI-C8-10-BRANCHED ALKYL PHTHALATE, C9 RICH	68515-48-0	2 - 3
P-TERT-BUTYLPHENOL-FORMALDEHYDE RESIN	25085-50-1	<2
STABILIZER	Trade Secret	1 - 2

SECTION 3: HAZARDS IDENTIFICATION

3.1 EMERGENCY OVERVIEW

Specific Physical Form: Roll of Tape

Odor, Color, Grade: Black adhesive tape, slight odor.

General Physical Form: Solid

Immediate health, physical, and environmental hazards: Contact with aluminum or zinc in a pressurized system may generate hydrogen gas which could create an explosion hazard. The environmental properties of this product present a low environmental hazard. Contains a chemical or chemicals which can cause cancer. 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.

If thermal decomposition occurs:

Upper Respiratory Tract Irritation: Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

Ingestion:

Gastrointestinal Irritation: Signs/symptoms may include abdominal pain, nausea, diarrhea and vomiting.

Carcinogenicity:

Contains a chemical or chemicals which can cause cancer.

<u>Ingredient</u>	<u>C.A.S. No.</u>	<u>Class Description</u>	<u>Regulation</u>
ANTIMONY TRIOXIDE	1309-64-4	Group 2B	International Agency for Research on Cancer
CARBON BLACK	1333-86-4	Group 2B	International Agency for Research on Cancer
CARBON BLACK EXTRACTS	NONE	Group 2B	International Agency for Research on Cancer

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: Flush eyes with large amounts of water. If signs/symptoms persist, get medical attention.

Skin Contact: Wash affected area with soap and water. If signs/symptoms develop, get medical attention.

Inhalation: Remove person to fresh air. If signs/symptoms develop, get medical attention.

If Swallowed: Do not induce vomiting. Give victim two glasses of water. Never give anything by mouth to an unconscious person. Get immediate medical attention.

SECTION 5: FIRE FIGHTING MEASURES

5.1 FLAMMABLE PROPERTIES

Autoignition temperature	No Data Available
Flash Point	Not Applicable
Flammable Limits - LEL	No Data Available
Flammable Limits - UEL	No Data Available
OSHA Flammability Classification:	Not Applicable

5.2 EXTINGUISHING MEDIA

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

5.3 PROTECTION OF FIRE FIGHTERS

Special Fire Fighting Procedures: 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. Contact with aluminum or zinc in a pressurized system may generate hydrogen gas which could create an explosion hazard.

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

SECTION 6: ACCIDENTAL RELEASE MEASURES

Accidental Release Measures: Not applicable.

SECTION 7: HANDLING AND STORAGE

7.1 HANDLING

Do not eat, drink or smoke when using this product. Wash exposed areas thoroughly with soap and water. Keep away from aluminum and zinc. Avoid prolonged or repeated skin contact. Avoid breathing of fumes. Avoid eye contact with vapors, mists, or spray. Keep out of the reach of children. Avoid breathing of dust created by cutting, sanding, grinding or machining. 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. Avoid contact with oxidizing agents.

7.2 STORAGE

Not applicable. Store away from oxidizing agents.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 ENGINEERING CONTROLS

Use with appropriate local exhaust ventilation. Not applicable. Provide appropriate local exhaust for cutting, grinding, sanding or machining. Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below Occupational Exposure Limits and/or control dust, fume, or airborne particles. If ventilation is not adequate, use respiratory protection equipment.

8.2 PERSONAL PROTECTIVE EQUIPMENT (PPE)

8.2.1 Eye/Face Protection

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

8.2.2 Skin Protection

Not applicable. Gloves not normally required. Avoid prolonged or repeated skin contact.

8.2.3 Respiratory Protection

Avoid breathing of fumes. Avoid breathing of dust created by cutting, sanding, grinding or machining.

8.2.4 Prevention of Swallowing

Do not eat, drink or smoke when using this product. Wash exposed areas thoroughly with soap and water. Not applicable.

8.3 EXPOSURE GUIDELINES

<u>Ingredient</u>	<u>Authority</u>	<u>Type</u>	<u>Limit</u>	<u>Additional Information</u>
ANTIMONY COMPOUNDS	ACGIH	TWA, as Sb	0.5 mg/m3	
ANTIMONY COMPOUNDS	OSHA	TWA, as Sb	0.5 mg/m3	Table Z-1A
ANTIMONY TRIOXIDE	ACGIH	TWA, as Sb	0.5 mg/m3	
CARBON BLACK	ACGIH	TWA	3.5 mg/m3	Table A4
CARBON BLACK	CMRG	TWA	0.5 mg/m3	
CARBON BLACK	OSHA	TWA	3.5 mg/m3	Table Z-1
DI-C8-10-BRANCHED ALKYL PHTHALATE, C9 RICH	CMRG	TWA	5 mg/m3	
STEARATES	ACGIH	TWA, as total dust	10 mg/m3	Table A4

SOURCE OF EXPOSURE LIMIT DATA:

ACGIH: American Conference of Governmental Industrial Hygienists

CMRG: Chemical Manufacturer Recommended Guideline

OSHA: Occupational Safety and Health Administration

AIHA: American Industrial Hygiene Association Workplace Environmental Exposure Level (WEEL)

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Specific Physical Form:	Roll of Tape
Odor, Color, Grade:	Black adhesive tape, slight odor.
General Physical Form:	Solid
Autoignition temperature	<i>No Data Available</i>
Flash Point	<i>Not Applicable</i>
Flammable Limits - LEL	<i>No Data Available</i>
Flammable Limits - UEL	<i>No Data Available</i>
Boiling point	<i>Not Applicable</i>
Vapor Density	<i>Not Applicable</i>
Vapor Pressure	<i>Not Applicable</i>

Specific Gravity	1.22 g/ml
pH	Not Applicable
Melting point	No Data Available
Solubility in Water	Nil
Evaporation rate	Not Applicable
Volatile Organic Compounds	No Data Available
Percent volatile	Not Applicable
VOC Less H2O & Exempt Solvents	No Data Available
Viscosity	Not Applicable

SECTION 10: STABILITY AND REACTIVITY

Stability: Stable.

Materials and Conditions to Avoid: Strong oxidizing agents; None known; Finely divided active metals; Alkali and alkaline earth metals; Reactions with metals in powder form occur from 370 degrees C onwards.

Hazardous Polymerization: Hazardous polymerization will not occur.

Hazardous Decomposition or By-Products

<u>Substance</u>	<u>Condition</u>
Hydrocarbons	At Elevated Temperatures
Carbon monoxide	During Combustion
Carbon dioxide	During Combustion
Hydrogen Chloride	During Combustion
Irritant Vapors or Gases	During Combustion
Oxides of Antimony	During Combustion
Oxides of Zinc	During Combustion

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 applicable.

CHEMICAL FATE INFORMATION

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.

EPA Hazardous Waste Number (RCRA): Not regulated

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

SECTION 14: TRANSPORT INFORMATION

ID Number(s):

80-6108-3383-4, 80-6112-6706-5, 80-6112-6707-3

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 - Yes

Section 313 Toxic Chemicals subject to the reporting requirements of that section and 40 CFR part 372 (EPCRA):

<u>Ingredient</u>	<u>C.A.S. No</u>	<u>% by Wt</u>
ANTIMONY TRIOXIDE (ANTIMONY COMPOUNDS)	1309-64-4	1 - 3

STATE REGULATIONS

Contact 3M for more information.

CALIFORNIA PROPOSITION 65

<u>Ingredient</u>	<u>C.A.S. No.</u>	<u>Classification</u>
ANTIMONY TRIOXIDE	1309-64-4	**Carcinogen
CARBON BLACK	1333-86-4	**Carcinogen
CARBON BLACK EXTRACTS	NONE	**Carcinogen

** WARNING: contains a chemical which can cause cancer.

CHEMICAL INVENTORIES

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

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.

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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: 1 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.

HMIS Hazard Classification

Health: 1 Flammability: 1 Reactivity: 0 Protection: A

Hazardous Material Identification System (HMIS®) hazard ratings are designed to inform employees of chemical hazards in the workplace. These ratings are based on the inherent properties of the material under expected conditions of normal use and are not intended for use in emergency situations. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint and Coatings Association (NPCA).

Revision Changes:

Section 2: Ingredient table was modified.

Section 15: California proposition 65 ingredient information was modified.

Section 3: Carcinogenicity table was modified.

Section 8: Exposure guidelines ingredient information was modified.

Section 15: California proposition 65 reproductive harm warning was deleted.

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Material Safety Data Sheet

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SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: SCOTCHCAST 266 and 266 TC Electrical Resin

MANUFACTURER: 3M

DIVISION: Corrosion Protection Products Dept

ADDRESS: 3M Center
St. Paul, MN 55144-1000

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

Issue Date: 10/29/2004

Supersedes Date: 10/19/2004

Document Group: 16-5663-6

Product Use:

Specific Use: Coating for electrical insulation

SECTION 2: INGREDIENTS

<u>Ingredient</u>	<u>C.A.S. No.</u>	<u>% by Wt</u>
DI(4-HYDROXYPHENOL)ISOPROPYLIDENE DIGLYCIDYL ETHER-DI(4-HYDROXYPHENOL)ISOPROPYLIDENE COPOLYMER	25036-25-3	50 - 70
CALCIUM SILICATE	13983-17-0	25 - 45
TITANIUM DIOXIDE	13463-67-7	1 - 10
4,4'-ISOPROPYLIDENEDIPHENOL-EPICHLOROHYDRIN POLYMER	25068-38-6	1 - 5
EPOXY RESIN - AMINE CONDENSATE	Trade Secret	1 - 3
4,4'-ISOPROPYLIDENEDIPHENOL	80-05-7	< 0.8

SECTION 3: HAZARDS IDENTIFICATION

3.1 EMERGENCY OVERVIEW

Specific Physical Form: Powder

Odor, Color, Grade: Green Powder

General Physical Form: Solid

Immediate health, physical, and environmental hazards: May cause allergic skin reaction. May cause target organ effects.

3.2 POTENTIAL HEALTH EFFECTS

Eye Contact: Moderate Eye Irritation: Signs/symptoms may include redness, swelling, pain, tearing, and blurred or hazy vision.

Skin Contact: Moderate Skin Irritation: Signs/symptoms may include localized redness, swelling, itching, and dryness.

Allergic Skin Reaction (non-photo induced): Signs/symptoms may include redness, swelling, blistering, and itching.

Photosensitization: Signs/symptoms may include a sunburn-like reaction such as blistering, redness, swelling, and itching from minor exposure to sunlight.

Inhalation: Upper Respiratory Tract Irritation: Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

Prolonged or repeated exposure may cause:

Lung Effects: Signs/symptoms may include difficulty breathing, cough, wheezing, weakness, increased heart rate, bluish colored skin (cyanosis), sputum production and changes in lung function tests.

Ingestion: Gastrointestinal Irritation: Signs/symptoms may include abdominal pain, nausea, diarrhea and vomiting.

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: Immediately flush eyes with large amounts of water for at least 15 minutes. Get immediate medical attention.

Skin Contact: Remove contaminated clothing and shoes. Immediately flush skin with large amounts of water. If signs/symptoms develop, get medical attention. Wash contaminated clothing and clean shoes before reuse.

Inhalation: Remove person to fresh air. If signs/symptoms develop, get medical attention.

If Swallowed: Do not induce vomiting. Give victim two glasses of water. Never give anything by mouth to an unconscious person. Get immediate medical attention.

SECTION 5: FIRE FIGHTING MEASURES

5.1 FLAMMABLE PROPERTIES

Autoignition temperature	450 - 550 °C [<i>Details:</i> For Dust Cloud Form; determined on a range of typical coating powders.]
Autoignition temperature	325 - 375 °C [<i>Details:</i> For Dust Layer Form; determined on a range of typical coating powders.]
Flash Point	<i>Not Applicable</i>
Flammable Limits - LEL	35 - 55 g/m3 [<i>Details:</i> Minimum Explosive Concentration (MEC) for dust - air mixture; determined on a range of typical coating powders.]
Flammable Limits - UEL	<i>No Data Available</i>

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: Wear full protective equipment (Bunker Gear) and a self-contained breathing apparatus (SCBA).

Unusual Fire and Explosion Hazards: Dust clouds of this material in combination with an ignition source may be explosive.

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

SECTION 6: ACCIDENTAL RELEASE MEASURES

Accidental Release Measures: Observe precautions from other sections. Call 3M- HELPS line (1-800-364-3577) for more information on handling and managing the spill. Evacuate unprotected and untrained personnel from hazard area. The spill should be cleaned up by qualified personnel. Ventilate the area with fresh air. Collect as much of the spilled material as possible. Use wet

sweeping compound or water to avoid dusting. Sweep up. Clean up residue. Place in a closed container approved for transportation by appropriate authorities. Dispose of collected material as soon as possible.

In the event of a release of this material, the user should determine if the release qualifies as reportable according to local, state, and federal regulations.

SECTION 7: HANDLING AND STORAGE

7.1 HANDLING

Avoid eye contact with dust or airborne particles. Avoid eye contact with vapors, mists, or spray. Avoid breathing of vapors created during cure cycle. Avoid breathing of fumes. Avoid breathing of dust created by cutting, sanding, grinding or machining. Avoid skin contact. Avoid skin contact with hot material. Do not eat, drink or smoke when using this product. Wash exposed areas thoroughly with soap and water. For industrial or professional use only. Keep out of the reach of children.

7.2 STORAGE

Keep container in well-ventilated area. Store away from areas where product may come into contact with food or pharmaceuticals. Store at temperatures below 80 F (26 C).

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 ENGINEERING CONTROLS

Provide local exhaust ventilation at transfer points. Provide appropriate local exhaust for cutting, grinding, sanding or machining. Provide appropriate local exhaust when product is heated. Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below Occupational Exposure Limits and/or control dust, fume, or airborne particles. If ventilation is not adequate, use respiratory protection equipment.

8.2 PERSONAL PROTECTIVE EQUIPMENT (PPE)

8.2.1 Eye/Face Protection

Avoid eye contact. The following eye protection(s) are recommended: Indirect Vented Goggles.

8.2.2 Skin Protection

Avoid skin contact. 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

Avoid breathing of fumes. Avoid breathing of dust created by cutting, sanding, grinding or machining.

Select one of the following NIOSH approved respirators based on airborne concentration of contaminants and in accordance with OSHA regulations: Half facepiece air-purifying respirator with organic vapor/acid gas cartridges and P95 particulate prefilters, Half facepiece air-purifying respirator with organic vapor/acid gas cartridges and N95 particulate prefilters, Half facepiece air-purifying respirator with organic vapor/acid gas cartridges and P100 particulate prefilters, Half facepiece or fullface air-purifying respirator with organic vapor cartridges and P95 particulate prefilters, Half facepiece or fullface air-purifying respirator with organic vapor cartridges and N95 particulate prefilters, Half facepiece or fullface air-purifying respirator with organic vapor cartridges and P100 particulate prefilters. Consult the current 3M Respiratory Selection Guide for additional information or call 1-800-243-4630 for 3M technical assistance.

8.2.4 Prevention of Swallowing

Do not eat, drink or smoke when using this product. Wash exposed areas thoroughly with soap and water.

8.3 EXPOSURE GUIDELINES

<u>Ingredient</u>	<u>Authority</u>	<u>Type</u>	<u>Limit</u>	<u>Additional Information</u>
4,4'-ISOPROPYLIDENEDIPHENOL	CMRG	TWA	5 mg/m3	Table A4
TITANIUM DIOXIDE	ACGIH	TWA	10 mg/m3	
TITANIUM DIOXIDE	CMRG	TWA, as respirable	5 mg/m3	

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TITANIUM DIOXIDE	OSHA	dust TWA, Vacated, as	10 mg/m3
TITANIUM DIOXIDE	OSHA	dust TWA, as total dust	15 mg/m3 Table Z-1

VAC Vacated PEL: Vacated Permissible Exposure Limits [PEL] are enforced as the OSHA PEL in some states. Check with your local regulatory agency.

SOURCE OF EXPOSURE LIMIT DATA:

ACGIH: American Conference of Governmental Industrial Hygienists
 CMRG: Chemical Manufacturer Recommended Guideline
 OSHA: Occupational Safety and Health Administration
 AIHA: American Industrial Hygiene Association Workplace Environmental Exposure Level (WEEL)

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Specific Physical Form:	Powder
Odor, Color, Grade:	Green Powder
General Physical Form:	Solid
Autoignition temperature	450 - 550 °C [<i>Details:</i> For Dust Cloud Form; determined on a range of typical coating powders.]
Autoignition temperature	325 - 375 °C [<i>Details:</i> For Dust Layer Form; determined on a range of typical coating powders.]
Flash Point	<i>Not Applicable</i>
Flammable Limits - LEL	35 - 55 g/m3 [<i>Details:</i> Minimum Explosive Concentration (MEC) for dust - air mixture; determined on a range of typical coating powders.]
Flammable Limits - UEL	<i>No Data Available</i>
Boiling point	<i>Not Applicable</i>
Density	1.55 kg/cm3
Vapor Density	<i>Not Applicable</i>
Vapor Pressure	<i>Not Applicable</i>
Specific Gravity	1.55 [<i>Ref Std:</i> WATER=1]
pH	<i>Not Applicable</i>
Melting point	140 °F
Solubility in Water	Nil
Evaporation rate	<i>Not Applicable</i>
Hazardous Air Pollutants	0
Volatile Organic Compounds	0 %
Percent volatile	0 %
VOC Less H2O & Exempt Solvents	0 %
Viscosity	<i>Not Applicable</i>

SECTION 10: STABILITY AND REACTIVITY

Stability: Stable.

Materials and Conditions to Avoid: Sparks and/or flames

Hazardous Polymerization: Hazardous polymerization will not occur.

Hazardous Decomposition or By-Products

<u>Substance</u>	<u>Condition</u>
Aldehydes	During Combustion
Formaldehyde	During Combustion
Carbon monoxide	During Combustion
Carbon dioxide	During Combustion

Ammonia
Oxides of Nitrogen

During Combustion
During Combustion

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.

CHEMICAL FATE INFORMATION

Not determined.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal Method: For quantities <100 lbs. (50kg): dispose of waste product in a sanitary landfill. For larger quantities: Incinerate in an industrial or commercial facility. As a disposal alternative, dispose of waste product in a facility permitted to accept chemical waste.

EPA Hazardous Waste Number (RCRA): Not regulated

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

SECTION 14: TRANSPORT INFORMATION

ID Number(s): 80-6300-0091-9, 80-6300-0123-0

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 - Yes Delayed Hazard - Yes

STATE REGULATIONS

Contact 3M for more information.

CHEMICAL INVENTORIES

The components of this product are in compliance with the chemical notification requirements of TSCA.
Contact 3M for more information.

INTERNATIONAL REGULATIONS

Contact 3M for more information.

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: 2 **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.

HMIS Hazard Classification

Health: 2 **Flammability:** 1 **Reactivity:** 0 **Protection:** X - See PPE section.

Hazardous Material Identification System (HMIS®) hazard ratings are designed to inform employees of chemical hazards in the workplace. These ratings are based on the inherent properties of the material under expected conditions of normal use and are not intended for use in emergency situations. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint and Coatings Association (NPCA).

Revision Changes:

Section 3: Potential effects from skin contact information was modified.

Section 3: Potential effects from inhalation information was modified.

Section 3: Immediate other hazard(s) was added.

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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3M MSDSs are available at www.3M.com

Material Name: Mineral Wool Insulation

1. Identification:

- 1.1 **Product Generic Name:** Mineral Wool Insulation
- 1.2 **Product Use:** Commercial, Industrial and Residential Insulation
- 1.3 **Products:** CavityRock[™], ConRock[™], CurtainRock[™], DrainBoard[™], EnerWrap[™], Flexibatt®, Noise Stop, RHF[™], RHM[™], RHT[™], ROXUL AFB[™], ROXULPlus®, ROXUL® 1200, RXL[™], RW[™], SAFE, Safe'n'Sound[™], Techton[™] 1200, Techton[™] 1200 Marine, TopRock[™] P, TopRock[™] F, SturdiRock[™]
- 1.4 **Company Address:** Roxul Inc.
551 Harrop Drive
Milton, Ontario
Canada
L9T 3H3
- 1.5 **Web Site:** www.roxul.com
- 1.6 If further information is required, please call or fax Roxul Inc.
Telephone: 1-800-265-6878 or 905-878-8474 Fax: 905-878-8077

2. Information on Ingredients:

<u>Ingredient Name</u>	<u>CAS Number</u>	<u>%</u>
Mineral Fiber	RN 65997-17-3	94-99
Cured Urea Extended Phenolic Formaldehyde Binder	25104-55-6	1-6

3. Hazards Identification:

- 3.1 **Appearance and Odor:** Grey, green fibrous batt or board.
- 3.2 **Emergency Overview:** Acrid smoke may be generated during a fire.
Exposure to dust may be irritating to the eyes, nose and throat.
- 3.3 **Potential Health Effects:**
- 3.3.1 **Inhalation:** Temporary mechanical irritation of the upper respiratory tract (scratchy throat, coughing, congestion) may result from exposures to dusts and fibers in excess of applicable exposure limits.
- 3.3.2 **Skin Contact:** Dusts and fibers may cause temporary mechanical irritation (itching) or redness to the skin.
- 3.3.3 **Eye Contact:** Dusts and fibers may cause temporary mechanical irritation (itching) or redness to the eyes.
- 3.3.4 **Ingestion:** Ingestion of this product is unlikely and not intended under normal conditions of use. Ingestion of this product may cause gastrointestinal irritation.
- 3.3.5 **Existing Medical Conditions:** Pre-existing chronic eye, skin and respiratory conditions may temporarily worsen due to exposure to dusts and fibers.

4. First-Aid Measures:

- 4.1 **Inhalation:** If irritation occurs, remove the affected person to fresh air. Drink water, and blow nose, to clear dusts and fibres from throat and nose. If irritation persists, consult a physician.
- 4.2 **Skin:** If irritation occurs, do not rub or scratch. Rinse under running water prior to washing with mild soap and water. Use a washcloth to help remove fibres. If irritation persists, consult a physician.
- 4.3 **Eyes:** If irritation occurs, flush eyes with plenty of water for at least 15 minutes. Do not rub the eyes. Consult a physician if irritation persists.
- 4.4 **Ingestion:** Ingestion of this product is unlikely and not intended under normal conditions of use. If it does occur, rinse mouth with plenty of water to help remove dust and fibres, and drink plenty of water to help reduce potential gastrointestinal irritation. Do not induce vomiting unless directed to do so by a physician.

5. Fire-Fighting Measures:

The products are non-combustible and do not pose a fire hazard. However, packaging material may burn.

- | | |
|---|---|
| 5.1. <u>Suitable extinguishing media:</u> | Water, foam, carbon dioxide or dry powder |
| 5.2. <u>Extinguishing media which must not be used for safety reasons:</u> | None |
| 5.3. <u>Combustion products:</u> | Carbon dioxide, carbon monoxide and trace gases |
| 5.4. <u>Special protective equipment for fire-fighters:</u> | Observe normal fire fighting procedures |
| 5.5. <u>Flash point:</u> None | <u>Flash Point Method Used:</u> Not Applicable |
| <u>Upper Flammable Limit (UFL):</u> Not Applicable | <u>Lower Flammable Limit:</u> Not Applicable |
| <u>Autoignition:</u> Not Applicable | <u>Explosive Properties:</u> Not Applicable |

6. Accidental Release Measures:

- 6.1 **Containment Procedures:** Pick up large pieces and scoop up dusts and fibers after they have settled out of air. These materials will disperse and settle along the bottom of waterways and ponds. It cannot easily be removed once it is waterborne, but is considered non-hazardous in water.
- 6.2 **Cleanup Procedures:** Use OSHA-recommended work practices and protective equipment as described in Section 8 of this Material Safety Data Sheet. Avoid generating airborne dusts and fibers during cleanup. Do not use compressed air. Vacuum dusts and fibers. Place material in an appropriate container for disposal as non-hazardous waste.
- 6.3 **Response Procedures:** Isolate area. Keep unnecessary personnel away. If dry methods or compressed air are used to collect dusts and fibers, all personnel in the area should wear OSHA-approved protective equipment (see Section 8 of this Material Safety Data Sheet).

7. Handling and Storage:

7.1 General Precautions:

- Utilize OSHA-recommended work practices and protective equipment when using the products (see Section 8 of this Material Safety Data Sheet).

7.2 Handling:

- Unpack material at application site to avoid unnecessary handling of product.
- Keep work areas clean. Avoid unnecessary handling of scrap material and debris by placing such materials in suitable containers, which should be kept as close to the work area as possible.
- Ensure good ventilation. Local exhaust ventilation may be required if the method of use produces dust levels which exceed applicable exposure limits (see Section 8 of this Material Safety Data Sheet).
- Avoid excessive eye and skin contact with dusts and fibers.
- Use recommended cleanup procedures to avoid buildup of dusts and fibers in the work area.

7.3 Storage:

- Keep material in original packaging until it is to be used.
- Store material to protect against adverse conditions including precipitation.

8. Exposure Controls/Personal Protection:

8.1 Exposure Guidelines:

8.1.1 General Product Information: Follow all applicable exposure limits. Local regulations may apply. Roxul recommends that users of the products adhere to the OSHA-recommended PEL of 1 f/cc TWA (fibers longer than 5 µm with diameters less than 3 µm). This recommended PEL, together with recommended work practices and personal protective equipment, were adopted in a Health and Safety Partnership Program (HSPP) agreement in 1999 between OSHA and the North American Insulation Manufacturers Association (NAIMA), of which Roxul is a member. Adherence to the OSHA-recommended PEL, work practices and protective equipment in the HSPP is expected to provide appropriate protection against all inhalation-related health risks that may be associated with exposures to mineral wool fibers (ACGIH 1997; NAIMA 1999; OSHA 1999; National Research Council 2000, IARC 2001), and to minimize eye and skin irritation.

8.1.2 Component Exposure Limits:

<u>Source</u>	<u>Legal or Recommended Exposure Limit</u>	<u>Exposure</u>
OSHA	1 f/cc TWA (recommended)	Synthetic Vitreous Fibers, > 5 µm length, < 3 µm diameter
ACGIH	1 f/cc TWA (threshold limit value – TLV)	Synthetic Vitreous Fibers, > 5 µm length, < 3 µm diameter
OSHA	15 mg/m ³ TWA-PEL (total particulate) 5 mg/m ³ TWA-PEL (respirable particulate)	Inert dust and particulates not otherwise regulated
ACGIH	10 mg/m ³ TWA-TLV (inhalable particulate) 3 mg/m ³ TWA-TLV (respirable particulate)	Particulates not otherwise classified, containing no asbestos and <1% crystalline silica

- 8.2 Equipment and Work Practices: Follow OSHA-recommended equipment and work practices. A complete copy of these practices can be obtained from Roxul Inc. (see Section 1 of this Material Safety Data Sheet), and is available on the OSHA website (<http://www.osha.gov/SLTC/syntheticmineralfibers>).
- 8.2.1 Follow OSHA-recommended safe handling practices listed in Section 7.2 above.
- 8.2.2 Where feasible, general dilution ventilation or local exhaust ventilation should be used as necessary to maintain exposures below applicable exposure limits. Dust collection systems should be used in cutting or machining operations and may be needed when using power tools.
- 8.2.3 Follow OSHA-recommended work practices when fabricating, installing or removing product.
- 8.3 Personal Protective Equipment::
- 8.3.1 Respiratory:
- 8.3.1.1 General:
If dust levels exceed applicable exposure limits, wear a NIOSH certified dust respirator with an efficiency rating of N95 or higher. Use disposable face masks complying with NIOSH respirator standards, such as a 3M Model 8210 (or 8710) (3M Model 9900 in high humidity environments) or equivalent. For exposures up to five times the established exposure limits use a quarter-mask respirator, rated N95 or higher; and for exposures up to ten times the established exposure limits use a half-mask respirator (e.g. MSA's DM-11, Racal's Delta N95, 3M's 8210), rated N95 or higher. For exposures up to 50 times the established exposure limits use a full-face respirator, rated N99 or higher.
- 8.3.1.2 Specific Operations:
Wear a NIOSH certified dust respirator with an efficiency rating of N95 or higher, such as a 3M Model 8210 (or 8710) (3M Model 9900 in high humidity environments) or equivalent, when fabricating, installing or removing product.
- 8.3.2 Skin:
Wear loose fitting, long sleeved and long-legged clothing to prevent irritation. A head cover is also recommended, especially when working with material overhead. The use of suitable gloves is also recommended. Skin irritation cannot occur if there is no contact with the skin. Do not tape sleeves or pants at wrists or ankles. Remove fibers from the work clothes, before leaving work to reduce potential skin irritation. If working in a very dusty environment it is advisable to shower and change clothes
- 8.3.3 Eyes/Face:
Wear safety goggles or safety glasses with side shields.
9. Physical and Chemical Properties:
- 9.1 Appearance: Grey, green fibrous batt or board
- 9.2 State: Solid
- 9.3 Odor: May have slight resin odour
- 9.4 Boiling point:: n.a.
- 9.5 Melting point: Approximately 2150 °F (1177 °C)
- 9.6 Vapour pressure: n.a.
- 9.7 Vapour Density: n.a.
- 9.8 Specific Gravity: n.a.
- 9.9 Evaporation Rate: n.a.
- 9.10 Freezing Point: n.a.
- 9.11 Viscosity: n.a.
- 9.12 Solubility: Insoluble (H₂O)
- 9.13 Partition coefficient: n.a.

n.a. = not applicable

10. Stability and Reactivity:

10.1 Stability: Stable10.2 Reactivity: Not reactive10.3 Thermal decomposition products:

Primary combustion products of the cured urea extended phenolic formaldehyde binder, when heated above 390 °F (200 °C), are carbon monoxide, carbon dioxide, ammonia, water and trace amounts of formaldehyde. Other undetermined compounds could be released in trace quantities. Emission usually only occurs during the first heating. The released gases may be irritating to the eyes, nose and throat during initial heat-up. Use appropriate respirators (air supplied) particularly in tightly confined or poorly ventilated areas during initial heat-up.

10.4 Hazardous Polymerization: Will not occur10.5 Incompatible Materials: This product reacts with hydrofluoric acid.

11. Toxicological Information:

11.1 Acute Toxicity:

Coarse fibers and dust from mineral wool products can cause temporary mechanical irritation (itching, redness) of the skin, and of the mucous membranes in the eyes and in the upper respiratory tract (nose and throat). The itching and possible inflammation are a mechanical reaction to dust and coarse fibers (of more than about 5 µm in diameter), and are not damaging in the way chemical irritants may be. They generally abate within a short time after the end of exposure. When products are handled continually, the skin itching generally diminishes.

11.2 Chronic Toxicity:

11.2.1 Summary: In October 2001, IARC completed a re-evaluation of respirable mineral wool fibers and classified them in Group 3 (not classifiable as to their carcinogenicity to humans). A summary of the most important scientific studies appears below:

11.2.2 Human Data:

11.2.2.1 The possible carcinogenic effects of exposure to mineral wool fibers has been evaluated in a number of epidemiological (human) studies. Most of this research, including large long-term studies of mineral wool production workers in the U.S. and Europe, has been sponsored or supported by the North American and International thermal insulation industries, including Roxul Inc. Published reports of the early results of these studies identified significantly elevated rates of respiratory cancer in several subcohorts of the worker populations under evaluation (e.g., Simonato et al. 1987; Enterline et al. 1987). However, the studies had several methodological limitations, including failure to control for confounding exposures to other possible causes of the elevated cancer risk, including tobacco use and occupational exposures to recognized carcinogens such as asbestos. For these reasons, the authors of these reports did not interpret the results as establishing an association between exposure to mineral wool fibers and an increased risk of cancer. Several of these earlier reports formed part of the basis for IARC's previous classification of mineral wool fibers in Group 2B (possibly carcinogenic to humans) (IARC 1987).

11.2.2.2 Follow-up studies, including case-control studies designed to exclude the contribution of confounding exposures to the cancer experience of the study populations, found no evidence that mineral wool fibers are associated with an increased cancer risk (Marsh et al. 1996; Wong, et al. 1991; Kjaerheim et al. 2001). In announcing the new Group 3 classification for mineral wool fibers, IARC stated: "Epidemiologic studies published during the 15 years since the previous IARC Monographs review of these fibers in 1988 provide no evidence of increased risks of lung cancer or of mesothelioma (cancer of the lining of the body cavities) from occupational exposures during manufacture of these materials" (IARC 2001).

11.2.3 Animal Data:

11.2.3.1 Several studies of intraperitoneal injection of high doses of mineral wool fibers have produced significant increases in the incidence of mesothelioma (IARC 2002). The intraperitoneal injection studies formed part of the basis for IARC's previous (IARC 1987) Group 2B classification for mineral wool fibers. Leading scientists agree that intraperitoneal injection studies (i.e., surgical implantation or injection into the chest or abdomen) are the least relevant type of animal study for evaluating potential human risk for fiber exposures, because such studies bypass the animals' natural defense mechanisms and involve a type and pattern of exposure (implantation of a high dose early in life) that

does not mimic human patterns of exposure (inhalation of much lower doses over a lifetime) (National Research Council 2000).

11.2.3.2 A well-designed long-term inhalation study in rats exposed to mineral wool fibers found no significant increase in lung tumor incidence, and no mesotheliomas (IARC 2002). Likewise, in two intratracheal instillation studies of mineral wool fibers, no significant increase in the incidence of lung tumors or mesotheliomas was found (IARC 2002). Inhalation studies are regarded as the most relevant type of animal data for evaluating potential human risk, and intratracheal instillation studies, while less relevant, are considered valuable for the initial screening of fibrous compounds (National Research Council 2000). Thus, evaluating all the available animal studies in conjunction with the human data, IARC's most recent review finds "inadequate evidence overall for any cancer risk" from mineral wool fibers (IARC 2001).

11.3 Evaluations of Potential Carcinogenicity:

<u>Source</u>	<u>Classification</u>	<u>Description</u>
IARC	Group 3	Not Classifiable as a Human Carcinogen
ACGIH	Group A3	Confirmed Animal Carcinogen with Unknown Relevance to Humans

12. Ecological Information:

12.1 Ecotoxicity: No data available for the products. The products are stable, are not expected to cause harm to animals, plants or fish, and have no other known adverse environmental effects.

12.2 Environmental Fate: No data available for the products.

13. Disposal Considerations:

13.1 US EPA Waste Number & Descriptions:

13.1.1 General Product Information: The products, as supplied, are not expected to be a characteristic hazardous waste under RCRA if discarded.

13.1.2 EPA Waste Numbers: No EPA Waste Numbers are applicable for this product's components.

13.2 Disposal Instructions: Product is not considered a hazardous waste. Dispose of waste material according to Federal, State, Provincial, and Local environmental regulations.

14. Transport Information:

14.1 General: No special precautions.

14.2 US DOT Information: This product is not classified as a hazardous material for transport.

15. Regulatory Information:

15.1 U.S. Regulations:

15.1.1 Toxic Substances Control Act (TSCA): All components in this product are listed, as required, on the US EPA TSCA inventory, or are not required to be listed

15.1.2 CERCLA: Includes mineral fiber emissions from facilities manufacturing or processing glass rock or slag fibers (or other mineral derived fibers) of average diameter 1 micrometer or less; Statutory RQ = 1 pound (.454 kg); no final RQ is being assigned to the generic or broad class (related to Fine mineral fibers).

15.1.3 Clean Air Act: Mineral wool fiber appears on the Clean Air Act-1990 Hazardous Air Pollutants List.



Material Safety Data Sheet

Material Name: Mineral Wool Insulation

- 15.2 State and Local Regulations: State, Provincial, and Local regulations not identified in this Material Safety Data Sheet may apply.
- 15.3 WHMIS: The products have been classified in accordance with the hazard criteria of the Controlled Product Regulations and this Material Safety Data Sheet contains all the information required by the Controlled Product Regulations
- 15.3.1: WHMIS IDL: No components are listed on the IDL
- 15.3.2: WHMIS Classification: No components are classified as controlled products.

16. Further Information:

16.1 Potential Health Effects:

IARC Monograph Man-made Vitreous Fibres, press release October 2001

Safety in the Use of Mineral and Synthetic Fibers, Occupational Safety and Health Series. International Labor Office (ILO).

Information about "Health and Safety Research on Rock- and Slag-wool" can be obtained from the North American Insulation Manufacturers Association (NAIMA), 44 Canal Center Plaza, Suite 310, Alexandria, VA 22314, USA). Home-page: <http://www.naima.org>

16.2 Key/Legend:

ACGIH = American Conference of Governmental Industrial Hygienists; CAA = Clean Air Act; CAS = Chemical Abstracts Service; CERCLA = Comprehensive Environmental Response, Compensation and Liability Act; DOT = Department of Transportation; EPA = Environmental Protection Agency; HMIS = Hazardous Material Identification System; HSPP = Health and Safety Partnership Program; IARC = International Agency for Research on Cancer; MSDS = Material Safety Data Sheet; NAIMA = North American Insulation Manufacturers Association; NFPA = National Fire Protection Association; NIOSH = National Institute for Occupational Safety and Health; OSHA = Occupational Safety and Health Administration; PEL = Permissible Exposure Limit; RCRA = Resource Conservation and Recovery Act; RQ = Reportable Quantity; SVF = synthetic vitreous fibers; TSCA = Toxic Substances Control Act; TWA = time-weighted average; WHMIS = Workplace Hazardous Materials Information System.

- 16.3 References: Complete citations, or copies, of all references cited in this Material Safety Data Sheet can be obtained from Roxul Inc. (see Section 1).

- 16.4 Accuracy: The information contained herein is based upon data considered to be accurate. However, no warranty is expressed or implied regarding the accuracy of these data, the results to be obtained from the use thereof, or that any such use will not infringe upon any patent. This information is furnished as a guide only and upon the condition that the person receiving it shall make tests to determine the accuracy and suitability for his or her own purpose.



Material Safety Data Sheet

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SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Firedam 150 Caulk
MANUFACTURER: 3M
DIVISION: Building Safety Solutions Dept

ADDRESS: 3M Center
St. Paul, MN 55144-1000

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

Issue Date: 10/13/2006
Supersedes Date: 01/29/2004

Document Group: 10-9611-4

Product Use:

Specific Use: Fire prevention caulk

SECTION 2: INGREDIENTS

<u>Ingredient</u>	<u>C.A.S. No.</u>	<u>% by Wt</u>
Aluminium Hydroxide	21645-51-2	60 - 70
Water	7732-18-5	15 - 20
Acrylic Polymer	Trade Secret	5 - 15
Isopropylidenediphenol-Epichlorohydrin Polymer	25068-38-6	1 - 3
Acrylamide	79-06-1	0 - 0.02
Ethyl Acrylate	140-88-5	0 - 0.02
Formaldehyde	50-00-0	0 - 0.01

SECTION 3: HAZARDS IDENTIFICATION

3.1 EMERGENCY OVERVIEW

Specific Physical Form: Paste

Odor, Color, Grade: Off-white with slight acrylic odor.

General Physical Form: Solid

Immediate health, physical, and environmental hazards: May cause allergic skin reaction. Contains a chemical or chemicals which can cause cancer. Contains a chemical or chemicals which can cause birth defects or other reproductive harm.

3.2 POTENTIAL HEALTH EFFECTS

Eye Contact:

Moderate Eye Irritation: Signs/symptoms may include redness, swelling, pain, tearing, and blurred or hazy vision.

Skin Contact:

Mild Skin Irritation: Signs/symptoms may include localized redness, swelling, and itching.

Allergic Skin Reaction (non-photo induced): Signs/symptoms may include redness, swelling, blistering, and itching.

May be absorbed through skin and cause target organ effects.

Inhalation:

Respiratory Tract Irritation: Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

May be absorbed following inhalation and cause target organ effects.

Ingestion:

Gastrointestinal Irritation: Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhea.

May be absorbed following ingestion and cause target organ effects.

Target Organ Effects:

Contains a chemical or chemicals which can cause birth defects or other reproductive harm.

Carcinogenicity:

Contains a chemical or chemicals which can cause cancer.

<u>Ingredient</u>	<u>C.A.S. No.</u>	<u>Class Description</u>	<u>Regulation</u>
Acrylamide	79-06-1	Group 2A	International Agency for Research on Cancer
Acrylamide	79-06-1	Anticipated human carcinogen	National Toxicology Program Carcinogens
Ethyl Acrylate	140-88-5	Group 2B	International Agency for Research on Cancer
Formaldehyde	50-00-0	Group 1	International Agency for Research on Cancer
Formaldehyde	50-00-0	Anticipated human carcinogen	National Toxicology Program Carcinogens
Formaldehyde	50-00-0	Cancer hazard	OSHA Carcinogens

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: Flush eyes with large amounts of water. If signs/symptoms persist, get medical attention.

Skin Contact: Remove contaminated clothing and shoes. Immediately flush skin with large amounts of water. Get medical attention. Wash contaminated clothing and clean shoes before reuse.

Inhalation: Remove person to fresh air. If signs/symptoms develop, get medical attention.

If Swallowed: Do not induce vomiting unless instructed to do so by medical personnel. Give victim two glasses of water. Never give anything by mouth to an unconscious person. Get medical attention.

SECTION 5: FIRE FIGHTING MEASURES

5.1 FLAMMABLE PROPERTIES

Autoignition temperature
Flash Point
Flammable Limits - LEL

No Data Available
Not Applicable
Not Applicable

Flammable Limits - UEL

Not Applicable

5.2 EXTINGUISHING MEDIA

Material will not burn.

5.3 PROTECTION OF FIRE FIGHTERS

Special Fire Fighting Procedures: Wear full protective equipment (Bunker Gear) and a self-contained breathing apparatus (SCBA).

Unusual Fire and Explosion Hazards: Not applicable.

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

SECTION 6: ACCIDENTAL RELEASE MEASURES

Accidental Release Measures: Observe precautions from other sections. Call 3M- HELPS line (1-800-364-3577) for more information on handling and managing the spill. Evacuate unprotected and untrained personnel from hazard area. The spill should be cleaned up by qualified personnel. Ventilate the area with fresh air. Contain spill. Working from around the edges of the spill inward, cover with bentonite, vermiculite, or commercially available inorganic absorbent material. Mix in sufficient absorbent until it appears dry. Collect as much of the spilled material as possible. Clean up residue with an appropriate solvent selected by a qualified and authorized person. Ventilate the area with fresh air. Read and follow safety precautions on the solvent label and MSDS. Place in a closed container approved for transportation by appropriate authorities. Dispose of collected material as soon as possible.

In the event of a release of this material, the user should determine if the release qualifies as reportable according to local, state, and federal regulations.

SECTION 7: HANDLING AND STORAGE

7.1 HANDLING

For industrial or professional use only. Avoid eye contact with dust or airborne particles. 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 under normal warehouse conditions.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 ENGINEERING CONTROLS

Use with appropriate local exhaust ventilation.

8.2 PERSONAL PROTECTIVE EQUIPMENT (PPE)

8.2.1 Eye/Face Protection

Avoid eye contact. The following eye protection(s) are recommended: Safety Glasses with side shields.

8.2.2 Skin Protection

Avoid skin contact. 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.

8.3 EXPOSURE GUIDELINES

<u>Ingredient</u>	<u>Authority</u>	<u>Type</u>	<u>Limit</u>	<u>Additional Information</u>
Acrylamide	ACGIH	TWA, inhalable fraction and vapor	0.03 mg/m3	Skin Notation*; Table A3
Acrylamide	OSHA	TWA, Vacated	0.03 mg/m3	Skin Notation*
Acrylamide	OSHA	TWA	0.3 mg/m3	Skin Notation*; Table Z-1
Ethyl Acrylate	ACGIH	TWA	5 ppm	Table A4
Ethyl Acrylate	ACGIH	STEL	15 ppm	Table A4
Ethyl Acrylate	OSHA	TWA	5 ppm	Skin Notation*; Table Z-1A
Ethyl Acrylate	OSHA	STEL	25 ppm	Skin Notation*; Table Z-1A
Formaldehyde	ACGIH	CEIL	0.3 ppm	Sensitizer; Table A2
Formaldehyde	OSHA	TWA	0.5 ppm	Standard Appendix
POLYETHYLENE GLYCOLS	AIHA	TWA, as aerosol	10 mg/m3	

* Substance(s) refer to the potential contribution to the overall exposure by the cutaneous route including mucous membrane and eye, either by airborne or, more particularly, by direct contact with the substance. Vehicles can alter skin absorption.

VAC Vacated PEL: Vacated Permissible Exposure Limits [PEL] are enforced as the OSHA PEL in some states. Check with your local regulatory agency.

SOURCE OF EXPOSURE LIMIT DATA:

ACGIH: American Conference of Governmental Industrial Hygienists

CMRG: Chemical Manufacturer Recommended Guideline

OSHA: Occupational Safety and Health Administration

AIHA: American Industrial Hygiene Association Workplace Environmental Exposure Level (WEEL)

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Specific Physical Form:	Paste
Odor, Color, Grade:	Off-white with slight acrylic odor.
General Physical Form:	Solid
Autoignition temperature	<i>No Data Available</i>
Flash Point	<i>Not Applicable</i>
Flammable Limits - LEL	<i>Not Applicable</i>
Flammable Limits - UEL	<i>Not Applicable</i>
Boiling point	<i>Not Applicable</i>
Vapor Density	<i>Not Applicable</i>
Vapor Pressure	<i>Not Applicable</i>
Specific Gravity	1.68 [@ 20 °C] [Ref Std: WATER=1]
Melting point	<i>No Data Available</i>
Solubility in Water	Slight (less than 10%)
Volatile Organic Compounds	1 g/l

SECTION 10: STABILITY AND REACTIVITY

Stability: Stable.

Materials and Conditions to Avoid: None known

Hazardous Polymerization: Hazardous polymerization will not occur.

Hazardous Decomposition or By-Products

<u>Substance</u>	<u>Condition</u>
Carbon monoxide	During Combustion
Carbon dioxide	During Combustion

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.

CHEMICAL FATE INFORMATION

Not determined.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal Method: Cure (harden, set, or react) the product according to product instructions. Dispose of completely cured (or polymerized) wastes in a sanitary landfill. As a disposal alternative, incinerate uncured product in an industrial or commercial incinerator in the presence of a combustible material.

EPA Hazardous Waste Number (RCRA): Not regulated

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

SECTION 14: TRANSPORT INFORMATION

ID Number(s):

41-3706-0544-0, 98-0400-0626-8, 98-0400-0723-3, 98-0400-2430-3

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 - Yes Delayed Hazard - Yes

STATE REGULATIONS

Contact 3M for more information.

CALIFORNIA PROPOSITION 65

<u>Ingredient</u>	<u>C.A.S. No.</u>	<u>Classification</u>
Acrylamide	79-06-1	**Carcinogen
Ethyl Acrylate	140-88-5	**Carcinogen
Formaldehyde	50-00-0	**Carcinogen

** WARNING: contains a chemical which can cause cancer.

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.

Contact 3M for more information.

INTERNATIONAL REGULATIONS

Contact 3M for more information.

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: 2 Flammability: 0 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.

Revision Changes:

Section 1: Product name was modified.
Section 16: NFPA hazard classification heading was modified.
Section 3: Carcinogenicity heading was modified.
Section 3: Other potential health effects heading was modified.
Section 1: Division name was modified.
Copyright was modified.
Section 8: Exposure guidelines data source legend was modified.
Section 4: First aid for eye contact - decontamination - was modified.
Section 4: First aid for eye contact - medical assistance - was modified.
Section 3: Potential effects from eye contact was modified.
Section 3: Potential effects from skin contact information was modified.
Section 3: Potential effects from inhalation information was modified.

Section 3: Potential effects from ingestion information was modified.
Section 6: Release measures information was modified.
Section 7: Handling information was modified.
Section 8: Engineering controls information was modified.
Section 8: Prevention of swallowing information was modified.
Section 10: Hazardous decomposition or by-products table was modified.
Section 13: Waste disposal method information was modified.
Section 15: 311/312 hazard categories heading was modified.
Section 15: International regulations information was modified.
Section 15: State regulations information was modified.
Section 15: US federal regulations information was modified.
Section 4: First aid for ingestion (swallowing) - decontamination - was modified.
Section 4: First aid for ingestion (swallowing) - medical assistance - was modified.
Section 10: Hazardous polymerization heading was modified.
Section 3: Carcinogenicity phrase was modified.
Section 2: Ingredient table was modified.
Section 14: ID Number(s) was modified.
Section 16: NFPA explanation was modified.
Page Heading: Product name was modified.
Section 15: Inventories information was modified.
Section 15: California proposition 65 ingredient information was modified.
Section 3: Carcinogenicity table was modified.
Section 15: California proposition 65 heading was modified.
Section 15: California proposition 65 cancer warning was modified.
Section 12: Ecotoxicological information heading was modified.
Section 12: Chemical fate information heading was modified.
Section 8: Exposure guidelines ingredient information was modified.
Section 8: Exposure guideline note was modified.
Sections 3 and 9: Odor, color, grade information was modified.
Section 9: Property description for optional properties was modified.
Section 16: NFPA hazard classification for special hazards was modified.
Section 3: Other health effects information (reproductive hazards) was modified.
Section 12: Ecotoxicological phrase was modified.
Section 12: Chemical Fate phrase was modified.
Section 8: Exposure guidelines legend was added.
Section 2: Ingredient phrase was added.
Section 3: Immediate eye hazard(s) was deleted.
Section 9: Density information was deleted.

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SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: 3M Fire Barrier Moldable Putty + Pads
MANUFACTURER: 3M
DIVISION: Building Safety Solutions Dept

ADDRESS: 3M Center
St. Paul, MN 55144-1000

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

Issue Date: 11/28/2006
Supersedes Date: 06/19/2006

Document Group: 21-2441-0

Product Use:

Intended Use: Passive fire protection in industrial applications

SECTION 2: INGREDIENTS

<u>Ingredient</u>	<u>C.A.S. No.</u>	<u>% by Wt</u>
Zinc Borate	1332-07-6	15 - 25
Methyl Esters of Hydrogenated Rosin	8050-15-5	10 - 15
Polybutylene	9003-29-6	10 - 15
Sodium Silicate	1344-09-8	10 - 15
Styrene-Butadiene Polymer	9003-55-8	10 - 15
Melamine Phosphate	41583-09-9	5 - 10
Glass Wool	65997-17-3	3 - 7
Butadiene-Styrene-Divinylbenzene Polymer	26471-45-4	1 - 5
Amorphous Silica	112945-52-5	1 - 3
Epoxy Resin	25068-38-6	1 - 3
Rayon	68442-85-3	1 - 3
Styrene Polymer	62258-49-5	1 - 3
Water	7732-18-5	1 - 3

SECTION 3: HAZARDS IDENTIFICATION

3.1 EMERGENCY OVERVIEW

Specific Physical Form: Putty

Odor, Color, Grade: Red putty with pine-like odor

General Physical Form: Solid

Immediate health, physical, and environmental hazards: May cause severe eye irritation. May cause allergic skin reaction. May

cause severe skin irritation.

3.2 POTENTIAL HEALTH EFFECTS

Eye Contact:

Severe Eye Irritation: Signs/symptoms may include significant redness, swelling, pain, tearing, cloudy appearance of the cornea, and impaired vision.

Skin Contact:

Allergic Skin Reaction (non-photo induced): Signs/symptoms may include redness, swelling, blistering, and itching.

Severe Skin Irritation: Signs/symptoms may include localized redness, swelling, itching, dryness, cracking, blistering, and pain.

Inhalation:

Respiratory Tract Irritation: Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

Ingestion:

Gastrointestinal Irritation: Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhea.

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: Immediately flush eyes with large amounts of water for at least 15 minutes. Get immediate medical attention.

Skin Contact: Remove contaminated clothing and shoes. Immediately flush skin with large amounts of water. Get medical attention. Wash contaminated clothing and clean shoes before reuse.

Inhalation: Remove person to fresh air. If signs/symptoms develop, get medical attention.

If Swallowed: Do not induce vomiting unless instructed to do so by medical personnel. Give victim two glasses of water. Never give anything by mouth to an unconscious person. Get medical attention.

SECTION 5: FIRE FIGHTING MEASURES

5.1 FLAMMABLE PROPERTIES

Autoignition temperature	<i>Not Applicable</i>
Flash Point	<i>Not Applicable</i>
Flammable Limits - LEL	<i>Not Applicable</i>
Flammable Limits - UEL	<i>Not Applicable</i>
OSHA Flammability Classification:	Not Applicable

5.2 EXTINGUISHING MEDIA

Material will not burn.

5.3 PROTECTION OF FIRE FIGHTERS

Special Fire Fighting Procedures: Wear full protective equipment (Bunker Gear) and a self-contained breathing apparatus (SCBA).

Unusual Fire and Explosion Hazards: Not applicable.

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

SECTION 6: ACCIDENTAL RELEASE MEASURES

Accidental Release Measures: Observe precautions from other sections. Call 3M- HELPS line (1-800-364-3577) for more information on handling and managing the spill. Ventilate the area with fresh air. Collect as much of the spilled material as possible. Clean up residue with detergent and water. Place in a closed container approved for transportation by appropriate authorities. Dispose of collected material as soon as possible.

In the event of a release of this material, the user should determine if the release qualifies as reportable according to local, state, and federal regulations.

SECTION 7: HANDLING AND STORAGE

7.1 HANDLING

Do not eat, drink or smoke when using this product. Wash exposed areas thoroughly with soap and water. For industrial or professional use only.

7.2 STORAGE

Store in a cool place.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 ENGINEERING CONTROLS

Use with appropriate local exhaust ventilation.

8.2 PERSONAL PROTECTIVE EQUIPMENT (PPE)

8.2.1 Eye/Face Protection

Avoid eye contact. The following eye protection(s) are recommended: Safety Glasses with side shields.

8.2.2 Skin Protection

Avoid skin contact. 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. Gloves made from the following material(s) are recommended: Butyl Rubber.

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

Do not eat, drink or smoke when using this product. Wash exposed areas thoroughly with soap and water.

8.3 EXPOSURE GUIDELINES

<u>Ingredient</u>	<u>Authority</u>	<u>Type</u>	<u>Limit</u>	<u>Additional Information</u>
Glass Wool	3M	TWA, as dust	10 mg/m ³	

SOURCE OF EXPOSURE LIMIT DATA:

ACGIH: American Conference of Governmental Industrial Hygienists

CMRG: Chemical Manufacturer Recommended Guideline

OSHA: Occupational Safety and Health Administration

AIHA: American Industrial Hygiene Association Workplace Environmental Exposure Level (WEEL)

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Specific Physical Form:	Putty
Odor, Color, Grade:	Red putty with pine-like odor
General Physical Form:	Solid
Autoignition temperature	<i>Not Applicable</i>
Flash Point	<i>Not Applicable</i>
Flammable Limits - LEL	<i>Not Applicable</i>
Flammable Limits - UEL	<i>Not Applicable</i>
Specific Gravity	1.25 [Ref Std: WATER=1]
Melting point	<i>Not Applicable</i>
Solubility In Water	<i>No Data Available</i>
Volatile Organic Compounds	0 g/l
Percent volatile	2.5 %

SECTION 10: STABILITY AND REACTIVITY**Stability:** Stable.**Materials and Conditions to Avoid:** None known**Hazardous Polymerization:** Hazardous polymerization will not occur.**Hazardous Decomposition or By-Products**

<u>Substance</u>	<u>Condition</u>
Carbon monoxide	During Combustion
Carbon dioxide	During Combustion

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.

CHEMICAL FATE INFORMATION

Not determined.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal Method: Dispose of waste product in a sanitary landfill. As a disposal alternative, dispose of waste product in a facility permitted to accept chemical waste.

EPA Hazardous Waste Number (RCRA): Not regulated

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

SECTION 14: TRANSPORT INFORMATION

ID Number(s):

44-0042-9351-8, 98-0400-5524-0, 98-0400-5525-7, 98-0400-5526-5, 98-0400-5547-1

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 - Yes Delayed Hazard - No

Section 313 Toxic Chemicals subject to the reporting requirements of that section and 40 CFR part 372 (EPCRA):

<u>Ingredient</u>	<u>C.A.S. No</u>	<u>% by Wt</u>
Zinc Borate (ZINC COMPOUNDS)	1332-07-6	15 - 25

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.

Contact 3M for more information.

INTERNATIONAL REGULATIONS

Contact 3M for more information.

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:** 2 **Flammability:** 0 **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.

Revision Changes:

Section 1: Product use information was modified.

Section 14: ID Number(s) was modified.

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3M provides information in electronic form as a service to its customers. Due to the remote possibility that electronic transfer may have resulted in errors, omissions or alterations in this information, 3M makes no representations as to its completeness or accuracy. In addition, information obtained from a database may not be as current as the information in the MSDS available directly from 3M.

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Material Safety Data Sheet

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SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: 3M Fire Barrier 2000+ Premium Silicone Sealant

MANUFACTURER: 3M

DIVISION: Building Safety Solutions Dept

ADDRESS: 3M Center
St. Paul, MN 55144-1000

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

Issue Date: 09/14/2006

Supersedes Date: 05/17/2006

Document Group: 06-8466-2

Product Use:

Intended Use: A fire stopping sealant for fire rated wall and floor penetration and joints.
Specific Use: Fire stop material

SECTION 2: INGREDIENTS

<u>Ingredient</u>	<u>C.A.S. No.</u>	<u>% by Wt</u>
Polysiloxane	Trade Secret	40 - 50
Calcium Carbonate Treated with Stearic Acid	None	40 - 50
Dimethyl Siloxane, Dimethylvinylsiloxo-terminated	68083-19-2	3 - 7
Methyltrimethoxysilane	1185-55-3	1 - 5

SECTION 3: HAZARDS IDENTIFICATION

3.1 EMERGENCY OVERVIEW

Specific Physical Form: Paste

Odor, Color, Grade: Gray silicone sealant paste with alcoholic odor.

General Physical Form: Solid

Immediate health, physical, and environmental hazards: Methanol is formed on contact of the product with water or moisture. Excessive inhalation of methanol vapor may cause visual impairment or blindness.

3.2 POTENTIAL HEALTH EFFECTS

Eye Contact:

Mild Eye Irritation: Signs/symptoms may include redness, pain, and tearing.

Skin Contact:

Mild Skin Irritation: Signs/symptoms may include localized redness, swelling, and itching.

Inhalation:

Respiratory Tract Irritation: Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

Ingestion:

Gastrointestinal Irritation: Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhea.

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: Flush eyes with large amounts of water. If signs/symptoms persist, get medical attention.

Skin Contact: Wash affected area with soap and water. If signs/symptoms develop, get medical attention.

Inhalation: Remove person to fresh air. If signs/symptoms develop, get medical attention.

If Swallowed: Do not induce vomiting unless instructed to do so by medical personnel. Give victim two glasses of water. Never give anything by mouth to an unconscious person. Get medical attention.

SECTION 5: FIRE FIGHTING MEASURES**5.1 FLAMMABLE PROPERTIES**

Autoignition temperature	<i>No Data Available</i>
Flash Point	<i>Not Applicable</i>
Flammable Limits - LEL	<i>Not Applicable</i>
Flammable Limits - UEL	<i>Not Applicable</i>
OSHA Flammability Classification:	Not Applicable

5.2 EXTINGUISHING MEDIA

Non-combustible. Choose material suitable for surrounding fire.

5.3 PROTECTION OF FIRE FIGHTERS

Special Fire Fighting Procedures: Nonflammable.

Unusual Fire and Explosion Hazards: Material will not burn.

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

SECTION 6: ACCIDENTAL RELEASE MEASURES

Accidental Release Measures: Observe precautions from other sections. Call 3M- HELPS line (1-800-364-3577) for more information on handling and managing the spill. Evacuate unprotected and untrained personnel from hazard area. The spill should be

cleaned up by qualified personnel. Ventilate the area with fresh air. Contain spill. Collect as much of the spilled material as possible. Clean up residue with detergent and water. Collect the resulting residue containing solution. Place in a closed container approved for transportation by appropriate authorities. Dispose of collected material as soon as possible.

In the event of a release of this material, the user should determine if the release qualifies as reportable according to local, state, and federal regulations.

SECTION 7: HANDLING AND STORAGE

7.1 HANDLING

Avoid eye contact. Avoid prolonged or repeated skin contact. Do not ingest. Wash hands after handling and before eating.

7.2 STORAGE

Store under normal warehouse conditions.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 ENGINEERING CONTROLS

Methanol is formed on contact of product with water.

8.2 PERSONAL PROTECTIVE EQUIPMENT (PPE)

8.2.1 Eye/Face Protection

The following eye protection(s) are recommended: Safety Glasses with side shields.

8.2.2 Skin Protection

Avoid prolonged or repeated skin contact.

8.2.3 Respiratory Protection

Select one of the following NIOSH approved respirators based on airborne concentration of contaminants and in accordance with OSHA regulations: Half facepiece or fullface air-purifying respirator with organic vapor cartridges. Consult the current 3M Respiratory Selection Guide for additional information or call 1-800-243-4630 for 3M technical assistance.

8.2.4 Prevention of Swallowing

Wash hands after handling and before eating.

8.3 EXPOSURE GUIDELINES

<u>Ingredient</u>	<u>Authority</u>	<u>Type</u>	<u>Limit</u>	<u>Additional Information</u>
Methyltrimethoxysilane	CMRG	TWA	50 ppm	

SOURCE OF EXPOSURE LIMIT DATA:

ACGIH: American Conference of Governmental Industrial Hygienists

CMRG: Chemical Manufacturer Recommended Guideline

OSHA: Occupational Safety and Health Administration

AIHA: American Industrial Hygiene Association Workplace Environmental Exposure Level (WEEL)

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Specific Physical Form:

Paste

Odor, Color, Grade:

Gray silicone sealant paste with alcoholic odor.

General Physical Form:	Solid
Autoignition temperature	No Data Available
Flash Point	Not Applicable
Flammable Limits - LEL	Not Applicable
Flammable Limits - UEL	Not Applicable
Boiling point	Not Applicable
Vapor Density	Not Applicable
Vapor Pressure	Not Applicable
Specific Gravity	1.34 [Ref Std: WATER=1] [Details: CONDITIONS: @ 25C]
pH	Not Applicable
Melting point	No Data Available
Solubility In Water	No Data Available
Evaporation rate	No Data Available
Percent volatile	No Data Available
Viscosity	No Data Available

SECTION 10: STABILITY AND REACTIVITY

Stability: Stable.

Materials and Conditions to Avoid: None known

Hazardous Polymerization: Hazardous polymerization will not occur.

Hazardous Decomposition or By-Products

<u>Substance</u>	<u>Condition</u>
Carbon monoxide	During Combustion
Carbon dioxide	During Combustion

Hazardous Decomposition: Thermal breakdown of this product during fire or very high heat conditions may evolve the following hazardous decomposition products: silicone dioxide; carbon oxides and traces of incompletely burned carbon compounds; metal oxides; sulfur oxides; and formaldehyde.

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.

CHEMICAL FATE INFORMATION

Not determined.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal Method: Dispose of completely cured (or polymerized) wastes in a sanitary landfill. As a disposal alternative, incinerate uncured product in an industrial or commercial incinerator in the presence of a combustible material.

EPA Hazardous Waste Number (RCRA): Not regulated

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

SECTION 14: TRANSPORT INFORMATION

ID Number(s):

98-0400-5299-9, 98-0400-5300-5

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 - Yes Delayed Hazard - No

STATE REGULATIONS

Contact 3M for more information.

CHEMICAL INVENTORIES

Contact 3M for more information.

INTERNATIONAL REGULATIONS

Contact 3M for more information.

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: 1 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.

HMIS Hazard Classification

Health: 1 Flammability: 1 Reactivity: 0 Protection: A

Hazardous Material Identification System (HMIS®) hazard ratings are designed to inform employees of chemical hazards in the workplace. These ratings are based on the inherent properties of the material under expected conditions of normal use and are not intended for use in emergency situations. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint and Coatings Association (NPCA).

Reason for Reissue: The MSDS has been revised because 3M has adopted the 16-section ANSI/ISO format. The potential hazards of the product have not changed. We encourage you to reread the MSDS and review the information.

Revision Changes:

Section 6: Release measures information was modified.

Section 13: Waste disposal method information was modified.

Section 2: Ingredient table was modified.

Section 8: Exposure guidelines ingredient information was modified.

Section 9: Property description for optional properties was modified.

Section 9: Solubility in water value was modified.

Section 13: EPA hazardous waste number (RCRA) heading was added.

Section 13: EPA hazardous waste number (RCRA) information was added.

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SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: 3M Fire Barrier Mortar
MANUFACTURER: 3M
DIVISION: Building Safety Solutions Dept

ADDRESS: 3M Center
St. Paul, MN 55144-1000

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

Issue Date: 10/02/2006
Supersedes Date: 07/28/2006

Document Group: 06-3319-8

Product Use:

Specific Use: Used as a fire barrier material.

SECTION 2: INGREDIENTS

<u>Ingredient</u>	<u>C.A.S. No.</u>	<u>% by Wt</u>
Fly Ash	68131-74-8	65 - 85
Alumina Cement	65997-16-2	5 - 10
Expanded Perlite	93763-70-3	5 - 10
Quartz Silica	14808-60-7	3 - 5
Silica Fumes	69012-64-2	1 - 3
Ultramarine Blue	57455-37-5	1 - 3

SECTION 3: HAZARDS IDENTIFICATION

3.1 EMERGENCY OVERVIEW

Specific Physical Form: Powder

Odor, Color, Grade: Lt. blue powder with slight cement odor.

General Physical Form: Solid

Immediate health, physical, and environmental hazards:
cancer.

Contains a chemical or chemicals which can cause

3.2 POTENTIAL HEALTH EFFECTS

Eye Contact:

Mechanical eye irritation: Signs/symptoms may include pain, redness, tearing and corneal abrasion.

Skin Contact:

Mechanical Skin irritation: Signs/symptoms may include abrasion, redness, pain, and itching.

Inhalation:

Respiratory Tract Irritation: Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

Prolonged or repeated exposure may cause:

Silicosis: Signs/symptoms may include breathlessness, weakness, chest pain, persistent cough, increased amounts of sputum, and heart disease.

Ingestion:

Gastrointestinal Irritation: Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhea.

Carcinogenicity:

Contains a chemical or chemicals which can cause cancer.

<u>Ingredient</u>	<u>C.A.S. No.</u>	<u>Class Description</u>	<u>Regulation</u>
NICKEL COMPOUNDS (EXCEPT ALLOYS)	NONE	Group 1	International Agency for Research on Cancer
NICKEL COMPOUNDS (EXCEPT ALLOYS)	NONE	Known human carcinogen	National Toxicology Program Carcinogens
Quartz Silica	14808-60-7	Group 1	International Agency for Research on Cancer
Quartz Silica	14808-60-7	Known human carcinogen	National Toxicology Program Carcinogens

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: Flush eyes with large amounts of water. If signs/symptoms persist, get medical attention.

Skin Contact: Wash affected area with soap and water. If signs/symptoms develop, get medical attention.

Inhalation: Remove person to fresh air. If signs/symptoms develop, get medical attention.

If Swallowed: Do not induce vomiting unless instructed to do so by medical personnel. Give victim two glasses of water. Never give anything by mouth to an unconscious person. Get medical attention.

SECTION 5: FIRE FIGHTING MEASURES

5.1 FLAMMABLE PROPERTIES

Autoignition temperature	<i>Not Applicable</i>
Flash Point	<i>Not Applicable</i>
Flammable Limits - LEL	<i>Not Applicable</i>
Flammable Limits - UEL	<i>Not Applicable</i>
OSHA Flammability Classification:	Not Applicable

5.2 EXTINGUISHING MEDIA

Material will not burn.

5.3 PROTECTION OF FIRE FIGHTERS

Special Fire Fighting Procedures: Wear full protective equipment (Bunker Gear) and a self-contained breathing apparatus (SCBA).

Unusual Fire and Explosion Hazards: Not applicable.

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

SECTION 6: ACCIDENTAL RELEASE MEASURES

Accidental Release Measures: Observe precautions from other sections. Call 3M- HELPS line (1-800-364-3577) for more information on handling and managing the spill. Collect as much of the spilled material as possible. Clean up residue with detergent and water. Place in a closed container approved for transportation by appropriate authorities. Dispose of collected material as soon as possible.

In the event of a release of this material, the user should determine if the release qualifies as reportable according to local, state, and federal regulations.

SECTION 7: HANDLING AND STORAGE

7.1 HANDLING

Do not eat, drink or smoke when using this product. Wash exposed areas thoroughly with soap and water. For industrial or professional use only. Avoid contact with oxidizing agents. Avoid eye contact with dust or airborne particles. 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. When wet, 3M Fire Barrier Mortar will conduct electricity. Use common sense and caution when working near live electrical equipment such as underside of MCC cabinets, transformers, etc. Electricians should supervise work to avoid risk of electrical shock. Also, watch for old cloth jacketed cables and cables that have been repaired with electrical tape. Work around such services should be approved by an electrician or electrical engineer on site. Find out about and follow site lock-out procedures for electrical equipment. When using drills and paddles to mix, use minimum 1/2" drills for small amount of material. Larger jobs (multiple mandays) should utilize minimum 5/8" drills to prevent overheating and drill burn-outs.

7.2 STORAGE

Store away from acids. Store away from oxidizing agents.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 ENGINEERING CONTROLS

Use with appropriate local exhaust ventilation. Provide local exhaust ventilation at transfer points.

8.2 PERSONAL PROTECTIVE EQUIPMENT (PPE)

8.2.1 Eye/Face Protection

The following eye protection(s) are recommended: Indirect Vented Goggles.

8.2.2 Skin Protection

Avoid skin contact. 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

Select one of the following NIOSH approved respirators based on airborne concentration of contaminants and in accordance with OSHA regulations: Half mask R95 particulate respirator, Half mask or full facepiece air-purifying respirator with N100 particulate filters, Half facepiece or fullface air-purifying respirator with P100 particulate filters, Half facepiece or fullface air-purifying respirator with P95 particulate filters, Half facepiece or fullface air-purifying respirator with N95 particulate filters. Consult the current 3M Respiratory Selection Guide for additional information or call 1-800-243-4630 for 3M technical assistance.

8.2.4 Prevention of Swallowing

Do not eat, drink or smoke when using this product. Wash exposed areas thoroughly with soap and water.

8.3 EXPOSURE GUIDELINES

<u>Ingredient</u>	<u>Authority</u>	<u>Type</u>	<u>Limit</u>	<u>Additional Information</u>
Quartz Silica	ACGIH	TWA, respirable	0.025 mg/m3	Table A2
Quartz Silica	OSHA	TWA, respirable	0.1 mg/m3	Table Z-1A
Silica Fumes	ACGIH	TWA, respirable	2 mg/m3	

SOURCE OF EXPOSURE LIMIT DATA:

ACGIH: American Conference of Governmental Industrial Hygienists

CMRG: Chemical Manufacturer Recommended Guideline

OSHA: Occupational Safety and Health Administration

AIHA: American Industrial Hygiene Association Workplace Environmental Exposure Level (WEEL)

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Specific Physical Form:

Powder

Odor, Color, Grade:

Lt. blue powder with slight cement odor.

General Physical Form:

Solid

Autoignition temperature

Not Applicable

Flash Point

Not Applicable

Flammable Limits - LEL

Not Applicable

Flammable Limits - UEL

Not Applicable

Specific Gravity	2.1 - 2.4 [<i>Ref Std:</i> WATER=1]
Melting point	>=1000 °C
Solubility in Water	Negligible [<i>Details:</i> Conditions: Solids may be dispersed in water]
Percent volatile	0

SECTION 10: STABILITY AND REACTIVITY

Stability: Stable.

Materials and Conditions to Avoid: Strong acids; Strong oxidizing agents Additional Information: As a normal precaution, strong mineral acids and/or strong oxidizing agents should be avoided such as fluorine, chlorine, trifluoride and trioxide.

Hazardous Polymerization: Hazardous polymerization will not occur.

Hazardous Decomposition or By-Products

Substance

None known.

Condition

Not Specified

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.

CHEMICAL FATE INFORMATION

Not determined.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal Method: For quantities <100 lbs. (50kg): dispose of waste product in a sanitary landfill. For larger quantities: incinerate in an industrial or commercial facility in the presence of a combustible material.

EPA Hazardous Waste Number (RCRA): Not regulated

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

SECTION 14: TRANSPORT INFORMATION**ID Number(s):**

98-0400-2646-4, CE-1006-7693-7, GE-6000-3288-4

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 - Yes Delayed Hazard - Yes

Section 313 Toxic Chemicals subject to the reporting requirements of that section and 40 CFR part 372 (EPCRA):

<u>Ingredient</u>	<u>C.A.S. No</u>	<u>% by Wt</u>
Fly Ash (NICKEL COMPOUNDS)	68131-74-8	65 - 85
Fly Ash (VANADIUM COMPOUNDS)	68131-74-8	65 - 85

STATE REGULATIONS

Contact 3M for more information.

CALIFORNIA PROPOSITION 65

<u>Ingredient</u>	<u>C.A.S. No.</u>	<u>Classification</u>
NICKEL COMPOUNDS	NONE	**Carcinogen
SILICA, CRYSTALLINE (AIRBORNE PARTICLES OF RESPIRABLE SIZE)	NONE	**Carcinogen

** WARNING: contains a chemical which can cause cancer.

CHEMICAL INVENTORIES

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

Contact 3M for more information.

INTERNATIONAL REGULATIONS

Contact 3M for more information.

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: 1 **Flammability:** 0 **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.

Revision Changes:

Section 8: Exposure guidelines ingredient information was modified.

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.

3M provides information in electronic form as a service to its customers. Due to the remote possibility that electronic transfer may have resulted in errors, omissions or alterations in this information, 3M makes no representations as to its completeness or accuracy. In addition, information obtained from a database may not be as current as the information in the MSDS available directly from 3M.

3M MSDSs are available at www.3M.com



WD-40 Company

Material Safety Data Sheet



1 - Chemical Product and Company Identification

Manufacturer: WD-40 Company	Chemical Name: Organic Mixture
Address: 1061 Cudahy Place (92110) P.O. Box 80607 San Diego, California, USA 92138 -0607	Trade Name: WD-40 Aerosol
Telephone: 1-800-448-9340	Product Use: Cleaner, Lubricant, Penetrant
Emergency only: 1-888-324-7596 (PROZAR)	MSDS Date Of Preparation: 5/16/07
Information: 1-888-324-7596	

2 – Hazards Identification

Emergency Overview:

DANGER! Harmful or fatal if swallowed. Flammable aerosol. Contents under pressure. Avoid eye contact. Use with adequate ventilation. Keep away from heat, sparks and all other sources of ignition.

Symptoms of Overexposure:

Inhalation: High concentrations may cause nasal and respiratory irritation and central nervous system effects such as headache, dizziness and nausea. Intentional abuse may be harmful or fatal.

Skin Contact: Prolonged and/or repeated contact may produce mild irritation and defatting with possible dermatitis.

Eye Contact: Contact may be mildly irritating to eyes. May cause redness and tearing.

Ingestion: This product has low oral toxicity. Swallowing may cause gastrointestinal irritation, nausea, vomiting and diarrhea. The liquid contents are an aspiration hazard. If swallowed, can enter the lungs and may cause chemical pneumonitis.

Chronic Effects: None expected.

Medical Conditions Aggravated by Exposure: Preexisting eye, skin and respiratory conditions may be aggravated by exposure.

Suspected Cancer Agent:

Yes No X

3 - Composition/Information on Ingredients

Ingredient	CAS #	Weight Percent
Aliphatic Hydrocarbon	64742-47-8	45-50
	64742-48-9	
	64742-88-7	
Petroleum Base Oil	64742-65-0	15-25
LVP Aliphatic Hydrocarbon	64742-47-8	12-18
Carbon Dioxide	124-38-9	2-3
Non-Hazardous Ingredients	Mixture	<10

4 – First Aid Measures

Ingestion (Swallowed): Aspiration Hazard. DO NOT induce vomiting. Call physician, poison control center or the WD-40 Safety Hotline at 1-888-324-7596 immediately.

Eye Contact: Flush thoroughly with water. Get medical attention if irritation persists.

Skin Contact: Wash with soap and water. If irritation develops and persists, get medical attention.

Inhalation (Breathing): If irritation is experienced, move to fresh air. Get medical attention if irritation or other symptoms develop and persist.

5 – Fire Fighting Measures

Extinguishing Media: Use water fog, dry chemical, carbon dioxide or foam. Do not use water jet or flooding amounts of water. Burning product will float on the surface and spread fire.

Special Fire Fighting Procedures: Firefighters should always wear positive pressure self-contained breathing apparatus and full protective clothing. Cool fire-exposed containers with water. Use shielding to protect against bursting containers.

Unusual Fire and Explosion Hazards: Contents under pressure. Aerosol containers may burst under fire conditions. Vapors are heavier than air and may travel along surfaces to remote ignition sources and flash back.

6 – Accidental Release Measures

Wear appropriate protective clothing (see Section 8). Eliminate all sources of ignition and ventilate area. Leaking cans should be placed in a plastic bag or open pail until the pressure has dissipated. Contain and collect liquid with an inert absorbent and place in a container for disposal. Clean spill area thoroughly. Report spills to authorities as required.

7 – Handling and Storage

Handling: Avoid contact with eyes. Avoid prolonged contact with skin. Avoid breathing vapors or aerosols. Use with adequate ventilation. Keep away from heat, sparks, hot surfaces and open flames. Wash thoroughly with soap and water after handling. Do not puncture or incinerate containers. Keep can away from electrical current or battery terminals. Electrical arcing can cause burn-through (puncture) which may result in flash fire, causing serious injury. Keep out of the reach of children.

Storage: Do not store above 120°F or in direct sunlight. U.F.C (NFPA 30B) Level 3 Aerosol.

8 – Exposure Controls/Personal Protection

Chemical	Occupational Exposure Limits
Aliphatic Hydrocarbon	100 ppm TWA (ACGIH) 1200 mg/m3 TWA (manufacturer recommended)
Petroleum Base Oil	5 mg/m3 TWA (OSHA/ACGIH)
LVP Aliphatic Hydrocarbon	1200 mg/m3 TWA (manufacturer recommended)
Carbon Dioxide	5000 ppm TWA (OSHA/ACGIH), 30,000 ppm STEL (ACGIH)
Non-Hazardous Ingredients	None Established

The Following Controls are Recommended for Normal Consumer Use of this Product

Engineering Controls: Use in a well-ventilated area.

Personal Protection:

Eye Protection: Avoid eye contact. Safety glasses or goggles recommended.

Skin Protection: Avoid prolonged skin contact. Chemical resistant gloves recommended for operations where skin contact is likely.

Respiratory Protection: None needed for normal use with adequate ventilation.

For Bulk Processing or Workplace Use the Following Controls are Recommended

Engineering Controls: Use adequate general and local exhaust ventilation to maintain exposure levels below that occupational exposure limits.

Personal Protection:

Eye Protection: Safety goggles recommended where eye contact is possible.

Skin Protection: Wear chemical resistant gloves.

Respiratory Protection: None required if ventilation is adequate. If the occupational exposure limits are exceeded, wear a NIOSH approved respirator. Respirator selection and use should be

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based on contaminant type, form and concentration. Follow OSHA 1910.134, ANSI Z88.2 and good Industrial Hygiene practice.

Work/Hygiene Practices: Wash with soap and water after handling.

9 – Physical and Chemical Properties

Boiling Point:	323°F (minimum)	Specific Gravity:	0.817 @ 72°F
Solubility in Water:	Insoluble	pH:	Not Applicable
Vapor Pressure:	110 PSI @ 70°F	Vapor Density:	Greater than 1
Percent Volatile:	74%	VOC:	412 grams/liter (49.5%)
Coefficient of Water/Oil Distribution:	Not Determined	Appearance/Odor	Light amber liquid/mild odor
Flash Point:	131°F (concentrate) Tag Closed Cup	Flammable Limits: (Solvent Portion)	LEL: 1.1% UE:: 8.9%

10 – Stability and Reactivity

Stability: Stable

Hazardous Polymerization: Will not occur.

Conditions to Avoid: Avoid heat, sparks, flames and other sources of ignition. Do not puncture or incinerate containers.

Incompatibilities: Strong oxidizing agents.

Hazardous Decomposition Products: Carbon monoxide and carbon dioxide.

11 – Toxicological Information

The oral toxicity of this product is estimated to be greater than 5,000 mg/kg based on an assessment of the ingredients. This product is not classified as toxic by established criteria. It is an aspiration hazard.

None of the components of this product is listed as a carcinogen or suspected carcinogen or is considered a reproductive hazard.

12 – Ecological Information

No data is currently available.

13 - Disposal Considerations

If this product becomes a waste, it would be expected to meet the criteria of a RCRA ignitable hazardous waste (D001). However, it is the responsibility of the generator to determine at the time of disposal the proper classification and method of disposal. Dispose in accordance with federal, state, and local regulations.

14 – Transportation Information

DOT Surface Shipping Description: Consumer Commodity, ORM-D

IMDG Shipping Description: Aerosols, 2, UN1950

15 – Regulatory Information

U.S. Federal Regulations:

CERCLA 103 Reportable Quantity: This product is not subject to CERCLA reporting requirements, however, oil spills are reportable to the National Response Center under the Clean Water Act and many states have more stringent release reporting requirements. Report spills required under federal, state and local regulations.

SARA TITLE III:

Hazard Category For Section 311/312: Acute Health, Fire Hazard, Sudden Release of Pressure

Section 313 Toxic Chemicals: This product contains the following chemicals subject to SARA Title III Section 313 Reporting requirements: None
Section 302 Extremely Hazardous Substances (TPQ): None
EPA Toxic Substances Control Act (TSCA) Status: All of the components of this product are listed on the TSCA inventory
Canadian Environmental Protection Act: All of the ingredients are listed on the Canadian Domestic Substances List or exempt from notification
Canadian WHMIS Classification: Class B-5 (Flammable Aerosol)
This MSDS has been prepared according to the criteria of the Controlled Products Regulation (CPR) and the MSDS contains all of the information required by the CPR.

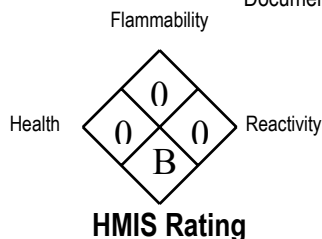
16 – Other Information:

HMIS Hazard Rating:
Health – 1 (slight hazard), Fire Hazard – 4 (severe hazard), Reactivity – 0 (minimal hazard)

SIGNATURE:  TITLE: Director of Global Quality Assurance

REVISION DATE: Revision Date: May 2007

SUPERSEDES: December 2004



MATERIAL SAFETY DATA SHEET

GENERAL INFORMATION

PRODUCT NAME OR NUMBER (as it appears on label) Duct Seal	CATALOG NUMBER 31-601, 31-605
MANUFACTURER'S NAME IDEAL INDUSTRIES, INC.	EMERGENCY TELEPHONE NO. (815) 895-5181
ADDRESS (Number, Street, City, State, Zip Code) Becker Place, Sycamore, IL 60178	
HAZARDOUS MATERIAL DESCRIPTION, PROPER SHIPPING NAME, HAZARD CLASS, HAZARD CLASS, HAZARD ID NO. (49 CFR 172.101) None	
CHEMICAL DESCRIPTION Butyl Rubber Composite	FORMULA Proprietary

SECTION I - INGREDIENTS

CAS REGISTRY NO.	%W	CHEMICAL NAME(S)*	ACHIH TLV	Listed as a carcinogen in NTP, IARC or OSHA 1910.1201 (specify)
1317-65-3	<50	Calcium Carbonate	30-60	No
12174-11-7	<10	Magnesium Aluminum Silicate	3-13	No
14808-60-7	<1	Crystalline Quartz Silica	n/a	No
9003-29-6	<10	Butene Polymer	10-20	No
25038-36-2	<10	Synthetic Polymer	0.1-1.0	No
133-86-4	<.001	Carbon Black	.005-.009	No
2083-79-3	<.001	Antioxidant	.001-.006	No
9004-34-6	<1	Cellulose Fiber	1-10	No
14807-96-6	<10	Aluminum Silicate	15-35	No
61790-12-3	<1	Tall Oil Rosin	1-7	No
64742-53-6	<1	Naphthenic Wax	1-8	No

SECTION II - PHYSICAL DATA

BOILING POINT None °F °C	SPECIFIC GRAVITY (H ₂ O=1) 1.65	PERCENT VOLATILE BY VOLUME (%) 2
SOLUBILITY IN WATER None	pH = N/A	PERCENT SOLID BY WEIGHT (%) ~98
APPEARANCE AND ODOR Dark Gray Putty Mild Rubber Odor	IS MATERIAL: LIQUID GAS SOLID PASTE GEL GAS SOLID PASTE GEL	

SECTION III - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT 590°C	method used C.O.C	FLAMMABLE LIMITS	LEL N/E	UEL N/E
EXTINGUISHING MEDIA Use water, foam, carbon dioxide or dry chemical				
SPECIAL FIRE FIGHTING PROCEDURES None known. Firefighters should wear a self-contained breathing apparatus. Oxides of nitrogen and carbon may evolve.				
UNUSUAL FIRE AND EXPLOSION HAZARDS None known				

* None of the chemical raw materials contained in this formulation are considered hazardous under the Federal Hazards Communication Standard 29 C. F. R 1910.1200

SECTION IV - HEALTH HAZARD INFORMATION

EFFECTS OF OVEREXPOSURE - Conditions to Avoid	N/A
THRESHOLD LIMIT VALUE	See above
PRIMARY ROUTES OF ENTRY Inhalation <input type="checkbox"/> Skin Contact <input checked="" type="checkbox"/> Other (specify)	
EMERGENCY FIRST AID PROCEDURES	
SKIN CONTACT:	If too sensitive, seek medical attention
EYE CONTACT:	Do not remove, seek medical attention
INGESTION:	Not likely. If ingested, constipation or blockage may occur. Seek medical attention

SECTION V - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID	N/A
	STABLE	X		
INCOMPATIBILITY (materials to avoid)				
Strong oxidizers, acids, bases				
HAZARDOUS DECOMPOSITION PRODUCTS:				
Oxides of nitrogen and carbon may evolve				
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID	N/A
	WILL NOT OCCUR	X		

SECTION VI - SPILL AND LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED	N/A
WASTE DISPOSAL METHOD	Comply with Federal, state and local regulations for solid landfill
CERCLA (Superfund) REPORTABLE QUANTITY (in lbs)	N/A
RCRA HAZARDOUS WASTE NO. (40CFR 261.33)	N/A
VOLATILE ORGANIC COMPOUND (VOC) (as packaged, minus water)	17 grams/liter
^a Theoretical _____ lb/gal	N/A
^b Analytical _____ lb/gal	

SECTION VII - PERSONAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (specify type)				N/A
VENTILATION	LOCAL EXHAUST (Specify Rate)	N/A	SPECIAL	N/A
	MECHANICAL (General) (Specify Rate)	N/A	OTHER	N/A
PROTECTIVE GLOVES (specify type)		EYE PROTECTION (specify type)		
Cotton if needed		Safety glasses or goggles		
OTHER PROTECTIVE EQUIPMENT				
For sensitive individuals, protect skin from contact				

SECTION VIII - SPECIAL PRECAUTIONS


PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	Store in a cool, dry place
OTHER PRECAUTIONS	Wash hands with soap and water before eating

SECTION IX - ADDITIONAL INFORMATION

This product contains the following materials that are subject to the reporting requirements of Section 313 of EPCRA: 14808-60-7 Crystalline Quartz Silica - .5%

N/A = Not Applicable, N.E. = None Established

THIS MATERIAL SAFETY DATA SHEET PREPARED BY:

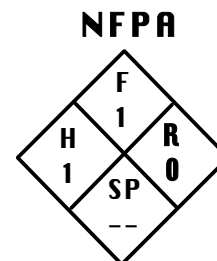
NAME	James R. MacMurdo	SIGNATURE 
TITLE	Director, Corporate Quality Assurance	
DATE	03/10/2006	

ITEM - 19**MATERIAL SAFETY DATA SHEET**

U.S. Department of Labor Compliance
 OSHA's Hazard Communication Standard CFR 1910.1200 .

SECTION 1 - PRODUCT IDENTIFICATION**PRODUCT IDENTITY: PREMIUM ANTI-WEAR HYDRAULIC OIL 100**

Manufacturer's Name: PPINNACLE RESOURCES, INC.
 5504 Jefferson Parkway
 Pine Bluff, Arkansas 71602
 Emergency Assistance: Telephone No. (870) 247-2315
 Information (870) 247-2315

**SECTION 2 - Ingredients/Identity Information**

- P Premium AW Hydraulic Oil 100
 1 Solvent refined, hydrotreated paraffinic distillate.
 2 Additive Pkg, Containing Phosphorus, Zinc, Amine Antioxidant
 3 Other minor additives

Occupational Exposure Limits:

No.	PEL/TWA	PEL/CEILING	TLV/TWA	TLV/STEL	OTHER
P	5 Mg/M ³ *	None	5Mg/M ³ *	10 Mg/M ³ *	None

*Oil Mist, Mineral

SECTION 3 - Physical/Chemical Characteristics

Boiling Point: Not Available Gravity, API @ 60° F: 28.3
 Vapor Pressure: Not Available Melt Point: +0° F Pour Pt.
 Vapor Density: (Air=1) N.A. Evaporation Rate: N.A.
 Solubility In Water: Negligible
 Appearance and Odor: Yellow-Amber. Slight Hydrocarbon Odor.

SECTION 4 - Fire and Explosion Hazard Data

Flash Point: 450° F. (COC) Flammable limits % Volume in Air
 Lower: N/AV Upper: N/AV

NFPA RATINGS- Health: 1 Flammability: 1 Reactivity: 0 Special: --
 NPCA-HMIS RATINGS- Health: 1 Flammability: 1 Reactivity: 0

Extinguishing Media:

Use water fog, foam, dry chemical or CO₂. Do not use a direct stream of water. Product will float and be reignited on surface of water.

Special Fire Fighting Procedures and Precautions:

Material will not burn unless preheated. Do not enter confined fire-space without full bunker gear (Helmet with face shield, bunker coats, gloves and rubber boots), including a positive-pressure NIOSH-Approved self-contained breathing apparatus. Cool fire exposed containers with water.

SECTION 5 - Reactivity Data

Stability: Stable Hazardous Polymerization: Will Not Occur

Conditions and Materials to Avoid:

Avoid heat, open flames and oxidizing materials.

Hazardous Decomposition Products:

Thermal decomposition products are highly dependent on the combustion conditions. A complex mixture of airborne solid, liquid, particulate and gases will evolve when this material undergoes pyrolysis or combustion. Carbon monoxide and other unidentified organic compounds may be formed upon combustion.

SECTION 6 - Health Hazard Data

The health effects noted below are consistent with requirements under the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Eye Contact:

Lubricating oils are general considered no more than minimally irritating to the eyes.

Skin Contact:

Lubricating oils are generally considered no more than mildly irritating to the skin. Prolonged and repeated contact may result in various skin disorders such as Dermatitis, Folliculitis or Oil Acne.

MSDS HY.2101.4

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Inhalation:

Inhalation of vapor (generated at high temperatures only) or oil mist from this product may result in mild irritation of the upper respiratory tract.

Ingestion:

Lubricating oils are generally considered no more than slightly toxic if swallowed.

Signed and symptoms:

Irritation as noted above.

Aggravated Medical Conditions:

Preexisting skin and respiratory disorders may be aggravated by exposure to this product.

Other Health Effects:

The international agency for research on cancer has determined there is sufficient evidence for the carcinogenicity in experimental animals of used motor (crankcase) oil. Handling procedures and safety precautions in the MSDS should be followed to minimize employee's exposure to the product if used as a lubricating oil in a gasoline internal combustion engine.

Emergency and First Aid Procedures:**Eye Contact -**

Flush with water for 15 minutes while holding eyelids open. Get medical attention.

Skin Contact -

Remove contaminated clothing and wipe excess off. Wash with soap and water or a waterless hand cleaner followed by soap and water. If irritation occurs, get medical attention.

Inhalation -

Remove victim to fresh air and provide oxygen if breathing is difficult. Get medical attention.

Ingestion -

Do not induce vomiting. In general no treatment is necessary unless large quantities of product are ingested. However, get medical attention.

Note to Physician -

In general, Emesis Induction is unnecessary in high viscosity, low volatility products, I.E., most oils and greases.

SECTION 7 - Precautions For Safe Handling and Use**Spill or Leak Procedures:**

May burn although not readily ignitable. Use cautious judgment when cleaning up large spills. ***Large Spills*** Wear respirator and protective clothing as appropriate. Shut off source of leak. If safe to do so, dike and contain. Remove with vacuum trucks or pump to storage salvage vessels. Soak up residue with an absorbent such as clay, sand, or other suitable materials; dispose of properly. Flush area with water to remove trace residue.

Small Spills Take up with an absorbent material and dispose of properly.

Waste Disposal:

Place in an appropriate disposal facility in compliance with local regulations.

Environmental Hazards:

This product is classified as an oil under section 311 of the Clean Water Act. Spills entering (A) surface waters of (B) any water courses or sewers entering/leading to surface waters that cause a sheen must be reported to the nearest local Environmental Protection Agency Office.

SECTION 8 - Control Measures

Minimize skin contact. Wash with soap and water before eating, drinking, smoking or using toilet facilities. Launder contaminated clothing before reuse, properly dispose of contaminated leather articles, including shoes that cannot be decontaminated.

Store in a cool, dry place with adequate ventilation. Keep away from open flames and high temperatures.

Respiratory Protection:

If exposure may or does exceed occupational exposure limits (SECTION 2) use a NIOSH-Approved respirator to prevent overexposure. In accord with 29 CFR 1910.134 use either an atmosphere-supplying respirator or an air-purifying respirator for organic vapors and particulate.

Protective clothing:

Wear chemical resistant gloves and other protective clothing as required to minimize skin contact. Wear safety goggles to avoid eye contact. Test data from published literature and/or glove and clothing manufacturers indicate the best protection is provided by nitrile gloves.

NOTE: THE INFORMATION CONTAINED HEREIN IS BASED ON THE DATA AVAILABLE AND IS BELIEVED TO BE CORRECT. HOWEVER, PINNACLE RESOURCES, INC. MAKES NO WARRANTY, EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF. PINNACLE RESOURCES, INC. ASSUMES NO RESPONSIBILITY FOR INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN.

Date Prepared: April 21, 2003

PINNACLE RESOURCES, INC., MANUFACTURING FACILITY
Pine Bluff, Arkansas

MSDS HY.2101.4

Material Safety Data Sheet

and Safe Handling and Disposal Information

Section 1. Chemical Product and Company Identification

Product name Enforcer Wasp & Hornet Killer XI

Product Code WH16

Formula No. EPA Reg. No. 40849-52

Date of issue 05/20/03 **Supersedes**

Emergency Telephone Numbers **For MSDS Information:**
Acuity Specialty Products Group, Inc.
Compliance Services 1-877-I-BUY-ZEP

For Medical Emergency:
INFOTRAC
(877) 541-2016 Toll Free - All Calls Recorded

For a Transportation Emergency:
CHEMTREC
(800) 424-9300 - All Calls Recorded
In the District of Columbia (202) 483-7616

Printing Date:

Prepared by

Compliance Services Group
Acuity Specialty Products Group
1420 Seaboard Industrial Blvd.
Atlanta, GA 30318

Section 2. Composition, Information on Ingredients

Name of Hazardous Ingredients	CAS #	% by Weight	Exposure Limits
1) Tetramethrin	7696-12-0	1.2	ACGIH TLV (United States). TWA: 10 mg/m ³ Form: Dust
2) Sumithrin	26002-80-2	0.125	Not available.
3) LOW ODOR PARAFFINIC SOLVENT; odorless base oil; dispersol	64742-96-7	90-95	Not available.

Section 3. Hazards Identification**Acute Effects**

Routes of Entry Absorbed through skin. Inhalation.

Skin

Hazardous in case of skin contact (irritant). Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Eyes

Slightly irritating to the eyes.

Inhalation

Hazardous in case of inhalation. Inhalation causes headaches, dizziness, drowsiness, and nausea.

Ingestion

Ingestion may cause nausea, weakness and central nervous system effects.

Carcinogenic Effects Ingredients: Not listed as carcinogen by OSHA, NTP or IARC.

Chronic Effects The substance may be toxic to kidneys. Repeated or prolonged exposure to the substance can produce target organs damage.

See Toxicological Information (section 11)

HMIS

Health	1
Fire Hazard	1
Reactivity	0
Personal Protection	B

Section 4. First Aid Measures**Eye Contact**

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.

Skin Contact

Wash contaminated skin with soap and water. Remove contaminated clothing and shoes. Wash clothing before reuse. Get medical attention if irritation develops.

Inhalation

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Ingestion

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately.

Section 5. Fire Fighting Measures**Flash Point**

Not applicable.

Flammable Limits Not applicable.

Flammability

Non-flammable. (CSMA)

Fire Hazard

Container explosion may occur under fire conditions or when heated. Cool closed containers exposed to fire with water.

Fire-Fighting Procedures

Use DRY chemicals, CO₂, water spray or foam. Wear special protective clothing and positive pressure, self-contained breathing apparatus.



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Section 6. Accidental Release Measures**Spill Clean up** Large spills are unlikely due to packaging.**Section 7. Handling and Storage****Handling** Avoid breathing vapors or spray mists. Avoid contact with skin and clothing. Use only with adequate ventilation. Wash thoroughly after handling.**Storage** Keep container in a cool, well-ventilated area. Do not store above 49° C (120° F) Do not puncture or incinerate.**Section 8. Exposure Controls, Personal Protection****Personal Protection****Protective Clothing (Pictograms)****Eyes** Safety glasses.**Body** For prolonged or repeated handling, use gloves**Respiratory** A respirator is not needed under normal and intended conditions of product use.**Section 9. Physical and Chemical Properties****Physical State** Aerosol.**Color** Colorless.**pH** Not applicable.**Odor** Solvent-like. (Slight.)**Boiling Point** 130 - 370°C (266°F - 698° F)**Vapor Pressure** Not available.**Specific Gravity** 0.808 (Water = 1)**Vapor Density** Not available.**Solubility** Insoluble in cold water.**Evaporation Rate** >1**VOC (Consumer)** 914.5 (g/l). 96.4%**Section 10. Stability and Reactivity****Stability and Reactivity** The product is stable.**Incompatibility** Avoid contact with strong oxidizers, excessive heat, sparks or open flame.**Hazardous Polymerization** Will not occur.**Hazardous Decomposition Products** None identified.**Section 11. Toxicological Information****Toxicity to Animals** Not available.**Section 12. Ecological Information****Ecotoxicity** Not available.**Biodegradable/OECD** Not available.**Section 13. Disposal Considerations****Waste Information** Waste must be disposed of in accordance with federal, state and local environmental control regulations.**Waste Stream** Non-hazardous waste

Consult your local or regional authorities.

Section 14. Transport Information**Proper shipping name** Consumer Commodity**DOT Classification** ORM-D**UN number** Not applicable.**TDG Classification** - Consumer Commodity ORM-D**Section 15. Regulatory Information****U.S. Federal Regulations** SARA 313 toxic chemical notification and release reporting: No products were found.
Clean Water Act (CWA) 311: No products were found.
Clean air act (CAA) 112 regulated toxic substances: No products were found.**State Regulations** California prop. 65: No products were found.**WHMIS (Canada)** Class A: Compressed gas.
Class D-2B: Material causing other toxic effects (TOXIC).**Section 16. Other Information**

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

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03611

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Section 1 -- PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NUMBER	DATE OF PREPARATION	HMIS CODES	
03611	02-SEP-07	Health	2*
		Flammability	3
		Reactivity	0

PRODUCT NAME

KRYLON® Industrial QUIK-MARK™ Solvent-Based Inverted Marking Paint
(APWA), Red

MANUFACTURER'S NAME

THE SHERWIN-WILLIAMS COMPANY
Diversified Brands
Cleveland, OH 44115

TELEPHONE NUMBERS and WEBSITES

Regulatory Information

(800) 247-3266

www.paintdocs.com

Medical Emergency

(216) 566-2917

Transportation Emergency

(800) 424-9300

for Chemical Emergency ONLY (spill, leak,
fire, exposure, or accident)

Section 2 -- COMPOSITION/INFORMATION ON INGREDIENTS

% by WT	CAS No.	INGREDIENT	UNITS	VAPOR PRESSURE
13	74-98-6	Propane		
		ACGIH TLV	2500 ppm	760 mm
		OSHA PEL	1000 ppm	
12	106-97-8	Butane		
		ACGIH TLV	800 ppm	760 mm
		OSHA PEL	800 ppm	
6	64742-89-8	V. M. & P. Naphtha		
		ACGIH TLV	300 ppm	12 mm
		OSHA PEL	300 ppm	
		OSHA PEL	400 ppm STEL	
12	108-88-3	Toluene		
		ACGIH TLV	20 ppm	22 mm
		OSHA PEL	100 ppm (Skin)	
		OSHA PEL	150 ppm (Skin) STEL	
0.2	100-41-4	Ethylbenzene		
		ACGIH TLV	100 ppm	7.1 mm
		ACGIH TLV	125 ppm STEL	
		OSHA PEL	100 ppm	
		OSHA PEL	125 ppm STEL	
1	1330-20-7	Xylene		
		ACGIH TLV	100 ppm	5.9 mm
		ACGIH TLV	150 ppm STEL	
		OSHA PEL	100 ppm	
		OSHA PEL	150 ppm STEL	

Continued on page 2

20	67-64-1	Acetone	ACGIH TLV	500	ppm	180 mm
			ACGIH TLV	750	ppm STEL	
			OSHA PEL	1000	ppm	
25	471-34-1	Calcium Carbonate	ACGIH TLV	10	mg/m3 as Dust	
			OSHA PEL	10	mg/m3 Total Dust	
			OSHA PEL	5	mg/m3 Respirable Fraction	
0.5	13463-67-7	Titanium Dioxide	ACGIH TLV	10	mg/m3 as Dust	
			OSHA PEL	10	mg/m3 Total Dust	
			OSHA PEL	5	mg/m3 Respirable Fraction	

Section 3 -- HAZARDS IDENTIFICATION

ROUTES OF EXPOSURE

INHALATION of vapor or spray mist.

EYE or SKIN contact with the product, vapor or spray mist.

EFFECTS OF OVEREXPOSURE

EYES: Irritation.

SKIN: Prolonged or repeated exposure may cause irritation.

INHALATION: Irritation of the upper respiratory system.

May cause nervous system depression. Extreme overexposure may result in unconsciousness and possibly death.

SIGNS AND SYMPTOMS OF OVEREXPOSURE

Headache, dizziness, nausea, and loss of coordination are indications of excessive exposure to vapors or spray mists.

Redness and itching or burning sensation may indicate eye or excessive skin exposure.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

None generally recognized.

CANCER INFORMATION

For complete discussion of toxicology data refer to Section 11.

Section 4 -- FIRST AID MEASURES

EYES: Flush eyes with large amounts of water for 15 minutes.
Get medical attention.

SKIN: Wash affected area thoroughly with soap and water.
Remove contaminated clothing and launder before re-use.

INHALATION: If affected, remove from exposure. Restore breathing.
Keep warm and quiet.

INGESTION: Do not induce vomiting.
Get medical attention immediately.

Section 5 -- FIRE FIGHTING MEASURES

FLASH POINT	LEL	UEL
Propellant < 0 F	0.9	12.8

EXTINGUISHING MEDIA

Carbon Dioxide, Dry Chemical, Foam

UNUSUAL FIRE AND EXPLOSION HAZARDS

Containers may explode when exposed to extreme heat.

Application to hot surfaces requires special precautions.

During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.

SPECIAL FIRE FIGHTING PROCEDURES

Full protective equipment including self-contained breathing apparatus should be used.

Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat.

Section 6 -- ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Remove all sources of ignition. Ventilate the area.

Remove with inert absorbent.

Section 7 -- HANDLING AND STORAGE

STORAGE CATEGORY

Not Available

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE

Keep away from heat, sparks, and open flame. Vapors will accumulate readily and may ignite explosively.

During use and until all vapors are gone: Keep area ventilated - Do not smoke - Extinguish all flames, pilot lights, and heaters - Turn off stoves, electric tools and appliances, and any other sources of ignition.

Consult NFPA Code. Use approved Bonding and Grounding procedures.

Contents under pressure. Do not puncture, incinerate, or expose to temperature above 120F. Heat from sunlight, radiators, stoves, hot water, and other heat sources could cause container to burst. Do not take internally. Keep out of the reach of children.

Section 8 -- EXPOSURE CONTROLS/PERSONAL PROTECTION

PRECAUTIONS TO BE TAKEN IN USE

Use only with adequate ventilation.

Avoid contact with skin and eyes. Avoid breathing vapor and spray mist.

Wash hands after using.

This coating may contain materials classified as nuisance particulates (listed "as Dust" in Section 2) which may be present at hazardous levels only during sanding or abrading of the dried film. If no specific dusts are listed in Section 2, the applicable limits for nuisance dusts are ACGIH TLV 10 mg/m³ (total dust), 3 mg/m³ (respirable fraction), OSHA PEL 15 mg/m³ (total dust), 5 mg/m³ (respirable fraction).

VENTILATION

Local exhaust preferable. General exhaust acceptable if the exposure to materials in Section 2 is maintained below applicable exposure limits. Refer to OSHA Standards 1910.94, 1910.107, 1910.108.

Continued on page 4

RESPIRATORY PROTECTION

If personal exposure cannot be controlled below applicable limits by ventilation, wear a properly fitted organic vapor/particulate respirator approved by NIOSH/MSHA for protection against materials in Section 2.

When sanding or abrading the dried film, wear a dust/mist respirator approved by NIOSH/MSHA for dust which may be generated from this product, underlying paint, or the abrasive.

PROTECTIVE GLOVES

None required for normal application of aerosol products where minimal skin contact is expected. For long or repeated contact, wear chemical resistant gloves.

EYE PROTECTION

Wear safety spectacles with unperforated sideshields.

OTHER PRECAUTIONS

Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal.

Section 9 -- PHYSICAL AND CHEMICAL PROPERTIES

PRODUCT WEIGHT	7.28 lb/gal	872 g/l
SPECIFIC GRAVITY	0.88	
BOILING POINT	<0 - 325 F	<-18 - 162 C
MELTING POINT	Not Available	
VOLATILE VOLUME	84 %	
EVAPORATION RATE	Faster than ether	
VAPOR DENSITY	Heavier than air	
SOLUBILITY IN WATER	N.A.	
pH	7.0	
VOLATILE ORGANIC COMPOUNDS (VOC Theoretical - As Packaged)		
Volatile Weight	44.86%	Less Water and Federally Exempt Solvents

Section 10 -- STABILITY AND REACTIVITY

STABILITY -- Stable

CONDITIONS TO AVOID

None known.

INCOMPATIBILITY

None known.

HAZARDOUS DECOMPOSITION PRODUCTS

By fire: Carbon Dioxide, Carbon Monoxide

HAZARDOUS POLYMERIZATION

Will not occur

Section 11 -- TOXICOLOGICAL INFORMATION

CHRONIC HEALTH HAZARDS

Ethylbenzene is classified by IARC as possibly carcinogenic to humans (2B) based on inadequate evidence in humans and sufficient evidence in laboratory animals. Lifetime inhalation exposure of rats and mice to high ethylbenzene concentrations resulted in increases in certain types of cancer, including kidney tumors in rats and lung and liver tumors in mice. These effects were not observed in animals exposed to lower concentrations. There is no evidence that ethylbenzene causes cancer in humans.

Prolonged overexposure to solvent ingredients in Section 2 may cause adverse effects to the liver, urinary, cardiovascular and reproductive systems.

Reports have associated repeated and prolonged overexposure to solvents with permanent brain and nervous system damage.

TOXICOLOGY DATA

CAS No.	Ingredient Name				
74-98-6	Propane	LC50	RAT	4HR	Not Available
		LD50	RAT		Not Available
106-97-8	Butane	LC50	RAT	4HR	Not Available
		LD50	RAT		Not Available
64742-89-8	V. M. & P. Naphtha	LC50	RAT	4HR	Not Available
		LD50	RAT		Not Available
108-88-3	Toluene	LC50	RAT	4HR	4000 ppm
		LD50	RAT		5000 mg/kg
100-41-4	Ethylbenzene	LC50	RAT	4HR	Not Available
		LD50	RAT		3500 mg/kg
1330-20-7	Xylene	LC50	RAT	4HR	5000 ppm
		LD50	RAT		4300 mg/kg
67-64-1	Acetone	LC50	RAT	4HR	Not Available
		LD50	RAT		5800 mg/kg
471-34-1	Calcium Carbonate	LC50	RAT	4HR	Not Available
		LD50	RAT		Not Available
13463-67-7	Titanium Dioxide	LC50	RAT	4HR	Not Available
		LD50	RAT		Not Available

Section 12 -- ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION

No data available.

Continued on page 6

Section 13 -- DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD

Waste from this product may be hazardous as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261.

Waste must be tested for ignitability to determine the applicable EPA hazardous waste numbers.

Do not incinerate. Depressurize container. Dispose of in accordance with Federal, State/Provincial, and Local regulations regarding pollution.

Section 14 -- TRANSPORT INFORMATION

US Ground (DOT)

May be classed as Consumer Commodity, ORM-D
UN1950, AEROSOLS, 2.1, LIMITED QUANTITY, (ERG#126)

Canada (TDG)

May be classed as Consumer Commodity, ORM-D
UN1950, AEROSOLS, CLASS 2.1, LIMITED QUANTITY, (ERG#126)

IMO

May be shipped as Limited Quantity
UN1950, AEROSOLS, CLASS 2, LIMITED QUANTITY, EmS F-D, S-U

Section 15 -- REGULATORY INFORMATION

SARA 313 (40 CFR 372.65C) SUPPLIER NOTIFICATION

CAS No.	CHEMICAL/COMPOUND	% by WT	% Element
108-88-3	Toluene	12	
100-41-4	Ethylbenzene	0.2	
1330-20-7	Xylene	1	

CALIFORNIA PROPOSITION 65

WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

TSCA CERTIFICATION

All chemicals in this product are listed, or are exempt from listing, on the TSCA Inventory.

Section 16 -- OTHER INFORMATION

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

The above information pertains to this product as currently formulated, and is based on the information available at this time. Addition of reducers or other additives to this product may substantially alter the composition and hazards of the product. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information.



MATERIAL SAFETY DATA SHEET

CADWELD® Electrical Welding Material

Inclusive of material types : F20, F80, F33, XF19, F76 MSDS: 233
Applicable prefixes : CA, SB, PB, XL, XF, ACB, ACC
Revision : Q
Issue Date : March 1, 2007
In accordance with : guidelines 91/155/EEG – NEN ISO 11014-1, 29 CFR 1910.1200, 29 CFR 1926.59, Controlled Products Regulations

1 Identification of the Product and Company**Identification of the Product**

CADWELD® Electrical Welding Material

Identification of the Company

ERICO International Corporation
34600 Solon Road
Solon, Ohio 44139
(440) 248-0100

ERICO B.V.
Jules Verneweg 75
5015 BG Tilburg
The Netherlands
31(0)13-5835100

Telephone

24-hour response line: Chem Tel 1-800-255-3924

National Toxicity Information Centre 31 (0)30-2748888 (Attending Physician Only)

2 Composition / Data on Components**Description**

CADWELD Electrical Welding Materials are exothermic mixtures that react to produce molten metal and a ceramic phase by-product. The reaction temperatures can exceed 4000°F (2200°C) producing molten metal in excess of 2500°F (1370°C). These products are intended for use with CADWELD accessories only in making permanent connections.

MATERIAL SAFETY DATA SHEET

MSDS: 233 Rev. Q

CADWELD® Electrical Welding Material

Components

Chemical Component	Chemical Symbol	CAS Number	EINECS Number	EU Risk Phrases
Copper Oxide	Cu ₂ O / CuO	1317-39-1	215-270-7	Not Applicable
Calcium/Silicon	CaSi ₂	12775-68-7	NA	Not Applicable
Calcium Fluoride	CaF ₂	7789-75-5	232-188-7	Not Applicable
Tin*	Sn	7440-31-5	242-159-0	Not Applicable
Aluminum - Copper Alloy <60 Copper	Cu	7440-50-8	231-159-6	Not Applicable
<60 Aluminum	Al	7429-90-5	231-072-3	R 10 – R 15
Aluminum - Vanadium Alloy** <60 Vanadium	V	7440-62-2	231-171-1	Not Applicable
<60 Aluminum	Al	7429-90-5	231-072-3	R 10 – R 15

* Type F20 and XF19 only

** Type F33 only

3 Hazard Identification

Hazard Description

Improper use of the product or inadequate preparation of the conductors, molds or surroundings can result in aggressive reactions. Instruction prints should be followed at all times. If information is missing contact ERICO or visit our web site at www.erico.com to obtain proper procedures.

Self-propagating high temperature reaction will occur if heated above ignition temperature. Generates molten metal in excess of 2500°F (1370°C), slag, and dense, dusty smoke.

Immediate Hazards

Burns from contact with reaction, reaction products, or from hot equipment are possible.

Exposure To Reaction By-Products

A detailed fume analysis was conducted on CADWELD Electrical Welding Materials. Reactions byproducts were tested for total dust, respirable dust, metals, acids, fluorides, and various elements identified in typical welding fume analysis. All sampling and analysis followed methodologies dictated by the National Institute of Occupational Safety and Health (NIOSH) and by the Occupational Safety and Health Administration (OSHA). A certified Industrial Hygienist did the sample collection and independent labs conducted all analytical work.

Data collected was evaluated and compared to limits set by the American Conference of Governmental Industrial Hygienists (ACGIH) and OSHA. As a worse case scenario, calculations were completed based on a sealed 800 ft³ room with no ventilation. These calculations would indicate that the copper fume PEL would be the limiting factor. Under normal outdoor use or in ventilated areas threshold limits are beyond any expected exposure limits.

Classification System

Not Applicable

CADWELD® Electrical Welding Material**4 First Aid Measures****General Information**

The product produces materials at elevated temperatures. Proper protection should be utilized to avoid contact with hot materials. Standard treatment for burns in the event of contact with molten metal, slag or hot equipment

Inhalation

For excessive inhalation of dust, fume, remove from exposure, provide fresh air, and consult a physician.

Skin contact

Standard treatment for burns in the event of contact with molten metal, slag or hot equipment.

Eye contact

Exposure to powdered metals should be treated by flushing eyes with large amounts of water from the nasal area outward. Consult a physician if irritation persists.

Eye contact with molten metal or reaction by products requires immediate medical attention.

5 Fire Fighting Measures**Suitable Extinguishing Agents**

Dry sand and/or flooding with large amounts of water. Water application should be at a reasonable distance. Use of hand water buckets or hand storage pumps is not recommended. Molten metal contact with water can cause small pockets of superheated steam.

Suitable extinguishing agents should be used to protect surrounding areas.

Additional Information

CADWELD Electrical Welding Materials are exothermic mixtures, which react to produce hot molten metals with temperatures in excess of 2500°F (1370°C) and small amounts of metal fume and smoke. Ignition temperatures are in excess of 1750°F (950°C). The material is not sensitive to vibrations, shock, or impact and is not subject to any form of spontaneous ignition.

In the event that the packaging materials are ignited, the immediate and direct application of large quantities of water will effectively eliminate the spread of fire to the surrounding areas. The ignition of the packaging materials may, in rare cases, lead to ignition. Direct application of a continuous heavy stream of water is recommended.

Ignition of extremely large quantities of exothermic materials may result in large volumes of dense smoke.

CADWELD® Electrical Welding Material**6 Accidental Release Measures****Person-Related Safety Precautions**

RESPIRATORY PROTECTION: Normal use precludes use of special protection as material is generally used out of doors, in small quantities and is of short duration.

VENTILATION: Local Exhaust - May be necessary if used in confined space. Special - Use of NIOSH approved respirator for dusts and metal fumes in lieu of local exhaust.

PROTECTIVE GLOVES: Recommended for handling hot equipment.

EYE PROTECTION: Safety glasses recommended and caution to user to avoid direct eye contact with "flash" of light from reaction.

Measures for Environmental Protection

Precautions should be taken to prevent hot material and reaction byproducts from contact with combustible materials in surrounding areas.

Measures for Cleaning/Collecting

All unused, spilled materials may be swept up for disposal, in accordance with local regulations and guidelines.

7 Handling and Storage**Handling**

CADWELD Exothermic Welding Materials are designed for use in CADWELD equipment only. Use of improper or damaged equipment can lead to exposure to molten metal and reaction byproducts, resulting in personal injury.

All product instructions should be followed to help ensure proper welding and safety. For additional information, see American National Standard, Safety In Welding And Cutting, Z49.1.

Storage

CADWELD Electrical Welding Material should be stored in a clean, dry and secure location. Storage should include provisions to minimize rough handling, excessive vibration and physical abuse. All outer packages must be stored in accordance with label markings.

If proper storage is maintained, CADWELD Electrical Welding Materials do not exhibit any storage or shelf life.

If evidence is present of damaged or contaminated products, these units should not be used.

CADWELD® Electrical Welding Material

8 Exposure Control / Personal Protection

Chemical Component	OSHA PEL	ACGIH TLV	Weight Percent	TSCA Inv.
Copper Oxide	Dust 1.0 Fume 0.2	Dust 1.0 Fume 0.2	Not > 80%	Yes
Calcium/Silicon	Ca 5.0 as CaO Si 5.0	Ca 2 as CaO Si 10.0	Not > 5%	Yes
Calcium Fluoride	2.5 as Fluoride	2.5 as Fluoride	Not > 5%	Yes
Tin*	2.0	2.0	Not > 10%	Yes
Aluminum-Copper Alloy <60 Copper	Dust 1.0 Fume 0.1	Dust 1.0 Fume 0.2	Not > 15%	No
<60 Aluminum	Total Dust 15.0 Respirable Fraction 5.0	Dust 10.0 Fume 5.0		
Aluminum-Vanadium Alloy** <60 Vanadium	V ₂ O ₅ Dust 0.5 Fume 0.1	V ₂ O ₅ 0.05	Not > 5%	No
<60 Aluminum	Total Dust 15.0 Respirable Fraction 5.0	Dust 10.0 Fume 5.0		

* Type F20 and XF19 only

** Type F33 only

9 Physical and Chemical Properties (CADWELD Exothermic Material)

Form: Granular**Color:** Grey-black**Odor:** Odorless

BOILING POINT: N/A

VAPOR PRESSURE: N/A

VAPOR DENSITY: N/A

SOLUBILITY IN WATER: Insoluble, 0

SPECIFIC GRAVITY (H₂O=1): 5.5

MELTING POINT: @ 2000°F (1093°C)

EVAPORATION RATE (BUTYL ACETATE=1): N/A, V.O.C.=0

FLASH POINT (METHOD USED): Self ignites above 1750°F (Indirect Heating) (954°C).

FLAMMABLE LIMITS: LEL - N/A UEL - N/A

10 Stability and Reactivity

Thermal Decomposition / Conditions to be Avoided

Temperatures above ignition point. Indirect heating to temperatures above 1750°F (950°C).

Dangerous Reactions

Aggressive reactions are possible if excess moisture is present in the mold or on the conductors to be welded. Care should be taken to ensure proper preparation in accordance with instruction prints.

Dangerous Decomposition Products

None

CADWELD® Electrical Welding Material

STABILITY: Stable

CONDITIONS TO AVOID: Temperatures above ignition (flash point).

INCOMPATIBILITY (MATERIALS TO AVOID): Typical of problems associated with molten metals.

HAZARDOUS DECOMPOSITION OR BYPRODUCTS: None

HAZARDOUS POLYMERIZATION: Will not occur.

11 Toxicological Information

The primary route of entry is inhalation or ingestion.

Burns from contact with reaction, reaction byproducts, or from hot equipment are possible. Dust and fumes are an irritant to eyes and upper respiratory tract. Inhalation of high concentrations of freshly formed oxide fumes and dusts in the respirable particle size range can cause influenza-like illness termed metal fume fever. Copper oxide dust may by repeated or prolonged inhalation occasionally cause ulceration and perforation of the nasal septum. Long term exposure to copper containing dusts may cause allergic dermatitis.

12 Ecological Information

CADWELD Electrical Welding Material contains fluorides, copper and copper compounds.

13 Disposal Considerations

Disposal must be done in accordance with applicable local, state or federal laws. If data is unavailable, contact ERICO for appropriate disposal recommendations.

14 Transport Information**General Information**

The product material has been tested by independent facilities in accordance with D.O.T. / U.N. CFR 49 and I.A.T.A. Dangerous Goods Regulations to determine the applicable ratings of this material. Based on the results of this testing, the CADWELD Electrical Welding Material is not classified as a flammable solid.

A secondary CADWELD Starting Material is included in the as supplied package in all cases, other than XL identified material. An MSDS specific to this material is provided separately. This material has been classified through independent laboratory testing as a 4.1 flammable solid. Due to the minimal quantity present per package, this material and the CADWELD Electrical Welding Material package is shipped under provisions outlined under D.O.T. / U.N. 49 CFR 171.1 "General Regulations for the Transportation of Hazardous Material" and 173.4 "Exceptions for Small Quantities". All materials are packaged and marked at the factory in full compliance with these regulations.

MARINE POLLUTANT: Not Applicable

UN / ID NUMBER: Not Applicable

PACKAGING GROUP: Not Applicable

PROPER SHIPPING NAME: CADWELD Electrical Welding Material

CADWELD® Electrical Welding Material**15 Regulations****US FEDERAL REGULATIONS**

This product contains compounds which are subject to reporting requirements of Section 313 of Title III of SARA and 40 CFR 372.

Components of the material are also included on the TSCA inventory list and are identified in section 8 above.

INTERNATIONAL REGULATIONS:**Canadian Workplace Hazardous Materials Information System**

Utilizing information presented in "WHMIS CORE MATERIAL, A RESOURCE MANUAL FOR THE APPLICATION AND IMPLEMENTATION OF WHMIS" Worker's Compensation Board of British Columbia, Richmond, BC CADWELD and CADWELD PLUS materials would be considered Division 2 Class D Sub Division B.

16 Other Information

The information supplied in this document is provided with the best of our knowledge and in good faith. If the information required does not appear on this MSDS, please contact ERICO at the numbers identified in Section 1 for assistance.

MATERIAL SAFETY DATA SHEET

Gasoline, All Grades
MSDS No. 9950

EMERGENCY OVERVIEW

DANGER!

**EXTREMELY FLAMMABLE - EYE AND MUCOUS MEMBRANE IRRITANT
- EFFECTS CENTRAL NERVOUS SYSTEM - HARMFUL OR FATAL IF
SWALLOWED - ASPIRATION HAZARD**



NFPA 704 (Section 16)

High fire hazard. Keep away from heat, spark, open flame, and other ignition sources.

If ingested, do NOT induce vomiting, as this may cause chemical pneumonia (fluid in the lungs). Contact may cause eye, skin and mucous membrane irritation. Harmful if absorbed through the skin. Avoid prolonged breathing of vapors or mists. Inhalation may cause irritation, anesthetic effects (dizziness, nausea, headache, intoxication), and respiratory system effects.

Long-term exposure may cause effects to specific organs, such as to the liver, kidneys, blood, nervous system, and skin. Contains benzene, which can cause blood disease, including anemia and leukemia.

1. CHEMICAL PRODUCT and COMPANY INFORMATION (rev. Jan-04)

Amerada Hess Corporation
1 Hess Plaza
Woodbridge, NJ 07095-0961

EMERGENCY TELEPHONE NUMBER (24 hrs):
CHEMTREC (800)424-9300
COMPANY CONTACT (business hours):

Corporate Safety (732)750-6000

MSDS Internet Website
www.hess.com/about/envIRON.html

SYNONYMS: Hess Conventional (Oxygenated and Non-oxygenated) Gasoline; Reformulated Gasoline (RFG); Reformulated Gasoline Blendstock for Oxygenate Blending (RBOB); Unleaded Motor or Automotive Gasoline

See Section 16 for abbreviations and acronyms.

2. COMPOSITION and INFORMATION ON INGREDIENTS * (rev. Jan-04)

INGREDIENT NAME (CAS No.)	CONCENTRATION PERCENT BY WEIGHT
Gasoline (86290-81-5)	100
Benzene (71-43-2)	0.1 - 4.9 (0.1 - 1.3 reformulated gasoline)
n-Butane (106-97-8)	< 10
Ethyl Alcohol (Ethanol) (64-17-5)	0 - 10
Ethyl benzene (100-41-4)	< 3
n-Hexane (110-54-3)	0.5 to 4
Methyl-tertiary butyl ether (MTBE) (1634-04-4)	0 to 15.0
Tertiary-amyl methyl ether (TAME) (994-05-8)	0 to 17.2
Toluene (108-88-3)	1 - 25
1,2,4- Trimethylbenzene (95-63-6)	< 6
Xylene, mixed isomers (1330-20-7)	1 - 15

A complex blend of petroleum-derived normal and branched-chain alkane, cycloalkane, alkene, and aromatic hydrocarbons. May contain antioxidant and multifunctional additives. Non-oxygenated Conventional Gasoline and RBOB do not have oxygenates (Ethanol or MTBE and/or TAME). Oxygenated Conventional and Reformulated Gasoline will have oxygenates for octane enhancement or as legally required.

MATERIAL SAFETY DATA SHEET

Gasoline, All Grades

MSDS No. 9950

3. HAZARDS IDENTIFICATION (rev. Dec-97)**EYES**

Moderate irritant. Contact with liquid or vapor may cause irritation.

SKIN

Practically non-toxic if absorbed following acute (single) exposure. May cause skin irritation with prolonged or repeated contact. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are exposed repeatedly.

INGESTION

The major health threat of ingestion occurs from the danger of aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluid in the lungs), severe lung damage, respiratory failure and even death.

Ingestion may cause gastrointestinal disturbances, including irritation, nausea, vomiting and diarrhea, and central nervous system (brain) effects similar to alcohol intoxication. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory arrest, and death may occur.

INHALATION

Excessive exposure may cause irritations to the nose, throat, lungs and respiratory tract. Central nervous system (brain) effects may include headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure, and death.

WARNING: the burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide, and inadequate oxygen levels, which may cause unconsciousness, suffocation, and death.

CHRONIC EFFECTS and CARCINOGENICITY

Contains benzene, a regulated human carcinogen. Benzene has the potential to cause anemia and other blood diseases, including leukemia, after repeated and prolonged exposure. Exposure to light hydrocarbons in the same boiling range as this product has been associated in animal studies with systemic toxicity. See also Section 11 - Toxicological Information.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

Irritation from skin exposure may aggravate existing open wounds, skin disorders, and dermatitis (rash). Chronic respiratory disease, liver or kidney dysfunction, or pre-existing central nervous system disorders may be aggravated by exposure.

4. FIRST AID MEASURES (rev. Dec-97)**EYES**

In case of contact with eyes, immediately flush with clean, low-pressure water for at least 15 min. Hold eyelids open to ensure adequate flushing. Seek medical attention.

SKIN

Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water or waterless hand cleanser. Obtain medical attention if irritation or redness develops.

INGESTION

DO NOT INDUCE VOMITING. Do not give liquids. Obtain immediate medical attention. If spontaneous vomiting occurs, lean victim forward to reduce the risk of aspiration. Small amounts of material which enter the mouth should be rinsed out until the taste is dissipated.

INHALATION

Remove person to fresh air. If person is not breathing, ensure an open airway and provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

MATERIAL SAFETY DATA SHEET

Gasoline, All Grades

MSDS No. 9950

5. FIRE FIGHTING MEASURES (rev. Dec-97)**FLAMMABLE PROPERTIES:**

FLASH POINT: -45 °F (-43°C)
AUTOIGNITION TEMPERATURE: highly variable; > 530 °F (>280 °C)
OSHA/NFPA FLAMMABILITY CLASS: 1A (flammable liquid)
LOWER EXPLOSIVE LIMIT (%): 1.4%
UPPER EXPLOSIVE LIMIT (%): 7.6%

FIRE AND EXPLOSION HAZARDS

Vapors may be ignited rapidly when exposed to heat, spark, open flame or other source of ignition. Flowing product may be ignited by self-generated static electricity. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Being heavier than air, vapors may travel long distances to an ignition source and flash back. Runoff to sewer may cause fire or explosion hazard.

EXTINGUISHING MEDIA

SMALL FIRES: Any extinguisher suitable for Class B fires, dry chemical, CO₂, water spray, fire fighting foam, or Halon.

LARGE FIRES: Water spray, fog or fire fighting foam. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers.

During certain times of the year and/or in certain geographical locations, gasoline may contain MTBE and/or TAME. Firefighting foam suitable for polar solvents is recommended for fuel with greater than 10% oxygenate concentration - refer to NFPA 11 "Low Expansion Foam - 1994 Edition."

FIRE FIGHTING INSTRUCTIONS

Small fires in the incipient (beginning) stage may typically be extinguished using handheld portable fire extinguishers and other fire fighting equipment.

Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH/MSHA- approved pressure-demand self-contained breathing apparatus with full facepiece and full protective clothing.

Isolate area around container involved in fire. Cool tanks, shells, and containers exposed to fire and excessive heat with water. For massive fires the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Major fires may require withdrawal, allowing the tank to burn. Large storage tank fires typically require specially trained personnel and equipment to extinguish the fire, often including the need for properly applied fire fighting foam.

See Section 16 for the NFPA 704 Hazard Rating.

6. ACCIDENTAL RELEASE MEASURES (rev. Dec-97)

ACTIVATE FACILITY SPILL CONTINGENCY or EMERGENCY PLAN.

Evacuate nonessential personnel and remove or secure all ignition sources. Consider wind direction; stay upwind and uphill, if possible. Evaluate the direction of product travel, diking, sewers, etc. to confirm spill areas. Spills may infiltrate subsurface soil and groundwater; professional assistance may be necessary to determine the extent of subsurface impact.

Carefully contain and stop the source of the spill, if safe to do so. Protect bodies of water by diking, absorbents, or absorbent boom, if possible. Do not flush down sewer or drainage systems, unless system is designed and permitted to handle such material. The use of fire fighting foam may be useful in certain situations to reduce vapors. The proper use of water spray may effectively disperse product

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Gasoline, All Grades

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vapors or the liquid itself, preventing contact with ignition sources or areas/equipment that require protection.

Take up with sand or other oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal - caution, flammable vapors may accumulate in closed containers. Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8).

7. HANDLING and STORAGE (rev. Dec-97)**HANDLING PRECAUTIONS**

*****USE ONLY AS A MOTOR FUEL*****

*****DO NOT SIPHON BY MOUTH*****

Handle as a flammable liquid. Keep away from heat, sparks, and open flame! Electrical equipment should be approved for classified area. Bond and ground containers during product transfer to reduce the possibility of static-initiated fire or explosion.

Special slow load procedures for "switch loading" must be followed to avoid the static ignition hazard that can exist when higher flash point material (such as fuel oil) is loaded into tanks previously containing low flash point products (such as this product) - see API Publication 2003, "Protection Against Ignitions Arising Out Of Static, Lightning and Stray Currents.

STORAGE PRECAUTIONS

Keep away from flame, sparks, excessive temperatures and open flame. Use approved vented containers. Keep containers closed and clearly labeled. Empty product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition.

Store in a well-ventilated area. This storage area should comply with NFPA 30 "Flammable and Combustible Liquid Code". Avoid storage near incompatible materials. The cleaning of tanks previously containing this product should follow API Recommended Practice (RP) 2013 "Cleaning Mobile Tanks In Flammable and Combustible Liquid Service" and API RP 2015 "Cleaning Petroleum Storage Tanks".

WORK/HYGIENIC PRACTICES

Emergency eye wash capability should be available in the near proximity to operations presenting a potential splash exposure. Use good personal hygiene practices. Avoid repeated and/or prolonged skin exposure. Wash hands before eating, drinking, smoking, or using toilet facilities. Do not use as a cleaning solvent on the skin. Do not use solvents or harsh abrasive skin cleaners for washing this product from exposed skin areas. Waterless hand cleaners are effective. Promptly remove contaminated clothing and launder before reuse. Use care when laundering to prevent the formation of flammable vapors which could ignite via washer or dryer. Consider the need to discard contaminated leather shoes and gloves.

8. EXPOSURE CONTROLS and PERSONAL PROTECTION (rev. Jan-04)**EXPOSURE LIMITS**

Component (CAS No.)	Source	TWA (ppm)	STEL (ppm)	Exposure Limits	Note
Gasoline (86290-81-5)	ACGIH	300	500	A3	
Benzene (71-43-2)	OSHA	1	5	Carcinogen	
	ACGIH	0.5	2.5	A1, skin	
	USCG	1	5		
n-Butane (106-97-8)	ACGIH	800	--	2003 NOIC: 1000 ppm (TWA) Aliphatic Hydrocarbon Gases Alkane (C1-C4)	
Ethyl Alcohol (ethanol) (64-17-5)	OSHA	1000	--		
	ACGIH	1000	--	A4	
Ethyl benzene (100-41-4)	OSHA	100	--		
	ACGIH	100	125	A3	

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Component (CAS No.)	Source	TWA (ppm)	STEL (ppm)	Exposure Limits	Note
n-Hexane (110-54-3)	OSHA	500	--		
	ACGIH	50	--	skin	
Methyl-tertiary butyl ether [MTBE] (1634-04-4)	ACGIH	50		A3	
Tertiary-amyl methyl ether [TAME] (994-05-8)				None established	
Toluene (108-88-3)	OSHA	200		Ceiling: 300 ppm; Peak: 500 ppm (10 min.)	
	ACGIH	50	--	A4 (skin)	
1,2,4-Trimethylbenzene (95-63-6)	ACGIH	25	--		
Xylene, mixed isomers (1330-20-7)	OSHA	100	--		
	ACGIH	100	150	A4	

ENGINEERING CONTROLS

Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

EYE/FACE PROTECTION

Safety glasses or goggles are recommended where there is a possibility of splashing or spraying.

SKIN PROTECTION

Gloves constructed of nitrile or neoprene are recommended. Chemical protective clothing such as that made of of E.I. DuPont Tychem®, products or equivalent is recommended based on degree of exposure.

Note: The resistance of specific material may vary from product to product as well as with degree of exposure. Consult manufacturer specifications for further information.

RESPIRATORY PROTECTION

A NIOSH-approved air-purifying respirator with organic vapor cartridges or canister may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited. Refer to OSHA 29 CFR 1910.134, NIOSH Respirator Decision Logic, and the manufacturer for additional guidance on respiratory protection selection and limitations.

Use a positive pressure, air-supplied respirator if there is a potential for uncontrolled release, exposure levels are not known, in oxygen-deficient atmospheres, or any other circumstance where an air-purifying respirator may not provide adequate protection.

9. PHYSICAL and CHEMICAL PROPERTIES (rev. Jan-04)

APPEARANCE

A translucent, straw-colored or light yellow liquid

ODOR

A strong, characteristic aromatic hydrocarbon odor. Oxygenated gasoline with MTBE and/or TAME may have a sweet, ether-like odor and is detectable at a lower concentration than non-oxygenated gasoline.

ODOR THRESHOLD

	Odor Detection	Odor Recognition
Non-oxygenated gasoline:	0.5 - 0.6 ppm	0.8 - 1.1 ppm
Gasoline with 15% MTBE:	0.2 - 0.3 ppm	0.4 - 0.7 ppm
Gasoline with 15% TAME:	0.1 ppm	0.2 ppm

BASIC PHYSICAL PROPERTIES

BOILING RANGE:	85 to 437 °F (39 to 200 °C)
VAPOR PRESSURE:	6.4 - 15 RVP @ 100 °F (38 °C) (275-475 mm Hg @ 68 °F (20 °C)
VAPOR DENSITY (air = 1):	AP 3 to 4
SPECIFIC GRAVITY (H ₂ O = 1):	0.70 - 0.78
EVAPORATION RATE:	10-11 (n-butyl acetate = 1)
PERCENT VOLATILES:	100 %

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SOLUBILITY (H₂O):

Non-oxygenated gasoline - negligible (< 0.1% @ 77 °F). Gasoline with 15% MTBE - slight (0.1 - 3% @ 77 °F); ethanol is readily soluble in water

10. STABILITY and REACTIVITY (rev. Dec-94)**STABILITY:** Stable. Hazardous polymerization will not occur.**CONDITIONS TO AVOID**

Avoid high temperatures, open flames, sparks, welding, smoking and other ignition sources

INCOMPATIBLE MATERIALS

Keep away from strong oxidizers.

HAZARDOUS DECOMPOSITION PRODUCTS

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke). Contact with nitric and sulfuric acids will form nitrocresols that can decompose violently.

11. TOXICOLOGICAL PROPERTIES (rev. Dec-97)**ACUTE TOXICITY**

Acute Dermal LD50 (rabbits): > 5 ml/kg

Acute Oral LD50 (rat): 18.75 ml/kg

Primary dermal irritation (rabbits): slightly irritating

Draize eye irritation (rabbits): non-irritating

Guinea pig sensitization: negative

CHRONIC EFFECTS AND CARCINOGENICITY

Carcinogenicity: OSHA: NO

IARC: YES - 2B

NTP: NO

ACGIH: YES (A3)

IARC has determined that gasoline and gasoline exhaust are possibly carcinogenic in humans. Inhalation exposure to completely vaporized unleaded gasoline caused kidney cancers in male rats and liver tumors in female mice. The U.S. EPA has determined that the male kidney tumors are species-specific and are irrelevant for human health risk assessment. The significance of the tumors seen in female mice is not known. Exposure to light hydrocarbons in the same boiling range as this product has been associated in animal studies with effects to the central and peripheral nervous systems, liver, and kidneys. The significance of these animal models to predict similar human response to gasoline is uncertain.

This product contains benzene. Human health studies indicate that prolonged and/or repeated overexposure to benzene may cause damage to the blood-forming system (particularly bone marrow), and serious blood disorders such as aplastic anemia and leukemia. Benzene is listed as a human carcinogen by the NTP, IARC, OSHA and ACGIH.

This product may contain methyl tertiary butyl ether (MTBE): animal and human health effects studies indicate that MTBE may cause eye, skin, and respiratory tract irritation, central nervous system depression and neurotoxicity. MTBE is classified as an animal carcinogen (A3) by the ACGIH.

12. ECOLOGICAL INFORMATION (rev. Jan-04)

Keep out of sewers, drainage areas and waterways. Report spills and releases, as applicable, under Federal and State regulations. If released, oxygenates such as ethers and alcohols will be expected to exhibit fairly high mobility in soil, and therefore may leach into groundwater. The API (www.api.org) provides a number of useful references addressing petroleum and oxygenate contamination of groundwater.

13. DISPOSAL CONSIDERATIONS (rev. Dec-97)

Consult federal, state and local waste regulations to determine appropriate disposal options.

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14. TRANSPORTATION INFORMATION (rev. Jan-04)

DOT PROPER SHIPPING NAME: Gasoline
 DOT HAZARD CLASS and PACKING GROUP: 3, PG II
 DOT IDENTIFICATION NUMBER: UN 1203
 DOT SHIPPING LABEL: FLAMMABLE LIQUID

PLACARD:

**15. REGULATORY INFORMATION** (rev. Jan-04)**U.S. FEDERAL, STATE, and LOCAL REGULATORY INFORMATION**

This product and its constituents listed herein are on the EPA TSCA Inventory. Any spill or uncontrolled release of this product, including any substantial threat of release, may be subject to federal, state and/or local reporting requirements. This product and/or its constituents may also be subject to other federal, state, or local regulations; consult those regulations applicable to your facility/operation.

CLEAN WATER ACT (OIL SPILLS)

Any spill or release of this product to "navigable waters" (essentially any surface water, including certain wetlands) or adjoining shorelines sufficient to cause a visible sheen or deposit of a sludge or emulsion must be reported immediately to the National Response Center (1-800-424-8802) or, if not practical, the U.S. Coast Guard with follow-up to the National Response Center, as required by U.S. Federal Law. Also contact appropriate state and local regulatory agencies as required.

CERCLA SECTION 103 and SARA SECTION 304 (RELEASE TO THE ENVIRONMENT)

The CERCLA definition of hazardous substances contains a "petroleum exclusion" clause which exempts crude oil, refined, and unrefined petroleum products and any indigenous components of such. However, other federal reporting requirements (e.g., SARA Section 304 as well as the Clean Water Act if the spill occurs on navigable waters) may still apply.

SARA SECTION 311/312 - HAZARD CLASSES

<u>ACUTE HEALTH</u>	<u>CHRONIC HEALTH</u>	<u>FIRE</u>	<u>SUDDEN RELEASE OF PRESSURE</u>	<u>REACTIVE</u>
X	X	X	--	--

SARA SECTION 313 - SUPPLIER NOTIFICATION

This product contains the following toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372:

INGREDIENT NAME (CAS NUMBER)	CONCENTRATION WT. PERCENT
Benzene (71-43-2)	0.1 to 4.9 (0.1 to 1.3 for reformulated gasoline)
Ethyl benzene (100-41-4)	< 3
n-Hexane (110-54-3)	0.5 to 4
Methyl-tertiary butyl ether (MTBE) (1634-04-4)	0 to 15.0
Toluene (108-88-3)	1 to 15
1,2,4- Trimethylbenzene (95-63-6)	< 6
Xylene, mixed isomers (1330-20-7)	1 to 15

US EPA guidance documents (www.epa.gov/tri) for reporting Persistent Bioaccumulating Toxics (PBTs) indicate this product may contain the following de minimis levels of toxic chemicals subject to Section 313 reporting:

INGREDIENT NAME (CAS NUMBER)	CONCENTRATION - Parts per million (ppm) by weight
Polycyclic aromatic compounds (PACs)	17
Benzo (g,h,i) perylene (191-24-2)	2.55
Lead (7439-92-1)	0.079

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CANADIAN REGULATORY INFORMATION (WHMIS)

Class B, Division 2 (Flammable Liquid)

Class D, Division 2A (Very toxic by other means) and Class D, Division 2B (Toxic by other means)

16. OTHER INFORMATION (rev. Jan-04)

NFPA® HAZARD RATING

HEALTH:	1	Slight
FIRE:	3	Serious
REACTIVITY:	0	Minimal

HMIS® HAZARD RATING

HEALTH:	1 *	Slight
FIRE:	3	Serious
REACTIVITY:	0	Minimal

* CHRONIC

SUPERSEDES MSDS DATED: 12/30/97**ABBREVIATIONS:**

AP = Approximately < = Less than > = Greater than
 N/A = Not Applicable N/D = Not Determined ppm = parts per million

ACRONYMS:

ACGIH	American Conference of Governmental Industrial Hygienists	NTP	National Toxicology Program
AIHA	American Industrial Hygiene Association	OPA	Oil Pollution Act of 1990
ANSI	American National Standards Institute (212)642-4900	OSHA	U.S. Occupational Safety & Health Administration
API	American Petroleum Institute (202)682-8000	PEL	Permissible Exposure Limit (OSHA)
CERCLA	Comprehensive Emergency Response, Compensation, and Liability Act	RCRA	Resource Conservation and Recovery Act
DOT	U.S. Department of Transportation [General Info: (800)467-4922]	REL	Recommended Exposure Limit (NIOSH)
EPA	U.S. Environmental Protection Agency	SARA	Superfund Amendments and Reauthorization Act of 1986 Title III
HMIS	Hazardous Materials Information System	SCBA	Self-Contained Breathing Apparatus
IARC	International Agency For Research On Cancer	SPCC	Spill Prevention, Control, and Countermeasures
MSHA	Mine Safety and Health Administration	STEL	Short-Term Exposure Limit (generally 15 minutes)
NFPA	National Fire Protection Association (617)770-3000	TLV	Threshold Limit Value (ACGIH)
NIOSH	National Institute of Occupational Safety and Health	TSCA	Toxic Substances Control Act
NOIC	Notice of Intended Change (proposed change to ACGIH TLV)	TWA	Time Weighted Average (8 hr.)
		WEEL	Workplace Environmental Exposure Level (AIHA)
		WHMIS	Workplace Hazardous Materials Information System (Canada)

DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES

Information presented herein has been compiled from sources considered to be dependable, and is accurate and reliable to the best of our knowledge and belief, but is not guaranteed to be so. Since conditions of use are beyond our control, we make no warranties, expressed or implied, except those that may be contained in our written contract of sale or acknowledgment.

Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material, even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in their use of the material.

MSDS SUMMARY SHEET**Manufacturer:****Name:** PHILLIPS PETROLEUM COMPANY**Address 1:****Address 2:****Address 3:****CSZ:** BARTLESVILLE **State:** OK **Zipcode:** 74004**Emergency phone:** (800) 424-9300**Business phone:** 800-762-0942**Product:****Ferndale MSDS#:** 1354 **Version # :** 6**Manufacturer MSDS#:** 0041**Current? :** 2002**Name:****NO. 2 DIESEL FUEL****Synonyms:**

CARB Diesel TF3

CARB Diesel

CARB Diesel 10%

Diesel Fuel Oil

EPA Low Sulfur Diesel Fuel

EPA Low Sulfur Diesel Fuel – Dyed

EPA Off Road High Sulfur Diesel – Dyed

Fuel Oil No. 2 – CAS # 68476-30-2

No. 2 Diesel Fuel Oil

No. 2 Fuel Oil – Non Hiway – Dyed

No. 2 High Sulfur Diesel – Dyed

No. 2 Low Sulfur Diesel - Dyed

No. 2 Low Sulfur Diesel - Undyed

Crude column 3rd IRCrude column 3rd side cutAtmospheric tower 3rd side cut

Ultra Low Sulfur Diesel No. 2

Finished Diesel

DHT Reactor Feed

Straight Run Diesel

Diesel

Middle Distillate

Product/Catalog Numbers:**MSDS Date:** 01/01/2002 (**received:** 01/14/2002)**NFPA codes:****Health:** 0 **Flammability:** 2 **Reactivity:** 0

ITEM - 24**MATERIAL SAFETY DATA SHEET**
No. 2 Diesel Fuel**1. PRODUCT AND COMPANY IDENTIFICATION**

Product Name: No. 2 Diesel Fuel
Product Code: Multiple
SAP Code:
Synonyms: 1354
CARB Diesel TF3
CARB Diesel
CARB Diesel 10%
Diesel Fuel Oil
EPA Low Sulfur Diesel Fuel
EPA Low Sulfur Diesel Fuel – Dyed
EPA Off Road High Sulfur Diesel – Dyed
Fuel Oil No. 2 – CAS # 68476-30-2
No. 2 Diesel Fuel Oil
No. 2 Fuel Oil – Non Hiway – Dyed
No. 2 High Sulfur Diesel – Dyed
No. 2 Low Sulfur Diesel - Dyed
No. 2 Low Sulfur Diesel – Undyed
No. 2 Ultra Low Sulfur Diesel – Dyed
No. 2 Ultra Low Sulfur Diesel - Undyed
Intended Use: Fuel
Chemical Family:
Responsible Party: Phillip's Petroleum Company
Bartlesville, Oklahoma 74004
For Additional MSDSs: 800-762-0942
Technical Information:

The intended use of this product is indicated above. If any additional use is known, please contact us at the Technical Information number listed.

EMERGENCY OVERVIEW**24 Hour Emergency Telephone Numbers:**

Spill, Leak, Fire or Accident
Call CHEMTREC
North America: (800) 424-9300
Others: (703) 527-3887 (collect)

California Poison Control System: 800-356-3120

Health Hazards/Precautionary Measures: Causes severe skin irritation. Aspiration hazard if swallowed. Can enter lungs and cause damage. Use with adequate ventilation. Avoid contact with eyes, skin and clothing. Do not taste or swallow. Wash thoroughly after handling.

Physical Hazards/Precautionary Measures: Flammable liquid and vapor. Keep away from heat, sparks, flames, static electricity or other sources of ignition.

Appearance: Straw-colored to dyed red
Physical Form: Liquid
Odor: Characteristic petroleum

ITEM - 24

HFPA Hazard Class:

Health: 0 (Least)
 Flammability: 2 (Moderate)
 Reactivity: 0 (Least)

HMIS Hazard Class

Not Evaluated

2. COMPOSITION/INFORMATION ON INGREDIENTS

<u>HAZARDOUS COMPONENTS</u>	<u>% VOLUME</u>	<u>Limits</u>	<u>EXPOSURE GUIDELINE</u>	
			<u>Agency</u>	<u>Type</u>
Diesel Fuel No. 2 CAS# 68476-34-6	100	100* mg/m ³	ACGIH	TWA-SKIN
Naphthalene CAS# 91-20-3	<1	10ppm	ACGIH	TWA
		15ppm	ACGIH	STEL
		10ppm	OSHA	TWA
		250ppm	NIOSH	IDLH

All components are listed on the TSCA inventory

Tosco Low Sulfur No. 2 Diesel meets the specifications of 40 CFR 60.41 for low sulfur diesel fuel.

Note: State, local or other agencies or advisory groups may have established more stringent limits. Consult an industrial hygienist or similar professional, or your local agencies, for further information.

*Proposed ACGIH (1999)

3. HAZARDS IDENTIFICATION**Potential Health Effects:**

Eye: Contact may cause mild eye irritation including stinging, watering, and redness.

Skin: Severe skin irritant. Contact may cause redness, itching, burning, and severe skin damage. Prolonged or repeated contact can worsen irritation by causing drying and cracking of the skin, leading to dermatitis (inflammation). Not actually toxic by skin absorption, but prolonged or repeated skin contact may be harmful (see Section 11).

Inhalation (Breathing): No information available. Studies by other exposure routes suggest a low degree of toxicity by inhalation.

Ingestion (Swallowing): Low degree of toxicity by ingestion. ASPIRATION HAZARD – This material can enter lungs during swallowing or vomiting and cause lung inflammation and damage.

Signs and Symptoms: Effects of overexposure may include irritation of the nose and throat, irritation of the digestive tract, nausea, diarrhea and transient excitation followed by signs of nervous system depression (e.g., headache, drowsiness, dizziness, loss of coordination, disorientation and fatigue).

Cancer: Possible skin cancer hazard (see Sections 11 and 14).

Target Organs: There is limited evidence from animal studies that overexposure may cause injury to the kidney (see Section 11).

Developmental: Inadequate data available for this material.

Pre-Existing Medical Conditions: Conditions aggravated by exposure may include skin disorders and kidney disorders.

4. FIRST AID MEASURES

Eye: If irritation or redness develops, move victim away from exposure and into fresh air. Flush eyes with clean water. If symptoms persist, seek medical attention.

Skin: Immediately remove contaminated shoes, clothing, and constrictive jewelry and flush affected area(s) with large amounts of water. If skin surface is damaged, apply a clean dressing and seek immediate medical attention. If skin surface is not damaged, cleanse affected area(s) thoroughly by washing with mild soap and water. If irritation or redness develops, seek immediate medical attention.

Inhalation (Breathing): If respiratory symptoms develop, move victim away from source of exposure and into fresh air. If symptoms persist, seek medical attention. If victim is not breathing, clear airway and immediately begin artificial respiration. If breathing difficulties develop, oxygen should be administered by qualified personnel. Seek immediate medical attention.

Ingestion (Swallowing): Aspiration hazard; Do not induce vomiting or give anything by mouth because this material can enter the lungs and cause severe lung damage. If victim is drowsy or unconscious and vomiting, place on the left side with the head down. If possible, do not leave victim unattended and observe closely for adequacy of breathing. Seek medical attention.

5. FIRE FIGHTING MEASURES

Flammable Properties:

Flash Point: >125°F/>52°

OSHA Flammability Class: Combustible liquid

LEL %: 0.3 / UEL %: 10.0

Autoignition Temperature: 500°F/260°C

Unusual Fire & Explosion Hazards: This material is flammable and can be ignited by heat, sparks, flames, or other sources of ignition (e.g., static electricity, pilot lights, or mechanical/electrical equipment, and electronic devices such as cell phones, computers, calculators, and pagers which have not been certified as intrinsically safe). Vapors may travel considerable distances to a source of ignition where they can ignite, flash back, or explode. May create vapor/air explosion hazard indoors, in confined spaces, outdoors, or in sewers. Vapors are heavier than air and can accumulate in low areas. If container is not properly cooled, it can rupture in the heat of a fire.

Extinguishing Media: Dry chemical, carbon dioxide, or foam is recommended. Water spray is recommended to cool or protect exposed materials or structures. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces. Water may be ineffective for extinguishment, unless used under favorable conditions by experienced fire fighters.

Fire Fighting Instructions: For fires beyond the incipient stage, emergency responders in the immediate hazard area should wear bunker gear. When the potential chemical hazard is unknown, in enclosed or confined spaces, or when explicitly required by DOT, a self contained breathing apparatus should be worn. In addition, wear other appropriate protective equipment as conditions warrant (see Section 8).

Isolate immediate hazard area, keep unauthorized personnel out. Stop spill/release if it can be done with minimal risk. Move undamaged containers from immediate hazard area if it can be done with minimal risk.

Water spray may be useful in minimizing or dispersing vapors and to protect personnel. Cool equipment exposed to fire with water, if it can be done with minimal risk. Avoid spreading burning liquid with water used for cooling purposes.

6. ACCIDENTAL RELEASE MEASURES

Flammable. Keep all sources of ignition and hot metal surfaces away from spill/release. The use of explosion-proof equipment is recommended.

Stay upwind and away from spill/release. Notify persons down wind of the spill/release, isolate immediate hazard area and keep unauthorized personnel out. Stop spill/release if it can be done with minimal risk. Wear appropriate protective equipment including respiratory protection as conditions warrant (see Section 8).

Prevent spilled material from entering sewers, storm drains, other unauthorized drainage systems, and natural waterways. Dike far ahead of spill for later recovery or disposal. Use foam on spills to minimize vapors (see Section 5). Spilled material may be absorbed into an appropriate material.

Notify fire authorities and appropriate federal, state, and local agencies. Immediate cleanup of any spill is recommended. If spill of any amount is made into or upon navigable waters, the contiguous zone, or adjoining shorelines, notify the National Response Center (phone number 800-424-8802).

7. HANDLING AND STORAGE

Handling: Open container slowly to relieve any pressure. Bond and ground all equipment when transferring from one vessel to another. Can accumulate static charge by flow or agitation. Can be ignited by static discharged. The use of explosion-proof equipment is recommended and may be required (see appropriate fire codes). Refer to NFPA-704 and/or API RP 2003 for specific bonding/grounding requirements.

Do not enter confined spaces such as tanks or pits without following proper entry procedures such as ASTM D-4276 and 29CFR 1910.146. The use of appropriate respiratory protection is advised when concentrations exceed any established exposure limits (see Sections 2 and 8).

Do not wear contaminated clothing or shoes. Keep contaminated clothing away from sources of ignition such as sparks or open flames. Use good personal hygiene practices.

High pressure injection of hydrocarbon fuels, hydraulic oils or greases under the skin may have serious consequences even though no symptoms or injury may be apparent. This can happen accidentally when using high pressure equipment such as high pressure grease guns, fuel injection apparatus or from pinhole leaks in tubing or high pressure hydraulic oil equipment.

“Empty” containers retain residue and may be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury or death. “Empty” drums should be completely drained, properly bunged, and promptly shipped to the supplier or a drum reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

Before working on or in tanks which contain or have contained this material, refer to OSHA regulations, ANSI Z49.1 and other references pertaining to cleaning, repairing, welding, or other contemplated operations.

Storage: Keep container(s) tightly closed. Use and store this material in cool, dry, well-ventilated areas away from heat, direct sunlight, hot metal surfaces, and all sources of ignition. Post area “No Smoking or Open Flame.” Store only in approved containers. Keep away from incompatible material (see Section 10). Protect container(s) against physical damage. Outdoor or detached storage is preferred. Indoor storage should meet OSHA standards and appropriate fire codes.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls: If current ventilation practices are not adequate to maintain airborne concentration below the established exposure limits (see Section 2), additional ventilation or exhaust systems may be required. Where explosive mixtures may be present, electrical systems safe for such locations must be used (see appropriate electrical codes).

Personal Protective Equipment (PPE):

Respiratory: A NIOSH certified air purifying respirator with an organic vapor cartridge maybe used under conditions where airborne concentrations are expected to exceed exposure limits (see Section 2).

Protection provided by air purifying respirators is limited (see manufacturer's respirator selection guide). Use a positive pressure air supplied respirator if there is a potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.

A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrants a respirator's use.

Skin: The use of gloves impervious to the specific material handled is advised to prevent skin contact, possible irritation and skin damage (see glove manufacturer literature for information on permeability). Depending on conditions of use, apron and/or arm covers may be necessary.

Eyes/Face: Approved eye protection to safeguard against potential eye contact, irritation, or injury is recommended. Depending on conditions of use, a face shield may be necessary.

Other Protective Equipment: Eye wash and quick-drench shower facilities should be available in the work area. Thoroughly clean shoes and wash contaminated clothing before reuse. It is recommended that impervious clothing be worn when skin contact is possible.

9. PHYSICAL AND CHEMICAL PROPERTIES

Note: Unless otherwise stated, values are determined at 20°C (68°F) and 760 mm Hg (1atm).

Appearance: Straw-colored to dyed red

Physical State: Liquid

Odor: Characteristic petroleum

pH: unavailable

Vapor Pressure (mm Hg): 0.40

Vapor Density (air=1): >3

Boiling Point/Range: 320-700°F /160-371°C

Freezing/Melting Point: No Data

Solubility in Water: Negligible

Specific Gravity: 0.81-0.88 @ 60°F

Percent Volatile: Negligible

Evaporation Rate (nBuAc=1): <1

Viscosity: 32.6-40.0 SUS @ 100°F

Bulk Density: 7.08 lbs/gal

Flash Point: >125°F / >52°C

Flammable/Explosive Limits (%): LEL: 0.3 / UEL: 10.0

10. STABILITY AND REACTIVITY

Stability: Stable under normal ambient and anticipated storage and handling conditions of temperature and pressure. Flammable liquid and vapor. Vapor can cause flash fire.

Conditions To Avoid: Avoid all possible sources of ignition (see Sections 5 and 7).

Materials to Avoid (Incompatible Materials): Avoid contact with strong oxidants such as liquid chlorine, concentrated oxygen, sodium hypochlorite, calcium hypochlorite, etc.

Hazardous Decomposition Products: The use of hydrocarbon fuels in an area without adequate ventilation may result in hazardous levels of combustion products (e.g., oxides of carbon, sulfur and nitrogen, benzene and other hydrocarbons) and/or dangerously low oxygen levels. ACGIH has included a TLV of 0.05 mg/m³ TWA for diesel exhaust particulate on its 1999 Notice of Intended Changes. See Section 11 for additional information on hazards of engine exhaust.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Diesel Fuel No. 2 (CAS# 68476-34-6)

Carcinogenicity: Chronic dermal application of certain middle distillate streams contained in diesel fuel No. 2 resulted in an increased incidence of skin tumors in mice. This material has not been identified as carcinogen by NTP, IARC, or OSHA. Diesel exhaust is a probable cancer hazard based on tests with laboratory animals.

Target Organ(s): Limited evidence of renal impairment has been noted from a few case reports involving excessive exposure to diesel fuel No. 2.

Naphthalene (CAS# 91-20-3)

Carcinogenicity: Naphthalene has been evaluated in two year inhalation studies in both rats and mice. The National Toxicology Program (NTP) concluded that there is clear evidence of carcinogenicity in male and female rats based on increased incidences of respiratory epithelial adenomas and olfactory epithelial neuroblastomas of the nose. NTP found some evidence of carcinogenicity in female mice (alveolar adenomas) and no evidence of carcinogenicity in male mice. Naphthalene has not been identified as a carcinogen by IARC or OSHA.

12. ECOLOGICAL INFORMATION

Not evaluated at this time

13. DISPOSAL CONSIDERATIONS

This material, if discarded as produced, would be a RCRA "characteristic" hazardous waste due to the characteristic(s) of ignitability (D001) and benzene (D018). If the material is spilled to soil or water, characteristic testing of the contaminated materials is recommended. Further, this material, once it becomes a waste, is subject to the land disposal restrictions in 40 CFR 268.40 and may require treatment prior to disposal to meet specific standards. Consult state and local regulations to determine whether they are more stringent than the federal requirements.

Container contents should be completely used and containers should be emptied prior to discard. Container ?insate? could be considered a RCRA hazardous waste and must be disposed of with care and in compliance with federal, state and local regulations. Large empty containers, such as drums, should be returned to the distributor or to a drum reconditioner. To assure proper disposal of smaller containers, consult with state and local regulations and disposal authorities.

14. TRANSPORT INFORMATION

DOT Shipping Description: Diesel Fuel, NA1983
Non-Bulk Package Marking: Diesel Fuel, 3, NA 1993, III

15. REGULATORY INFORMATION

EPA SARA 311/312 (Title III Hazard Categories):

Acute Health:	Yes
Chronic Health:	Yes
Fire Hazard:	Yes
Pressure Hazard:	No
Reactive Hazard:	No

SARA 313 and 40 CFR 372:

This material contains the following chemicals subject to the reporting requirements of SARA 313 and 40 CFR 372:

Component	CAS Number	Weight %
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-- None known --

California Proposition 65:

Warning: This material contains the following chemicals which are known to the state of California to cause cancer, birth defects or other reproductive harm, and are subject to the requirements of California Proposition 65 (CA Health & Safety Code Section 25249.5):

Component	Effect
Benzene	Cancer, Developmental and Reproductive Toxicant
Toluene	Developmental Toxicant

Diesel engine exhaust, while not a component of this material, is on the Proposition 65 list of chemicals known to the State of California to cause cancer.

Carcinogen Identification:

This material has not been identified as a carcinogen by NTP, IARC, or OSHA. See Section 11 for carcinogenicity information of individual components, if any. Diesel exhaust is a probable cancer hazard based on tests in laboratory animals. It has been identified as carcinogen by IARC.

EPA (CERCLA Reportable Quantity): None

16. OTHER INFORMATION

Issue Date: 01/01/02

Previous Issue Date: 05/15/01

Product Code: Multiple

Revised Sections: None

Previous Product Code: Multiple

MSDS Number: 0041

Disclaimer of Expressed and Implied Warranties:

The information presented in this Material Data Safety Sheet is based on data believed to be accurate as of the date this Material Data Sheet was prepared. HOWEVER, NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY OTHER WARRANTY IS EXPRESSED OR IS TO BE IMPLIED REGARDING THE ACCURACY OR COMPLETENESS OF THE INFORMATION PROVIDED ABOVE, THE RESULTS TO BE OBTAINED FROM THE USE OF THIS INFORMATION OR THE PRODUCT, THE SAFETY OF THE PRODUCT, OR THE HAZARDS RELATED TO ITS USE. No responsibility is assumed for any damage or injury resulting from abnormal use or from any failure to adhere to recommended practices. The information provided above, and the product, are furnished on the condition that the person receiving them shall make their own determination as to the suitability of the product for their particular purpose and on the condition that they assume the risk of their use. In addition, no authorization is given nor implied to practice any patented invention without a license.

Tosco Refining Company**Ferndale Refinery****UltraLow Sulfur Diesel Product Specification**

Ferndale Product Code:34380xx (5) Product Code: ULSD2

(COMETS)

Specification	Unit	Limit	Test Procedure	Typical
Appearance				
Water & Sediment	Vol %	0.05 Max	D 2709	
Color	Number	3.0 Max	D 1500	
Haze Rating	Rating	2 Max	D 4176	
Composition				
Carbon Residue (Ramsbottom)	Wt %	0.35 Max	D 524, D 189	
Volatility				
90% Recovered	Deg; F	540 Min	D 86	
	Deg; F	640 Min	D 86	
Flash Point	Deg; F	125 Min (1)	D 93	130 F
Gravity	API	30 Min	D 287, D4052	
Fluidity				
Pour Point	Deg; F	See Season Table (6)	D 97	
Cloud Point	Deg; F	See Season Table (6)	D 2500	10 F
Viscosity @ 104F	cSt	1.9 Min	D 445	
	cSt	4.1 Max	D 445	
Lubricity, SLBOCLE	grams	3100 Min	D 6078	3300gm
Lubricity, HFRR	mm	.45	D 6079	
Combustion				
Cetane Index or Cetane Number (3,4)	Number	40.0 Min	D 976, D613	47.0
Corrosion				
Copper Strip, 3hr @ 50 deg C	Number	3 Max (2)	D 130	
Aromatics (4)	Vol %	35 Max	D 1319	25 %
Contaminants				
Total Sulfur	PPM	30 Max	D 2622, D4294	15-20ppm
Water & Sediment	Vol %	0.05 Max	D 1796	
Ash	Wt %	0.01 Max	D 482	
Additives				
Cetane Improver	Lb/MBbl	675 Max		
Dye		Undyed		

1. Minimum release specification is 125 deg. F. The refinery should target 135 deg. F.
2. Test result reported as a number and letter (e.g. 1a). Any letter is allowable as long as the number meets the spec shown.
3. Either specification must be met.
4. Either cetane index minimum or aromatics maximum must be met.
5. Winter cloud and pour specifications may be relaxed to the summer specifications by agreement with the customer.
6. Season Table

Month	Product Code	Pour Point	Cloud Point
Jan, Feb, Nov, Dec	WI	0 max (5)	14 max (5)
Mar - Oct	SU	15 max	24 max



MATERIAL SAFETY DATA SHEET

Clear Choice Automotive Premixed Antifreeze (50/50)

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product/Chemical Name: Clear Choice NT™, XL™ and Tokyo Red™ Antifreeze
Product Description: Ethylene Glycol, Ethylene Glycol Solution, Coolant (50/50)
Chemical Family: Inhibited Ethylene Glycol and Water Solution
CAS Registry: Mixture
Manufacturer: Clear Choice
 9009 Quince St, Unit C
 Henderson CO 80640
 303-227-9900

SECTION 2 - COMPOSITION / INFORMATION ON INGREDIENTS

INGREDIENT	CAS No	WT. RANGE %	EXPOSURE LIMIT
*1,2-ethanediol (Ethylene Glycol)	107-21-1	46-51%	50ppm Ceiling-ACGIH
Diethylene glycol	11-46-6	0-3%	None established
Proprietary Additives and Inhibitors	Not applicable	<1%	Not applicable
Dye	Not applicable	<1%	Not applicable
Water	7732-18-5	Balance	Not applicable

*Hazardous according to OSHA (1910.1200) or one or more state Right-to-Know lists.

SECTION 3 - HAZARDOUS IDENTIFICATION

Health: 1
Flammability: 0
Reactivity: 0
Special: None
 0 = minimal 1= slight 2=moderate 3= serious 4= severe

Route(s) of Entry

Inhalation: Yes
Skin: Yes
Ingestion: Yes
Eyes: Yes
Target Organs: Kidneys and Liver

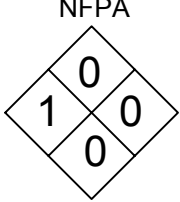
Effects of overexposure:

Acute: Eyes: May cause minimal irritation, experienced as temporary discomfort.

HMIS	
H #	1
F #	0
R #	0
PPE†	
†Sec. 8	

Effects of overexposure (con't)	Acute:	
	Skin:	Brief contact is not irritating. Prolonged contact, as with clothing wetted with material may cause defatting of skin or irritation, seen as local redness with possible mild discomfort. Other than the potential skin irritation effects noted above, acute (short term) adverse effects are not expected from brief skin contact.
	Inhalation:	Vapors or mist, in excess of permissible concentrations, or in unusually high concentrations generated from spraying, heating the material or as from exposure in poorly ventilated areas or confined spaces, may cause irritation of the nose and throat, headache, nausea, and drowsiness. Prolonged or repeated overexposure may result in the absorption of potentially harmful amounts of material.
	Ingestion:	Contains ethylene glycol and/or diethylene glycol, which are toxic when swallowed. A lethal dose for an adult is 1-2 ml per kilogram, or about 4 ounces (one-half cup). Symptoms include headache, weakness, confusion, dizziness, staggering, slurred speech, loss of concentration, faintness, nausea and vomiting, increased heart rate, decreased blood pressure, difficulty breathing and seeing, pulmonary edema, unconsciousness, convulsions, collapse and coma. Symptoms may be delayed. Decreased urine output and kidney failure may also occur. Severe poisoning may cause death. Aspiration may occur during swallowing or vomiting, resulting in lung damage.
Sensitization Properties:		Unknown
Signs and Symptoms of Exposure:		See above "Effects of Overexposure."
Medical Conditions Generally Aggravated by Long-Term Exposure:		
Chronic Effects:		Repeated overexposure may aggravate existing kidney disease. Repeated ingestion may cause kidney damage
Carcinogenicity		
NTP:		Not listed
IARC Monographs:		Not listed
OSHA Regulations:		Not listed
ACGIH		Not listed
SECTION 4 - FIRST AID MEASURES		
Emergency and First Aid Procedures:	Eye contact:	Immediately flush with large quantities of water for at least 15 minutes and
	Skin contact:	Remove excess with cloth or paper towel. Wash thoroughly with soap and water. If irritation persists, get medical attention.
	Ingestion:	Immediately contact a physician, poison control center or emergency treatment center. DO NOT induce vomiting.
	Inhalation:	Aspiration Hazard: Product may be inhaled into lungs if vomited. Remove to fresh air. Restore and/or support breathing as required. Keep victim warm and at rest.
Note to Physicians:		Treat symptomatically
Special Precautions/Procedures:		None known

SECTION 5 - FIRE-FIGHTING MEASURES

Unusual Fire Fighting procedures:	None known	
Flash Point:	None at this dilution	
Flash Point Method:	Not applicable	
Burning Rate:	Not applicable	
Autoignition Temperature:	Not determined	
Flammable limits in air (% by volume):		
LEL:	Not determined	
UEL:	Not determined	
Flammability Classification:	Does not burn, but can emit fumes in a fire.	
Extinguishing Media:	For large fires use alcohol-type or all purpose foam. For small fires use water spray, dry chemical, foam or carbon dioxide to extinguish.	
Unusual Fire or Explosion Hazards:	None known	
Fire-Fighting Instructions:	According to the National Fire Protection Association Guide, use water spray, dry chemical, foam or carbon dioxide. A direct stream of water or foam may cause frothing. Use water spray to disperse the vapors and to provide protection for person attempting to stop the leak.	
Fire-Fighting Equipment:	Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode.	
Unusual Fire Fighting procedures:	Not required	
Other Information:	Products evolved when subjected to heat or combustion: carbon monoxide and carbon dioxide may be formed on burning in limited air supply.	

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Spill/Leak Procedures:	Ventilate area. Avoid breathing vapor. Wear appropriate personal protective equipment, including appropriate respiratory protection. Contain spill if possible. Wipe up or absorb on suitable material and shovel up. Prevent entry into sewers and waterways. Avoid contact with skin, eyes or clothing.
Regulatory Requirements:	If more than 10,539 pounds of product is spilled, then report spill according to SARA 304 and/or CERCLA 102(a) requirements, unless product qualifies for petroleum exemption (CERCLA Section 101 (14)).

SECTION 7 - HANDLING AND STORAGE

Handling Precautions	Minimum feasible handling temperatures should be maintained. Empty containers contain product residue and may be dangerous.
Storage Requirements:	Periods of exposure to high temperature should be minimized. Water contamination should be avoided. Keep containers away from open flames. ETHYLENE GLYCOL BASE – Ethylene Glycol has produced birth defects in rodents. Do not store near food.

SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

Ventilation:	Normal to maintain exposure below TLV
Permissible Concentrations in Air:	10mg/cubic meter for particulate mist; 50 ppm (125 mg/cubic meter) ceiling limit for Ethylene Glycol (ACGIH 1984-1985)
Respiratory Protection:	Supplied air respiratory protection for cleaning large spills or upon entry into tanks, vessels, or other confined spaces. Use a NIOSH approved organic vapor and gas respirator with mist filter.
Eye Protection:	Chemical type goggles or face shield optional.
Protective Clothing/Equipment:	Wear chemically protective gloves, boots, aprons, and gauntlets to prevent prolonged or repeated skin contact. Wear protective eyeglasses or chemical safety goggles.
Work and Hygienic Practices:	Exposed employees should exercise reasonable personal cleanliness; this includes cleansing exposed skin areas several times daily with soap and water, and laundering or dry cleaning soiled work clothing at least weekly.

Safety Stations:	Make emergency eyewash stations, safety/quick-drench showers, and washing
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--- FOR DISCLAIMER OF LIABILITY SEE FINAL PAGE ---

MSDS: Premixed Automotive Antifreeze (50/50)

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Contaminated Equipment:	facilities available in work area. Separate contaminated work clothes from street clothes. Launder before reuse. Remove this material from your shoes and clean personal protective equipment.
Comments:	Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance and odor:	Clear liquid with a mild odor (may contain dye in one of several colors).
Boiling Point (760 mm Hg):	325°F
Freezing/Melting Point:	-34°F
Specific Gravity (water =1):	1.110-1.125
Vapor Density (air =1):	1.8
Percent Volatile by Volume:	NIL
Evaporation Rate (butyl acetate =1):	Not determined
Solubility in Water (% by wt):	100%
Vapor Pressure (at 20°C):	18mm Hg.
pH:	10-11
Viscosity SUS @ 100°F	Less than 20cst

SECTION 10 - STABILITY AND REACTIVITY

Stability:	Stable
Polymerization:	Does not occur
Chemical Incompatibilities:	Normally unreactive, but try to avoid strong oxidizers, strong acids and strong bases at high temperatures.
Conditions to Avoid:	High temperatures above 413°C (775°F) (product can decompose)
Hazardous decomposition products:	Carbon dioxide, carbon monoxide

SECTION 11 - TOXICOLOGICAL INFORMATION

Eye Effects:	Believed to cause slight eye irritation.
Skin Effects:	Can be irritating to skin upon prolonged contact
Acute Inhalation Effects:	Drowsiness, narcosis, and unconsciousness possible upon exposure to high concentrations in poorly ventilated confined spaces.
Acute Oral Effects:	Can cause irritation to mouth, throat and stomach
Chronic Effects:	Liver and kidney damage in a 2 year rat feeding study using 1-2% Ethylene Glycol. Oral administration of very high doses of Ethylene Glycol produced birth defects in laboratory animals.
Carcinogenicity:	Neither product nor its ingredients are listed by IARC, NTD or OSHA
Mutagenicity:	Not mutagenic
Teratogenicity:	Not Teratogenic

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity:	Oral: Believed to be 4.7-8.5 g/kg (rat); moderately toxic Inhalation: Not determined. Dermal: Believed to be 1-3 g/kg (rabbit); slightly toxic Other: Not determined. Irritation Index/Estimation of Irritation (Species) Skin: Believed to be 0.5-1.8/8.0 (rabbit); slightly irritating Eyes: Believed to be 15-25/110 (rabbit); slightly irritating
Soil Absorption/Mobility:	Not determined

SECTION 13 - DISPOSAL CONSIDERATIONS

Waste Disposal Method:	Dispose of waste in accordance with Federal, State and Local laws.
Disposal Regulatory Requirements:	Under RCRA, it is the responsibility of the user of products to determine, at the time of disposal, whether product meets RCRA criteria for hazardous waste. This is because product uses transformations, mixture, processes, etc., may render the resulting material hazardous (see waste classification)
Container Cleaning and Disposal:	Containers should be cleaned of residual product before disposal, and disposed of in accordance with all applicable laws and regulations.

SECTION 14 - TRANSPORT INFORMATION

DOT Proper Shipping Name:	Not regulated unless shipping container holds at least 5,000 lbs (~535 gal.).
Shipping Symbols:	Not applicable
Hazard Class:	Not applicable
UN Number:	Not regulated unless shipping container holds at least 5,000 lbs (~535 gal.).
Packing Group:	Not applicable
Label:	Not applicable
Special Provisions (172.102):	Not applicable
Bulk Shipments	
DOT Proper Shipping Name:	Environmentally hazardous substance, liquid, n.o.s. (Ethylene glycol)
UN Number:	UN 3082
Label Requirement:	Class 9, UN 3082

SECTION 15 - REGULATORY INFORMATION

EPA Regulations

RCRA Hazardous Waste Number and RCRA Hazardous Waste Classification:	Unused product is not classified as a hazardous waste by RCRA criteria
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CERCLA Hazardous Substance and CERCLA Reportable Quantity:	Does not contain any ingredients listed as a CERCLA hazardous substance.
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SARA Toxic Chemical and SARA EHS:	Contains following substance which is listed in Title III: Ethylene Glycol. SARA 313 Information: SARA Hazard Category: An immediate health hazard A delayed health hazard
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OSHA Regulations:

State Regulations

Other:	All components listed on both TSCA (USA) and DSL (Canada) inventory. CANADIAN WHMIS CLASSIFICATION: Class D, Division 2, Subdivision B (A toxic material causing other chronic effects)
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SECTION 16 - OTHER INFORMATION

Additional Hazard Rating Systems: None

Disclaimer: THE INFORMATION GIVEN HEREIN IS GIVEN IN GOOD FAITH AND FROM SOURCES WE BELIEVE RELIABLE. BUT NO WARRANTY, EXPRESS OR IMPLIED, REGARDING ITS CORRECTNESS IS MADE.

The conditions or methods of handling, storage, use and disposal of this product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of this product.

This MSDS was prepared and is to be used only for this product. If the product is used as a component in another product, this MSDS information may not apply.

CONSULT Company listed in Section 1. FOR FURTHER INFORMATION.

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Material Safety Data Sheet

Havoline® Motor Oil

MSDS: 8599 Revision #: 1 Revision Date: 9/13/2002

Click here to search the [product data sheet](#) database

Material Safety Data Sheet

24-Hour Emergency Telephone Numbers

HEALTH : ChevronTexaco Emergency Information Center (800) 231-0623 or (510) 231-0623

TRANSPORTATION : CHEMTREC (800) 424-9300 or (703) 527-3887

Emergency Information Centers are located in the U.S.A. International collect calls accepted.

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Havoline® Motor Oil

Product Number(s): CPS222190, CPS222191, CPS222193, CPS222194, CPS222195, CPS222196, CPS222197

Synonyms: Havoline® Motor Oil SAE 5W-20, Havoline® Motor Oil SAE 5W-30, Havoline® Motor Oil SAE 10W-30, Havoline® Motor Oil SAE 10W-40, Havoline® Motor Oil SAE 20W-50, Havoline® Motor Oil SAE 30, Havoline® Motor Oil SAE 40

Company Identification

ChevronTexaco Global Lubricants
6001 Bollinger Canyon Road
San Ramon, CA 94583
United States of America

Product Information

Product Information: 800-LUBE-TEK
email : lubemsds@chevron.com

SECTION 2 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	AMOUNT
Highly refined mineral oil (C15 - C50)	Mixture	75 - 94.99 %weight

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Additives including	Mixture	10 - 24.99 %weight
Zinc dialkyldithiophosphate	68649-42-3	1 - 2.99 %weight

SECTION 3 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

IMMEDIATE HEALTH EFFECTS**Eye:** Not expected to cause prolonged or significant eye irritation.**Skin:** Contact with the skin is not expected to cause prolonged or significant irritation. Not expected to be harmful to internal organs if absorbed through the skin.**Ingestion:** Not expected to be harmful if swallowed.**Inhalation:** Not expected to be harmful if inhaled. Contains a petroleum-based mineral oil. May cause respiratory irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended mineral oil mist exposure limit. Symptoms of respiratory irritation may include coughing and difficulty breathing.**SECTION 4 FIRST AID MEASURES****Eye:** No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.**Skin:** No specific first aid measures are required. As a precaution, remove clothing and shoes if contaminated. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.**Ingestion:** No specific first aid measures are required. Do not induce vomiting. As a precaution, get medical advice.**Inhalation:** No specific first aid measures are required. If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.**SECTION 5 FIRE FIGHTING MEASURES****FIRE CLASSIFICATION:**

OSHA Classification (29 CFR 1910.1200): Not classified by OSHA as flammable or combustible.

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0**FLAMMABLE PROPERTIES:****Flashpoint:** (Cleveland Open Cup) 392 °F (200 °C) (Min)**Autoignition:** NDA**Flammability (Explosive) Limits (% by volume in air):** Lower: NA Upper: NA**EXTINGUISHING MEDIA:** Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.**PROTECTION OF FIRE FIGHTERS:****Fire Fighting Instructions:** This material will burn although it is not easily ignited. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.**Combustion Products:** Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be**ITEM - 26**

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evolved when this material undergoes combustion. Combustion may form oxides of: Calcium, Sulfur, Zinc, Boron, Molybdenum, Nitrogen.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Eliminate all sources of ignition in vicinity of spilled material.

Spill Management: Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.

Reporting: Report spills to local authorities and/or the U.S. Coast Guard's National Response Center at (800) 424-8802 as appropriate or required.

SECTION 7 HANDLING AND STORAGE

Precautionary Measures: Keep out of the reach of children.

General Handling Information: Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.

Static Hazard: Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating an accumulation of electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures. For more information, refer to OSHA Standard 29 CFR 1910.106, 'Flammable and Combustible Liquids', National Fire Protection Association (NFPA 77, 'Recommended Practice on Static Electricity', and/or the American Petroleum Institute (API) Recommended Practice 2003, 'Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents'.

Container Warnings: Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION**GENERAL CONSIDERATIONS:**

Consider the potential hazards of this material (see Section 3), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

Special note: Do not use in breathing air apparatus or medical equipment.

ENGINEERING CONTROLS:

Use in a well-ventilated area.

PERSONAL PROTECTIVE EQUIPMENT

Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.

Skin Protection: No special protective clothing is normally required. Where splashing is possible, select

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protective clothing depending on operations conducted, physical requirements and other substances. Suggested materials for protective gloves include: 4H (PE/EVAL), Nitrile Rubber, Silver Shield, Viton.

Respiratory Protection: No respiratory protection is normally required.

If user operations generate an oil mist, determine if airborne concentrations are below the occupational exposure limit for mineral oil mist. If not, wear an approved respirator that provides adequate protection from the measured concentrations of this material. For air-purifying respirators use a particulate cartridge.

Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

Occupational Exposure Limits:

Component	Limit	TWA	STEL	Ceiling	Notation
Highly refined mineral oil (C15 - C50)	ACGIH_TLV	5 mg/m3	10 mg/m3		
Highly refined mineral oil (C15 - C50)	OSHA_PEL	5 mg/m3			

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

Color: Amber

Physical State: liquid

Odor: NDA

pH: NA

Vapor Pressure: <0.01 mmHg @ 100 °C

Vapor Density (Air = 1): >1

Boiling Point: >600 °F (>315 C)

Solubility: Soluble in hydrocarbons; insoluble in water

Freezing Point: NA

Melting Point: NA

Specific Gravity: 0.86 - 0.88 @ 15.6 °C / 15.6 °C

Viscosity: 8.3 cSt - 18.6 cSt @ 100 °C (Min)

SECTION 10 STABILITY AND REACTIVITY

Chemical Stability: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

Incompatibility With Other Materials: May react with strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

Hazardous Decomposition Products: Hydrogen Sulfide (Elevated temperatures)

Hazardous Polymerization: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION**IMMEDIATE HEALTH EFFECTS**

Eye Irritation: The eye irritation hazard is based on evaluation of data for similar materials or product components.

Skin Irritation: The skin irritation hazard is based on evaluation of data for similar materials or product

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components.

Skin Sensitization: No product toxicology data available.

Acute Dermal Toxicity: The acute dermal toxicity hazard is based on evaluation of data for similar materials or product components.

Acute Oral Toxicity: The acute oral toxicity hazard is based on evaluation of data for similar materials or product components.

Acute Inhalation Toxicity: The acute inhalation toxicity hazard is based on evaluation of data for similar materials or product components.

ADDITIONAL TOXICOLOGY INFORMATION:

This product contains petroleum base oils which may be refined by various processes including severe solvent extraction, severe hydrocracking, or severe hydrotreating. None of the oils requires a cancer warning under the OSHA Hazard Communication Standard (29 CFR 1910.1200). These oils have not been listed in the National Toxicology Program (NTP) Annual Report nor have they been classified by the International Agency for Research on Cancer (IARC) as; carcinogenic to humans (Group 1), probably carcinogenic to humans (Group 2A), or possibly carcinogenic to humans (Group 2B).

During use in engines, contamination of oil with low levels of cancer-causing combustion products occurs. Used motor oils have been shown to cause skin cancer in mice following repeated application and continuous exposure. Brief or intermittent skin contact with used motor oil is not expected to have serious effects in humans if the oil is thoroughly removed by washing with soap and water.

SECTION 12 ECOLOGICAL INFORMATION**ECOTOXICITY**

The toxicity of this material to aquatic organisms has not been evaluated. Consequently, this material should be kept out of sewage and drainage systems and all bodies of water.

ENVIRONMENTAL FATE

This material is not expected to be readily biodegradable.

SECTION 13 DISPOSAL CONSIDERATIONS

Oil collection services are available for used oil recycling or disposal. Place contaminated materials in containers and dispose of in a manner consistent with applicable regulations. Contact your sales representative or local environmental or health authorities for approved disposal or recycling methods. (See B.C. Reg. GY/92 Waste Management Act; R.R.O. 1990, Reg. 347 General-Waste Management; C.C.S.M.c. W40 The Waste Reduction and Prevention Act; N.S. Reg. 51/95 and N.S. Reg. 179/96 for examples of Provincial legislation.)

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

DOT Shipping Name: NOT REGULATED AS A HAZARDOUS MATERIAL FOR TRANSPORTATION UNDER 49 CFR

DOT Hazard Class: NOT APPLICABLE

DOT Identification Number: NOT APPLICABLE

DOT Packing Group: NOT APPLICABLE

Additional Information: NOT HAZARDOUS BY U.S. DOT. ADR/RID HAZARD CLASS NOT APPLICABLE.

SECTION 15 REGULATORY INFORMATION**ITEM - 26**

SARA 311/312 CATEGORIES:

1. Immediate (Acute) Health Effects:	NO
2. Delayed (Chronic) Health Effects:	NO
3. Fire Hazard:	NO
4. Sudden Release of Pressure Hazard:	NO
5. Reactivity Hazard:	NO

REGULATORY LISTS SEARCHED:

4_I1=IARC Group 1	15=SARA Section 313
4_I2A=IARC Group 2A	16=CA Proposition 65
4_I2B=IARC Group 2B	17=MA RTK
05=NTP Carcinogen	18=NJ RTK
06=OSHA Carcinogen	19=DOT Marine Pollutant
09=TSCA 12(b)	20=PA RTK

The following components of this material are found on the regulatory lists indicated.

Zinc dialkyldithiophosphate	15
-----------------------------	----

CERCLA REPORTABLE QUANTITIES(RQ)/SARA 302 THRESHOLD PLANNING QUANTITIES(TPQ):

Component	Component RQ	Component TPQ	Product RQ
Zinc dialkyldithiophosphate	1 lbs	None	98 lbs

CHEMICAL INVENTORIES:

CANADA: All the components of this material are on the Canadian DSL or have been notified under the New Substance Notification Regulations, but have not yet been published in the Canada Gazette.

EUROPEAN UNION: All the components of this material are in compliance with the EU Seventh Amendment Directive 92/32/EEC.

UNITED STATES: All of the components of this material are on the Toxic Substances Control Act (TSCA) Chemical Inventory.

NEW JERSEY RTK CLASSIFICATION:

Under the New Jersey Right-to-Know Act L. 1983 Chapter 315 N.J.S.A. 34:5A-1 et. seq., the product is to be identified as follows:

PETROLEUM OIL (Motor oil)

WHMIS CLASSIFICATION:

This product is not considered a controlled product according to the criteria of the Canadian Controlled Products Regulations.

SECTION 16 OTHER INFORMATION

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0

ITEM - 26**HMIS RATINGS:** Health: 1 Flammability: 1 Reactivity: 0

(0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme, PPE:- Personal Protection Equipment Index recommendation, *- Chronic Effect Indicator). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA) or the National Paint and Coating Association (for HMIS ratings).

REVISION STATEMENT: This revision corrects the Product name. Other changes have been made throughout this Material Safety Data Sheet. Please read the entire document.

ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:

TLV	-	Threshold Limit Value	TWA	-	Time Weighted Average
STEL	-	Short-term Exposure Limit	PEL	-	Permissible Exposure Limit
			CAS	-	Chemical Abstract Service Number
NDA	-	No Data Available	NA	-	Not Applicable
<=	-	Less Than or Equal To	>=	-	Greater Than or Equal To

Prepared according to the OSHA Hazard Communication Standard (29 CFR 1910.1200) and the ANSI MSDS Standard (Z400.1).

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

ITEM - 26

Material Safety Data Sheet



Sulfuric Acid

ITEM - 27

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Sulfuric Acid

OTHER/GENERIC NAMES: Battery acid

PRODUCT USE: Industrial

MANUFACTURER: General Chemical Corporation
90 East Halsey Road
Parsippany, NJ 07054

FOR MORE INFORMATION CALL: 973-515-1840
(Monday-Friday, 9:00am-4:30pm)

IN CASE OF EMERGENCY CALL: 800-631-8050
(24 Hours/Day, 7 Days/Week)

2. COMPOSITION/INFORMATION ON INGREDIENTS

<u>INGREDIENT NAME</u>	<u>CAS NUMBER</u>	<u>WEIGHT %</u>
Sulfuric acid	7664-93-9	>51
Water	7732-18-5	Balance

Trace impurities and additional material names not listed above may appear in Section 15 of this MSDS. These materials may be listed for local "Right-To-Know" compliance and for other reasons.

OSHA Hazard Communication Standard: *This product is considered hazardous under the OSHA Hazard Communication Standard.*

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: Oily, colorless to slightly yellow, clear to turbid liquid. Odorless. Causes severe skin burns. Causes severe eye burns. Causes burns of the mouth, throat, and stomach.

POTENTIAL HEALTH HAZARDS

SKIN: Causes severe burns.

EYES: Liquid contact can cause irritation, corneal burns, and conjunctivitis. May result in severe or permanent injury. May cause blindness.

INHALATION: Inhalation of fumes or acid mist can cause irritation or corrosive burns to the upper respiratory system, including the nose, mouth and throat. May irritate the lungs. May cause pulmonary edema.

INGESTION: Causes burns of the mouth, throat and stomach. May be fatal if swallowed. Hazards are also applicable to dilute solutions.

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MATERIAL SAFETY DATA SHEET

Sulfuric Acid

DELAYED EFFECTS: Erosion of teeth, lesions of the skin, tracheo-bronchitis, mouth inflammation, conjunctivitis and gastritis. IARC and NTP have classified "strong inorganic acid mists containing sulfuric acid" as a known human carcinogen. This classification is for inorganic acid mists only and does not apply to sulfuric acid or sulfuric acid solutions. The basis for the classifications rests on several epidemiology studies which have several deficiencies. These studies did not account for exposure to other substances, some known to be animal or potential human carcinogens, social influences (smoking or alcohol consumption) and included small numbers of subjects. Based on the overall weight of evidence from all human and chronic animal studies, no definitive causal relationship between sulfuric acid mist exposure and respiratory tract cancer has been shown.

Ingredients found on one of the three OSHA designated carcinogen lists are listed below.

<u>INGREDIENT NAME</u>	<u>NTP STATUS</u>	<u>IARC STATUS</u>	<u>OSHA LIST</u>
Sulfuric acid	Known carcinogen – sulfuric acid mist	1-Known carcinogen – sulfuric acid mist	Not listed

4. FIRST AID MEASURES

- SKIN:** Immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing while washing. Get medical attention immediately.
- EYES:** Immediately flush eyes with large amounts of water for at least 15 minutes. Get immediate medical attention.
- INHALATION:** If inhaled, remove to fresh air. If not breathing give artificial respiration, preferably mouth-to-mouth. If breathing is difficult give oxygen. Get medical attention.
- INGESTION:** If swallowed, do NOT induce vomiting. Give victim two glasses of water. Call a physician immediately. Never give anything by mouth to an unconscious person.
- ADVICE TO PHYSICIAN:** Treat symptomatically.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES

FLASH POINT:	Not applicable.
FLASH POINT METHOD:	Not applicable.
AUTOIGNITION TEMPERATURE:	Not applicable.
UPPER FLAME LIMIT (volume % in air):	Not applicable.
LOWER FLAME LIMIT (volume % in air):	Not applicable.
FLAME PROPAGATION RATE (solids):	Not applicable.
OSHA FLAMMABILITY CLASS:	Not flammable.

EXTINGUISHING MEDIA:

Water spray or fog may be used to knock down corrosive vapor cloud. Water may be applied to the sides of the containers exposed to flames provided the water does not come in contact with the tank contents.

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MATERIAL SAFETY DATA SHEET

Sulfuric Acid

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UNUSUAL FIRE AND EXPLOSION HAZARDS:

Flammable and potentially explosive hydrogen gas can be generated inside metal drums and storage tanks. Concentrated sulfuric acid can ignite combustible materials on contact.

SPECIAL FIRE FIGHTING PRECAUTIONS/INSTRUCTIONS:

Do not use solid water streams near ruptured tanks or spills of sulfuric acid. Acid reacts violently with water and can spatter acid onto personnel. Wear approved positive-pressure self-contained breathing apparatus and protective clothing.

6. ACCIDENTAL RELEASE MEASURES

IN CASE OF SPILL OR OTHER RELEASE: (See section 8 for recommended personal protective equipment.)

Dilute small spills or leaks cautiously with plenty of water. Neutralize residue with sodium bicarbonate or other suitable neutralizing agent. When using carbonates for neutralization, adequate precautions should be taken to minimize hazards from carbon dioxide gas generation. No smoking in spill area. Major spills must be handled by a predetermined plan. Attempt to keep out of sewers.

Spills and releases may have to be reported to Federal and/or local authorities. See Section 15 regarding reporting requirements.

7. HANDLING AND STORAGE

NORMAL HANDLING: (See section 8 for recommended personal protective equipment.)

Avoid contact with skin, eyes and clothing. Avoid breathing mist. Use appropriate personnel protective equipment. Do not add water to acid. When diluting, always add acid to water cautiously and with agitation. Use with adequate ventilation.

STORAGE RECOMMENDATIONS:

Protect from physical damage. Store in a cool, well-ventilated area away from combustibles and reactive chemicals. Keep out of sun and away from heat. Keep containers upright. No smoking in storage area.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS:

Sufficient to reduce vapor and acid mists to permissible levels. Packaging and unloading areas and open processing equipment may require mechanical exhaust systems. Corrosion-proof construction recommended. Closed ventilation systems (e.g. vapor hoods) are frequently used in the electronics industry.

PERSONAL PROTECTIVE EQUIPMENT

SKIN PROTECTION: As a minimum, wear acid-resistant, preferably rubber, gloves and apron. Acid resistant boots, trousers and jacket may be used for increased protection.

EYE PROTECTION: Wear chemical safety goggles. Add a full faceshield for pouring liquids. Do not wear contact lenses.

ITEM - 27**MATERIAL SAFETY DATA SHEET****Sulfuric Acid****RESPIRATORY PROTECTION:**

Generally, none required. If misting conditions prevail, wear a NIOSH-approved acid-mist respirator.

ADDITIONAL RECOMMENDATIONS:

Provide eyewash stations and quick-drench shower facilities in or near areas of use or handling.

EXPOSURE GUIDELINES**INGREDIENT NAME**

Sulfuric acid

ACGIH TLV

1 mg/m³ – TWA
3 mg/m³ – STEL

OSHA PEL1 mg/m³ – TWA**OTHER LIMIT**15 mg/m³ - IDLH

¹ = Limit established by General Chemical Corporation.

² = Workplace Environmental Exposure Level (AIHA).

³ = Biological Exposure Index (ACGIH).

OTHER EXPOSURE LIMITS FOR POTENTIAL DECOMPOSITION PRODUCTS:

None.

9. PHYSICAL AND CHEMICAL PROPERTIES**APPEARANCE:**

Colorless to light yellow liquid

PHYSICAL STATE:

Liquid

MOLECULAR WEIGHT:98.08 (H₂SO₄)**CHEMICAL FORMULA:**H₂SO₄ (various concentrations) in water**ODOR:**

Odorless

SPECIFIC GRAVITY (water = 1.0):

1.842

SOLUBILITY IN WATER (weight %):

100%

pH:

0.9 (1% solution)

BOILING POINT:

~310C (94%)

MELTING POINT:

~ -27C (94%)

VAPOR PRESSURE:

<0.001 mm Hg @ 20C

VAPOR DENSITY (air = 1.0):

Not applicable

EVAPORATION RATE:

Not applicable

COMPARED TO: Not applicable**% VOLATILES:**

Not applicable

FLASH POINT:

Not applicable

(Flash point method and additional flammability data are found in Section 5.)

10. STABILITY AND REACTIVITY**NORMALLY STABLE? (CONDITIONS TO AVOID):**

Normally stable. Avoid temperatures greater than 300C: yields sulfur trioxide gas, which is toxic, corrosive, and an oxidizer.

INCOMPATIBILITIES:

Nitro compounds, carbides, dienes, alcohols (when heated): causes explosions.

Oxidizing agents, such as chlorates and permanganates: causes fires and possible explosions.

Allyl compounds and aldehydes: undergoes polymerization, possibly violent.

Alkalies, amines, water, hydrated salts, carboxylic acid anhydrides, nitriles, olefinic organics, glycols, aqueous acids: causes strong exothermic reactions.

MATERIAL SAFETY DATA SHEET

Sulfuric Acid

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Carbonates, cyanides, sulfides, sulfites, metals such as copper: yields toxic gases.

HAZARDOUS DECOMPOSITION PRODUCTS:

Sulfur trioxide gas.

HAZARDOUS POLYMERIZATION:

Will not occur.

11. TOXICOLOGICAL INFORMATION

IMMEDIATE (ACUTE) EFFECTS:

LD₅₀ (oral-rat): 2140 mg/kg

LC₅₀ (inhl-rat): 510 mg/m³/2 hr

LC₅₀ (inhl-mouse): 320 mg/m³/2 hr

DELAYED (SUBCHRONIC AND CHRONIC) EFFECTS:

IARC and NTP have classified "strong inorganic acid mists containing sulfuric acid" as known human carcinogens. The state of California has also listed "strong inorganic acid mists containing sulfuric acid" on the Proposition 65 list as a cancer causing agent. No definitive causal relationship between sulfuric acid mist exposure and respiratory cancer has been shown.

OTHER DATA:

None.

12. ECOLOGICAL INFORMATION

24.5 ppm/24 hr./bluegill/lethal/fresh water

42.5 ppm/48 hr./prawn/LC₅₀/salt water

13. DISPOSAL CONSIDERATIONS

RCRA

Is the unused product a RCRA hazardous waste if discarded? Yes

If yes, the RCRA ID number is: D002

OTHER DISPOSAL CONSIDERATIONS:

The information offered in section 13 is for the product as shipped. Use and/or alterations to the product such as mixing with other materials may significantly change the characteristics of the material and alter the RCRA classification and the proper disposal method.

14. TRANSPORT INFORMATION

US DOT HAZARD CLASS: 8, PG II

US DOT ID NUMBER: UN1830

PROPER SHIPPING NAME: Sulfuric acid

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MATERIAL SAFETY DATA SHEET

Sulfuric Acid

For additional information on shipping regulations affecting this material, contact the information number found in Section 1.

15. REGULATORY INFORMATION

TOXIC SUBSTANCES CONTROL ACT (TSCA)

TSCA INVENTORY STATUS: Listed on the TSCA Inventory.

OTHER TSCA ISSUES: None.

SARA TITLE III/CERCLA

"Reportable Quantities" (RQs) and/or "Threshold Planning Quantities" (TPQs) exist for the following ingredients.

<u>INGREDIENT NAME</u>	<u>SARA/CERCLA RQ (lb)</u>	<u>SARA EHS TPQ (lb)</u>
Sulfuric acid	1000	1000

Spills or releases resulting in the loss of any ingredient at or above its RQ requires immediate notification to the National Response Center [(800) 424-8802] and to your Local Emergency Planning Committee.

SECTION 311 HAZARD CLASS: Immediate.

SARA 313 TOXIC CHEMICALS:

The following ingredients are SARA 313 "Toxic Chemicals" and may be subject to annual reporting requirements. CAS numbers and weight percents are found in Section 2.

<u>INGREDIENT NAME</u>	<u>COMMENT</u>
Sulfuric acid	None

STATE RIGHT-TO-KNOW

In addition to the ingredients found in Section 2, the following are listed for state right-to-know purposes.

<u>INGREDIENT NAME</u>	<u>WEIGHT %</u>	<u>COMMENT</u>
No ingredients listed in this section.		

ADDITIONAL REGULATORY INFORMATION:

"Strong inorganic acid mists containing sulfuric acid" has been listed on California Proposition 65 as a cancer-causing agent.

WHMIS CLASSIFICATION (CANADA):

Listed on Canadian DSL and EU EINECS.

FOREIGN CHEMICAL CONTROL INVENTORY STATUS:

Listed on the Canadian DSL and EU EINECS.

16. OTHER INFORMATION

CURRENT ISSUE DATE: May, 2003

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MATERIAL SAFETY DATA SHEET

Sulfuric Acid

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PREVIOUS ISSUE DATE: November, 2001

CHANGES TO MSDS FROM PREVIOUS ISSUE DATE ARE DUE TO THE FOLLOWING:

Addition of Prop 65 listing.

OTHER INFORMATION: None



MATERIAL SAFETY DATA SHEET

Product name: Nickel-Cadmium Battery

Description: Sealed metallic cylinders in a plastic case

Supplier: Hilti, Inc. P.O. Box 21148, Tulsa, OK 74121

Emergency # (Chem-Trec.): 1 800 424 9300 (USA, PR, Virgin Islands, Canada); 001 703 527 3887 (other countries)

INGREDIENTS AND EXPOSURE LIMITS

This product is regarded as an "Article" by definition under OSHA Regulation, 29CFR 1910.1200(c). This product contains nickel, cadmium and cobalt compounds as well as potassium hydroxide. The physical form of the product, however, precludes exposure to workers under normal conditions of use.

PHYSICAL DATA

Appearance:	Black plastic case.	Odor:	Not applicable.
Vapor Density: (air = 1)	Not applicable.	Vapor Pressure:	Not applicable.
Boiling Point:	Not applicable.	VOC Content:	Not applicable.
Evaporation Rate:	Not applicable.	Solubility in Water:	Not applicable.
Specific Gravity:	Not determined.	pH:	Not determined.

FIRE AND EXPLOSION HAZARD DATA

Flash Point:	Not applicable.	Flammable Limits:	Not applicable.
Extinguishing Media:	Carbon Dioxide, Dry Chemical, Foam, Water.		
Special Fire Fighting Procedures:	Not known. Always use a self-contained breathing apparatus when fighting fires involving chemicals.		
Unusual Fire and Explosion Hazards:	None expected.		

REACTIVITY DATA

Hazardous Polymerization:	Will not occur.	Stability:	Stable.
Incompatibility:	None known.		
Decomposition Products:	Thermal decomposition can yield toxic and acrid gases.		
Conditions to Avoid:	See "Handling and Storing Precautions" below.		

HEALTH HAZARD DATA

Known Hazards:	None known.
Signs and Symptoms of Exposure:	None anticipated.
Routes of Exposure:	None anticipated from proper use of this product.
Carcinogenicity:	Not applicable. See spill procedures.
Medical Conditions Aggravated by Exposure:	None expected.

EMERGENCY AND FIRST AID PROCEDURES

Inhalation:	Not applicable.	Ingestion:	Not applicable.
Eyes:	Not applicable. Refer to spill procedures below.		
Skin:	Not applicable. Refer to spill procedures below.		

Other:

None known.

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CONTROL MEASURES AND PERSONAL PROTECTIVE EQUIPMENT

Ventilation:	General
Eye Protection:	Not applicable for battery packs; however, safety glasses (side shields recommended) or safety goggles are recommended while using most powered hand tools.
Skin Protection:	Not required
Respiratory Protection:	Not normally required. However, in some instances, dusts generated while drilling may necessitate the use of respiratory protection.

PRECAUTIONS FOR SAFE HANDLING AND USE

Handling and Storing Precautions:	Store in a cool dry place less than 100° F. Exposure to excessive heat and humidity and storage above 100° F will shorten the shelf life of this product.
Spill Procedures:	If the battery integrity is destroyed by accident, (for example crushing) and the contents are released, do not touch spilled material. Take up with sand or other absorbent and place in container for disposal. Contact with battery contents may cause skin irritation and/or corrosive eye damage. If skin contact occurs, wash affected areas thoroughly with soap and water. Get medical attention if irritation develops. If eye contact occurs, flush thoroughly with running water for at least 15 minutes, while holding eyelids open. Get prompt medical attention. Cadmium, nickel and their compounds are considered potential human carcinogens by the National Toxicology Program and the International Agency for Research on Cancer. The Occupational Safety and Health Administration has proposed regulating cadmium and its compounds as carcinogens.

REGULATORY INFORMATION

Hazard Communication:	This product is regarded as an "Article" by OSHA definition.
HMIS Codes:	Health 1, Flammability 0, Reactivity 0, PPE A
ICAO / IATA Shipping Name:	Not regulated.
DOT Shipping Name:	Not regulated.
TSCA Inventory Status:	Chemical components listed on TSCA inventory.
SARA Title III, Section 313:	This product is considered to be an "Article", therefore, it is not subject to reporting under Section 313 of SARA Title III (40 CFR Part 372).
EPA Waste Code(s):	N/A
Waste Disposal Methods:	Batteries may be returned to Hilti by contacting the local salesperson, returning it to the local Hilti Center, or calling the toll free number (1-800-879-8000) where a Customer Service Representative will provide return instructions. DO NOT DISPOSE IN THE TRASH. Place tape over any exposed terminals to prevent inadvertent short-circuit during transportation.

CONTACTS

Customer Service:	1 800 879 8000	Technical Service:	1 800 879 8000
Health / Safety:	1 800 879 6000	Jerry Metcalf	(x6704)
Emergency # (Chem-Trec):	1 800 424 9300 (USA, PR, Virgin Islands, Canada); 001 703 527 3887 (other countries)		

The information and recommendations contained herein are based upon data believed to be correct; however, no guarantee or warranty of any kind expressed or implied is made with respect to the information provided.

ITEM - 28



GE Lighting
General Electric Company
1975 Noble Road, NELA Park
Cleveland, Ohio 44112

MATERIAL SAFETY DATA SHEETS AND LAMPS

We believe that under the OSHA Hazards Communication Standard that a lamp (light bulb) is exempted as an "article", and that as such, does not require an MSDS. The original OSHA standard defined an article as something that:

- 1) is formed to a specific shape and design,
- 2) has end use functions dependent upon its shape and design, and
- 3) does not release or otherwise result in an exposure to a hazardous chemical under normal conditions of use.

In February 1994, OSHA amended the Hazard Communication Standard and modified part 3 of the above definition to read:

- 3) does not release more than very small quantities of a hazardous chemical under normal conditions of use.

State and local regulations that we are aware of also contain similar exemptions for such articles.

GE Lighting
Environmental, Health and Safety Department

March 1, 2000

\article



MSDS No.: 101
 Revision No.: 018
 Revision Date: 02/13/03
 Page: 1 of 2

MATERIAL SAFETY DATA SHEET

Product name: Safety Boosters
Description: 22, 25, and 27 caliber blank cartridges for powder actuated fastening tools
Supplier: Hilti, Inc. P.O. Box 21148, Tulsa, OK 74121; phone 1800 879 8000
Emergency # (Chem-Trec.): 1 800 424 9300 (USA, PR, Virgin Islands, Canada); 001 703 527 3887 (other countries)

INGREDIENTS AND EXPOSURE LIMITS

Ingredients:	CAS Number:	TLV:	PEL:	STEL:
Nitroglycerin	00055-63-0	0.46 mg/m ³ (S)	NE	0.1 mg/m ³ (S)
Nitrocellulose	09004-70-0	NE	NE	NE
Lead styphnate	15245-44-0	0.05 mg/m ³ *	0.05 mg/m ³ *	NE
Barium nitrate	10022-31-8	0.5 mg/m ³	0.5 mg/m ³	NE
Tetracene	00109-27-3	NE	NE	NE

Abbreviations / Symbols: * exposure limit for metallic lead. **NE** = None Established. **NA** = Not Applicable. **(S)** indicates exposure should be controlled for the cutaneous routes including the mucous membranes, eyes, and skin. Airborne exposures as well as direct contact must be considered.

PHYSICAL DATA

Appearance:	Blank brass cartridges.	Odor:	None.
Vapor Density: (air = 1)	Not applicable.	Vapor Pressure:	Not applicable.
Boiling Point:	Not applicable.	VOC Content:	Not applicable.
Evaporation Rate:	Not applicable.	Solubility in Water:	Not applicable.
Specific Gravity:	Not applicable.	pH:	Not applicable.

FIRE AND EXPLOSION HAZARD DATA

Flash Point:	Not applicable.	Flammable Limits:	Not applicable.
Extinguishing Media:	Water.		
Special Fire Fighting Procedures:	Flood area with water or keep cartridges cool with water spray.		
Unusual Fire and Explosion Hazards:	Cartridges can blast if exposed to temperatures > 160°C. Mass detonation will not occur.		

REACTIVITY DATA

Hazardous Polymerization:	Will not occur.	Stability:	Stable.
Incompatibility:	Strong acids and oxidizing agents.		
Decomposition Products:	Oxides of nitrogen, oxides of carbon, acrid fumes and lead oxide.		
Conditions to Avoid:	Acids, excessive heat, crushing, and electrical currents.		

HEALTH HAZARD DATA

Known Hazards:	OSHA has established an action level of 0.03 mg/m ³ for lead. Exposures that exceed recommended limits for lead may be possible under certain conditions such as excessive firing with little air movement and/or firing in small enclosed work areas. Chronic (long-term) overexposure to lead can result in damage to blood-forming, nervous, urinary and reproductive systems.
Signs and Symptoms of Exposure:	Excessive exposure to gases might cause irritation to the eyes, skin, and respiratory system. Adverse health effects are not expected from acute exposure to fumes and gases; however, adequate ventilation, personal protective equipment, and/or good personal hygiene practices are essential to keep exposure to a minimum.
Routes of Exposure:	Dermal. Inhalation.
Carcinogenicity:	Organic lead compounds are not classified by IARC or NTP as carcinogens. Lead styphnate is converted to metallic lead and lead oxide during combustion. Metallic lead and lead oxide have not been tested adequately. A study by Goyer and Rhyne (1973) concluded that "there is no evidence that lead produces cancer in man".

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**Medical Conditions
Aggravated by Exposure:**

None anticipated.

EMERGENCY AND FIRST AID PROCEDURES

Eyes:	If irritation occurs, flush with plenty of water. Consult a physician if symptoms persist.
Skin:	Practice good hygiene; i.e. wash with soap and water after using and before meals.
Inhalation:	Move victim to fresh air. Get medical attention if symptoms persist.
Ingestion:	Get immediate medical attention.
Other:	Seek prompt medical attention if physical injury occurs from pins, rivets, debris, etc. For bleeding wounds, place a clean cloth or similar absorbent material on the wound and apply firm pressure. Elevate the wound and transport immediately to a medical facility.

CONTROL MEASURES AND PERSONAL PROTECTIVE EQUIPMENT

Ventilation:	General (i.e., natural or mechanically induced fresh air movements that maintain vapor concentrations below recommended exposure limits).
Eye Protection:	Safety glasses with side-shields, as a minimum. Safety goggles recommended.
Skin Protection:	Cleaning powder actuated tools can result in some exposure to lead compounds. Cloth gloves are recommended, otherwise, wash hands thoroughly when finished and before eating or smoking.
Respiratory Protection:	Not normally required. Where air movement is inadequate to maintain exposure below recommended levels, wear a high efficiency particulate respirator.
Other:	Hearing protection (muffs or aural inserts) should be worn when firing powder actuated tools

PRECAUTIONS FOR SAFE HANDLING AND USE

Handling and Storing Precautions:	Store in a cool dry place. Do not crush or drop. Keep away from excessive heat (such as extremely hot surfaces and flames), electrical current, strong acids and oxidizers. NFPA 495 requires 15 feet separation (or 1-hour firewall) from flammable liquids, flammable solids, and oxidizers. For industrial use only. Keep out of reach of children. Use with adequate ventilation. Practice good hygiene; i.e. wash after using and before eating or smoking.
Other Precautions::	Use only in powder actuated tools designed to handle these boosters. Construction industry employees must be properly trained as prescribed by OSHA regulations 29 CFR 1926.302 (e). All employees should be familiar with the safe operating procedures and requirements for powder operated tools as described in ANSI A10.3 and OSHA 29 CFR 1910.243 (d).

REGULATORY INFORMATION

Hazard Communication:	This MSDS has been prepared in accordance with the federal OSHA Hazard Communication Standard 29 CFR 1910.1200.
HMIS Codes:	Health 1, Flammability 1, Reactivity 3, PPE B (Glasses, Gloves)
DOT Shipping Name:	Consumer commodity, ORM-D
ICAO / IATA Shipping Name:	Cartridges. Power device, Class 1.4S, UN 0323
TSCA Inventory Status:	Chemical components listed on TSCA inventory.
SARA Title III, Section 313:	This product contains < 1% lead styphnate (CAS No. 15245-44-0), < 0.1% barium nitrate (CAS No. 10022-31-8), and 5 - 11% nitroglycerin (CAS No. 55-63-0) which are subject to the reporting according to Section 313 of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.
Waste Disposal Methods:	Misfires should be stored in a closed container until disposal or as otherwise required by local, state, and federal safety, health and environmental regulations. The recommended disposal method is in a burner specifically designed to destroy ammunition.
EPA Waste Code(s):	D008

CONTACTS

Customer Service:	1 800 879 8000
Technical Service:	1 800 879 8000
Health / Safety:	1 800 879 6000 Jerry Metcalf (x6704)
Emergency # (Chem-Trec):	1 800 424 9300 (USA, PR, Virgin Islands, Canada); 001 703 527 3887 (other countries)

The information and recommendations contained herein are based upon data believed to be correct; however, no guarantee or warranty of any kind expressed or implied is made with respect to the information provided.

MATERIAL SAFETY DATA SHEET

MWS Wire Industries
31200 Cedar Valley Drive
Westlake Village, CA 91362
(818) 991-8553

Trade Name: Bare Copper, OFHC Copper Wire, ETP Copper Wire

Chemical Family: Copper

Chemical Formula: N/A

HAZARDOUS INGREDIENTS

<u>Ingredient</u>	<u>CAS No.</u>	<u>TLV</u>	<u>PEL</u>	<u>STEL</u>
Copper	7440-50-8	1 (D) / 0.2 (F)	1 (D) / 0.1 (F)	2

Note: TLV - American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (mg/m³)

PEL - OSHA Permissible Exposure Level (mg/m³), 8 hour time weighted average

STEL - ACGIH Short Term Exposure Limit (mg/m³), 15 minutes maximum

* Ceiling Level (Not to be exceeded) D = Dust F = Fume NS = Not Specified

PHYSICAL DATA

Boiling Point °C: N/A

Vapor Pressure: N/A

Vapor Density: N/A

% Volatile: N/A

Evaporation Rate: N/A

Solubility in H₂O: Insoluble

Specific Gravity: 8.89

Melting Temperature: 1083°C

Appearance & Odor: Lustrous orange-red metal. No odor.

FIRE & EXPLOSION HAZARD DATA

Flash Point: N/A

Fire or Explosion Hazard: None

Note: Copper is nonflammable, although sparks from other operations may ignite flammable or combustible materials. Use extinguishing media suitable for surrounding materials. Fire fighters should use self-contained breathing apparatus as deemed necessary.

HEALTH HAZARD DATA

Fine powders, granules and fumes from welding or abrasive operations may pose a health hazard. When burned, soldered or brazed copper wire and solder or brazing material may give off fumes that cause eye and/or respiratory irritation. Use adequate local exhaust to prevent irritation and maintain fume levels below OSHA ceiling limits.

Short Term Exposure: Dust and fumes irritate the eyes, nose and throat. Symptoms may include cough, metallic taste in mouth, fever, fatigue and nausea.

Long Term Exposure: Watering of the eyes, headaches, difficulty in breathing, coughing, severe chest pains and in acute cases, lung disease, lung fibrosis, pneumoconiosis or neurological damage.

Emergency First Aid Procedure:

- In case of fume inhalation, remove from exposure and consult a physician.
- In case of eye contact, flush with large amounts of water for at least fifteen minutes. Seek medical attention.
- In case of ingestion, seek immediate medical attention.

Carcinogenic assessment: Copper has not been identified as a known or suspected carcinogen by NTP, IARC or OSHA.

REACTIVITY DATA

Stability: Stable. Hazardous polymerization will not occur.

SPILL, LEAK, DISPOSAL PROCEDURES

Scrap copper wire has reclamation value. Where this is not practical, it may be disposed in accordance with state and federal regulations. In solid form, copper poses no special clean up problems. If material is in powder or dust form, clean up should be conducted to minimize generation of airborne powder and dust and to avoid contamination of water. Depending on the quantity, spills or releases to the environment may require a report to the National Response Center at (800) 424-8802.

SARA TITLE II SECTION 313

Copper is subject to the reporting requirements of Section 313 of Title III of the Superfund Amendment and Reauthorization Act of 1986 and 40 CFR Part 372 of the Federal Register. Additional information can be obtained from the Emergency Planning and Community Right-To-Know Information Hot Line, US EPA, at (800) 535-0202.

EC RoHS DIRECTIVE COMPLIANCE

Bare copper wire complies with Directive 2002/95/EC of the European Parliament and of the Council of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

SPECIAL PROTECTION

Wear safety glasses when risk of eye injury is present, particularly during machining, grinding, welding, powder handling, etc. Gloves and other protective equipment may be required during handling operations as appropriate to the circumstances of exposure.

SPECIAL PRECAUTIONS

When welding, melting, casting, grinding, sanding, polishing or otherwise abrading the surface of copper wire in a manner which generates finely divided particles, an exposure to copper in excess of the occupational standard can occur. Use with adequate ventilation to meet listed exposure limits. Processes generating airborne particles must be air sampled to determine exposure levels. Where exposure data indicate, medical surveillance should be conducted.

PACKAGING & LABELING REQUIREMENTS

D.O.T. Shipping Name: Not regulated

Hazard Class: NA

MWS has attempted to provide current and accurate information in this data sheet, however MWS makes no representations regarding the accuracy or completeness of the information and assumes no liability for any loss, damage or injury of any kind which may arise out of the use or reliance on the information by any person. Contact person: Ken Goss at (818) 991-8553.

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MATERIAL SAFETY DATA SHEET

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

CHS Inc.
P.O. Box 64089
Mail station 525
St. Paul, MN 55164-0089

Transportation Emergency (CHEMTREC): 1-800-424-9300
Technical Information: 1-651-355-8443
MSDS Information: 1-651-355-8438

PRODUCT NAME: (Thread) Cutting Oils (All Grades)

MSDS: 0160-I4B0 - Rev. E (01/04/07)

COMMON NAME: Metal working fluid

CHEMICAL FORMULA: Mixture

CHEMICAL NAME: Lubricating Oil

CHEMICAL FAMILY: Hydrocarbon

Section 2 - COMPOSITION AND INFORMATION ON INGREDIENTS

INGREDIENTS	PERCENTAGES (by weight)	PEL (OSHA)	TLV (ACGIH)	CAS #
Oil, Naphthenic (Hydrotreated)	90-95%	N/A	5 mg/m ³ TWA (Oil Mist)	64742-53-6 64742-52-5
Performance Additives	0-50%	N/A	N/A	
Hydrogen Sulfide	Trace	N/A	N/A	7783-06-4

(TWA) - Time Weighted Average is the employee's average airborne exposure in any 8-hour work shift of a 40-hour work week which shall not be exceeded.

(STEL) - Short Term Exposure Limit is the employee's 15-minute time weighted average exposure which shall not be exceeded at any time during a work day unless another time limit is specified.

Section 3 - HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

POTENTIAL HEALTH EFFECTS

ROUTES OF ENTRY: (Eye Contact, Dermal, Inhalation.)

ACUTE EFFECTS OF OVER EXPOSURE:

Eyes - Contact with eyes may cause irritation.

Skin - Contact with skin may cause irritation.

Inhalation - May cause irritation of the nose and throat.

Ingestion - May cause nausea and vomiting. Large quantities may effect the central nervous system.

CHRONIC EFFECTS OF OVER EXPOSURE: No adverse effects anticipated.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Existing dermatitis and respiratory conditions.

CARCINOGENICITY: NTP: No

IARC: No

OSHA: No

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Section 4 - FIRST AID MEASURES

EMERGENCY AND FIRST AID PROCEDURES:

Eye Contact - If material comes in contact with the eyes, immediately wash the eyes with large amounts of water for fifteen minutes, occasionally lifting the lower and upper lids. Get medical attention.

Skin Contact - If the material comes in contact with the skin, wash the contaminated skin with soap and water promptly. If the material penetrates through clothing, remove the clothing and wash the skin with soap and water promptly. If irritation persists after washing, get medical attention immediately.

Inhalation - If person breathes in large amounts of material, move the exposed person to fresh air at once. If breathing has stopped, perform artificial respiration. Keep the person warm and at rest. Get medical attention as soon as possible.

Ingestion - If material has been swallowed, do not induce vomiting. Get medical attention immediately.

Section 5 - FIRE - FIGHTING MEASURES

FLASH POINT: >290°F (>144°C)

AUTO IGNITION TEMP: >500°F

FLAMMABLE LIMITS IN AIR
% BY VOLUME

LOWER
N/A

UPPER
N/A

EXTINGUISHING MEDIA: Use water spray to cool fire-exposed surfaces and to protect personnel. Use foam, dry chemical or water spray (fog) to extinguish fire.

SPECIAL FIRE FIGHTING PROCEDURES: When fighting fires wear full turnout gear and self-contained breathing apparatus. Water may cause splattering. Material floats on water.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Toxic fumes gases or vapors may evolve on burning.

HAZARD RATINGS: **NFPA 704:** Health- 1 Fire- 1 Reactivity- 0
 HMIS: Health- Fire- Reactivity-

Section 6 - ACCIDENTAL RELEASE MEASURES

STEPS TO TAKE IF MATERIAL IS RELEASED OR SPILLED: Personal protective equipment should be worn. Ventilate area if confined or poorly ventilated. Contain with dikes or absorbent to prevent migration to sewers/streams. Take up small spill with dry chemical absorbent; large spills may require pump or vacuum prior to absorbent. May require excavation of severely contaminated soil. Avoid contact with skin and eyes.

Section 7 - HANDLING AND STORAGE

HANDLING AND STORING: Store in closed container away from all ignition sources. Handling temperatures should not exceed 175°F (80°C). Wash thoroughly after handling. Do not store at temperatures exceeding 113°F (45° C). Odorous and toxic fumes may form from the decomposition of this product if stored at excessive temperatures for extended periods of time. Open containers carefully and only in well-ventilated areas or use appropriate respiratory protection. Store in well ventilated area.

ITEM - 32**Section 8 - EXPOSURE CONTROL - PERSONAL PROTECTION**

ENGINEERING CONTROLS: Ventilate to control mists and vapors below exposure limits.

RESPIRATORY EQUIPMENT: Normally not required, if exposure limits are exceeded use a Niosh approved organic vapor respirator. Self-contained breathing apparatus is recommended for entry into confined spaces or other poorly ventilated areas and for large spill clean-up sites.

EYE PROTECTION: Chemical goggles or faceshield recommended to minimize eye contact.

PROTECTIVE CLOTHING: Impervious (nitrile) gloves recommended when handling material to minimize exposure. Long sleeve shirts, chemically protective aprons and chemically protective boots are recommended for contact exposure or spill clean-up. Do not wear watches, rings or similar apparel that could entrap the material next to the skin.

OTHER (SAFETY SHOWERS, EYE WASH STATIONS, ETC.): Water should be available for flushing and washing when exposure exists. Launder soiled clothes. Discard shoes or other leather articles saturated with the material.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Amber liquid

ODOR: Mild odor

BOILING POINT: N/D

SPECIFIC GRAVITY (water=1): 0.91400 - 0.9300

VAPOR PRESSURE: <1 mm Hg 68° F

VAPOR DENSITY (air=1): N/D

SOLUBLE IN WATER: Insoluble

EVAPORATION RATE (ether=1): <1

Section 10 - STABILITY AND REACTIVITY

pH: N/D

STABILITY:

STABLE X (At room temperature and pressure. See handling and storage section)

UNSTABLE

INCOMPATIBILITY -

CONDITIONS TO AVOID: See handling and storage section.

MATERIALS TO AVOID: Acids, oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS: Smoke, carbon monoxide, aldehydes, hydrogen sulfide and alkyl mercaptans may be released. Under combustion conditions, oxides of the following elements will be formed: Magnesium, calcium, nitrogen, sulfur, carbon.

HAZARDOUS POLYMERIZATION: Will not occur.

Section 11 - TOXICOLOGY INFORMATION

Note: CHS has not conducted specific toxicity tests on this product.

Section 12 - ECOLOGICAL INFORMATION

Note: CHS has not conducted specific ecological tests on this product.

Section 13 - DISPOSAL CONSIDERATION**ITEM - 32**

WASTE DISPOSAL PROCEDURES: Place contaminated materials in a disposable container and dispose of in accordance with Local, State and Federal environmental regulations.

Section 14 - TRANSPORTATION**DOT PROPER SHIPPING NAME:** N/A**DOT HAZARD CLASS:** N/A**DOT IDENTIFICATION NUMBER:** N/A**DOT EMER. RESPONSE GUIDE NO.:** N/A**Section 15 - REGULATORY INFORMATION**

This product (does/not) contain toxic chemicals subject to the reporting requirements of SARA Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 and of 40 CFR 372.

CAS Number
7783-06-4

Chemical Name
Hydrogen Sulfide

Percent by Weight
Trace

SARA SECTION 311-312 HAZARD CATEGORIES (40 CFR 370.2):

FIRE: No **SUDDEN RELEASE OF PRESSURE:** No **REACTIVE:** No **ACUTE:** No **CHRONIC:** No

Section 16 - OTHER INFORMATION

Prepared By: Hue Lam

Date: January 04, 2007

Title: EHS Compliance Specialist

Supersedes: December 24, 2003

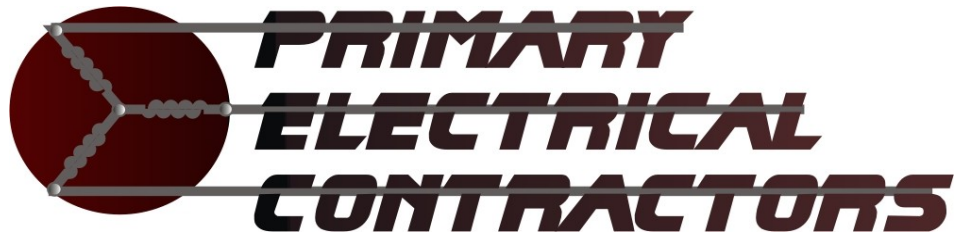
Reason for Issue: Periodic review and update

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Hazard Communication Program