

Health	2
Fire	3
Reactivity	0
Personal Protection	H

Material Safety Data Sheet

Acetone MSDS

Section 1: Chemical Product and Company Identification

Product Name: Acetone

Catalog Codes: SLA3502, SLA1645, SLA3151, SLA3808

CAS#: 67-64-1

RTECS: AL3150000

TSCA: TSCA 8(b) inventory: Acetone

CI#: Not applicable.

Synonym: 2-propanone; Dimethyl Ketone; Dimethylformaldehyde; Pyroacetic Acid

Chemical Name: Acetone

Chemical Formula: C₃H₆O

Contact Information:

Sciencelab.com, Inc.

14025 Smith Rd.

Houston, Texas 77396

US Sales: **1-800-901-7247**

International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:

1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Acetone	67-64-1	100

Toxicological Data on Ingredients: Acetone: ORAL (LD50): Acute: 5800 mg/kg [Rat]. 3000 mg/kg [Mouse]. 5340 mg/kg [Rabbit]. VAPOR (LC50): Acute: 50100 mg/m 8 hours [Rat]. 44000 mg/m 4 hours [Mouse].

Section 3: Hazards Identification

Potential Acute Health Effects:

Hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (permeator).

Potential Chronic Health Effects:

CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal.) by ACGIH. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Classified Reproductive system/toxin/female, Reproductive system/toxin/male [SUSPECTED]. The substance is toxic to central nervous system (CNS). The substance may be toxic to kidneys, the reproductive system, liver, skin. Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Get medical attention.

Skin Contact:

In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation:

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

Serious Inhalation:

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 465°C (869°F)

Flash Points: CLOSED CUP: -20°C (-4°F). OPEN CUP: -9°C (15.8°F) (Cleveland).

Flammable Limits: LOWER: 2.6% UPPER: 12.8%

Products of Combustion: These products are carbon oxides (CO, CO₂).

Fire Hazards in Presence of Various Substances: Highly flammable in presence of open flames and sparks, of heat.

Explosion Hazards in Presence of Various Substances:

Risks of explosion of the product in presence of mechanical impact: Not available. Slightly explosive in presence of open flames and sparks, of oxidizing materials, of acids.

Fire Fighting Media and Instructions:

Flammable liquid, soluble or dispersed in water. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam, water spray or fog.

Special Remarks on Fire Hazards: Vapor may travel considerable distance to source of ignition and flash back.

Special Remarks on Explosion Hazards:

Forms explosive mixtures with hydrogen peroxide, acetic acid, nitric acid, nitric acid + sulfuric acid, chromic anhydride, chromyl chloride, nitrosyl chloride, hexachloromelamine, nitrosyl perchlorate, nitryl perchlorate, permonosulfuric acid, thiodiglycol + hydrogen peroxide, potassium ter-butoxide, sulfur dichloride, 1-methyl-1,3-butadiene, bromoform, carbon, air, chloroform, thitriazylperchlorate.

Section 6: Accidental Release Measures

Small Spill:

Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.

Large Spill:

Flammable liquid. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:

Keep locked up.. Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, reducing agents, acids, alkalis.

Storage:

Store in a segregated and approved area (flammables area) . Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Keep away from direct sunlight and heat and avoid all possible sources of ignition (spark or flame).

Section 8: Exposure Controls/Personal Protection

Engineering Controls:

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:

Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:

TWA: 500 STEL: 750 (ppm) from ACGIH (TLV) [United States] TWA: 750 STEL: 1000 (ppm) from OSHA (PEL) [United States] TWA: 500 STEL: 1000 [Australia] TWA: 1185 STEL: 2375 (mg/m3) [Australia] TWA: 750 STEL: 1500 (ppm) [United Kingdom (UK)] TWA: 1810 STEL: 3620 (mg/m3) [United Kingdom (UK)] TWA: 1800 STEL: 2400 from OSHA (PEL) [United States] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Fruity. Mint-like. Fragrant. Ethereal

Taste: Pungent, Sweetish

Molecular Weight: 58.08 g/mole

Color: Colorless. Clear

pH (1% soln/water): Not available.

Boiling Point: 56.2°C (133.2°F)

Melting Point: -95.35 (-139.6°F)

Critical Temperature: 235°C (455°F)

Specific Gravity: 0.79 (Water = 1)

Vapor Pressure: 24 kPa (@ 20°C)

Vapor Density: 2 (Air = 1)

Volatility: Not available.

Odor Threshold: 62 ppm

Water/Oil Dist. Coeff.: The product is more soluble in water; $\log(\text{oil/water}) = -0.2$

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water.

Solubility: Easily soluble in cold water, hot water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Excess heat, ignition sources, exposure to moisture, air, or water, incompatible materials.

Incompatibility with various substances: Reactive with oxidizing agents, reducing agents, acids, alkalis.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation.

Toxicity to Animals:

WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 3000 mg/kg [Mouse]. Acute toxicity of the vapor (LC50): 44000 mg/m³ 4 hours [Mouse].

Chronic Effects on Humans:

CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal.) by ACGIH. DEVELOPMENTAL TOXICITY: Classified Reproductive system/toxin/female, Reproductive system/toxin/male [SUSPECTED]. Causes damage to the following organs: central nervous system (CNS). May cause damage to the following organs: kidneys, the reproductive system, liver, skin.

Other Toxic Effects on Humans:

Hazardous in case of skin contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (permeator).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans:

May affect genetic material (mutagenicity) based on studies with yeast (*S. cerevisiae*), bacteria, and hamster fibroblast cells. May cause reproductive effects (fertility) based upon animal studies. May contain trace amounts of benzene and formaldehyde which may cause cancer and birth defects. Human: passes the placental barrier.

Special Remarks on other Toxic Effects on Humans:

Acute Potential Health Effects: Skin: May cause skin irritation. May be harmful if absorbed through the skin. Eyes: Causes eye irritation, characterized by a burning sensation, redness, tearing, inflammation, and possible corneal injury. Inhalation: Inhalation at high concentrations affects the sense organs, brain and causes respiratory tract irritation. It also may affect the Central Nervous System (behavior) characterized by dizziness, drowsiness, confusion, headache, muscle weakness, and possibly motor incoordination, speech abnormalities, narcotic effects and coma. Inhalation may also affect the gastrointestinal tract (nausea, vomiting). Ingestion: May cause irritation of the digestive (gastrointestinal) tract (nausea, vomiting). It may also

affect the Central Nervous System (behavior), characterized by depression, fatigue, excitement, stupor, coma, headache, altered sleep time, ataxia, tremors as well as the blood, liver, and urinary system (kidney, bladder, ureter) and endocrine system. May also have musculoskeletal effects. Chronic Potential Health Effects: Skin: May cause dermatitis. Eyes: Eye irritation.

Section 12: Ecological Information

Ecotoxicity:

Ecotoxicity in water (LC50): 5540 mg/l 96 hours [Trout]. 8300 mg/l 96 hours [Bluegill]. 7500 mg/l 96 hours [Fathead Minnow]. 0.1 ppm any hours [Water flea].

BOD5 and COD: Not available.

Products of Biodegradation:

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The product itself and its products of degradation are not toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: CLASS 3: Flammable liquid.

Identification: : Acetone UNNA: 1090 PG: II

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:

California prop. 65: This product contains the following ingredients for which the State of California has found to cause reproductive harm (male) which would require a warning under the statute: Benzene California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: Benzene California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Benzene, Formaldehyde Connecticut hazardous material survey.: Acetone Illinois toxic substances disclosure to employee act: Acetone Illinois chemical safety act: Acetone New York release reporting list: Acetone Rhode Island RTK hazardous substances: Acetone Pennsylvania RTK: Acetone Florida: Acetone Minnesota: Acetone Massachusetts RTK: Acetone Massachusetts spill list: Acetone New Jersey: Acetone New Jersey spill list: Acetone Louisiana spill reporting: Acetone California List of Hazardous Substances (8 CCR 339): Acetone TSCA 8(b) inventory: Acetone TSCA 4(a) final test rules: Acetone TSCA 8(a) IUR: Acetone

Other Regulations:

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):

CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F). CLASS D-2B: Material causing other toxic effects (TOXIC).

DSCL (EEC):

R11- Highly flammable. R36- Irritating to eyes. S9- Keep container in a well-ventilated place. S16- Keep away from sources of ignition - No smoking. S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 3

Reactivity: 0

Personal Protection: h

National Fire Protection Association (U.S.A.):

Health: 1

Flammability: 3

Reactivity: 0

Specific hazard:

Protective Equipment:

Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information**References:**

-Material safety data sheet issued by: la Commission de la Santé et de la Sécurité du Travail du Québec. -The Sigma-Aldrich Library of Chemical Safety Data, Edition II. -Hawley, G.G.. The Condensed Chemical Dictionary, 11e ed., New York N.Y., Van Nostrand Reinold, 1987. LOLI, RTECS, HSDB databases. Other MSDSs

Other Special Considerations: Not available.

Created: 10/10/2005 08:13 PM

Last Updated: 11/06/2008 12:00 PM

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall ScienceLab.com be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if ScienceLab.com has been advised of the possibility of such damages.



Material Safety Data Sheet (MSDS-BP)

PRODUCT IDENTIFICATION	
Product Name	BLACK POWDER
Trade Names and Synonyms	N/A
Manufacturer/Distributor	GOEX, Inc. (Doyline, LA) & various international sources
Transportation Emergency	800-255-3924 (24 hrs — CHEM • TEL)

PREVENTION OF ACCIDENTS IN THE USE OF EXPLOSIVES

The prevention of accidents in the use of explosives is a result of careful planning and observance of the best known practices. The explosives user must remember that he is dealing with a powerful force and that various devices and methods have been developed to assist him in directing this force. He should realize that this force, if misdirected, may either kill or injure both him and his fellow workers.

WARNING

All explosives are dangerous and must be carefully handled and used following approved safety procedures either by or under the direction of competent, experienced persons in accordance with all applicable federal, state, and local laws, regulations, or ordinances. If you have any questions or doubts as to how to use any explosive product, **DO NOT USE IT** before consulting with your supervisor, or the manufacturer, if you do not have a supervisor. If your supervisor has any questions or doubts, he should consult the manufacturer before use.

HAZARDOUS COMPONENTS				
Material or Component	%	CAS No.	TLV	PEL
Potassium nitrate ¹	70-76	007757-79-1	NE	NE
Sodium nitrate ¹	70-74	007631-99-4	NE	NE
Charcoal	8-18	N/A	NE	NE
Sulfur	9-20	007704-34-9	NE	NE
Graphite ²	Trace	007782-42-5	15 mppct (TWA)	2.5 mg/m ³
N/A = Not assigned NE = Not established				

¹ Black Powder contains either potassium nitrate **or** sodium nitrate in the percentages indicated. Black powder **does not contain both**.

² Not contained in all grades of black powder.

PHYSICAL DATA	
Boiling Point	N/A
Vapor Pressure	N/A
Vapor Density	N/A
Solubility in Water	Good
Specific Gravity	1.70 - 1.82 (mercury method) • 1.92 - 2.08 (pycnometer)
PH	6.0 - 8.0
Evaporation Rate	N/A
Appearance and Odor	Black granular powder. No odor detectable.

HAZARDOUS REACTIVITY	
Instability	Keep away from heat, sparks, and open flame. Avoid impact, friction, and static electricity.
Incompatibility	When dry, black powder is compatible with most metals; however, it is hygroscopic, and when wet, attracts all common metals except stainless steel. Black powder must be tested for compatibility with any material not specified in the production/procurement package with which they may come in contact. Materials include other explosives, solvents, adhesives, metals, plastics, paints, cleaning compounds, floor and table coverings, packing materials, and other similar materials, situations, and equipment.
Hazardous decomposition	Detonation produces hazardous overpressures and fragments (if confined). Gases produced may be toxic if exposed in areas with inadequate ventilation.
Polymerization	Polymerization will not occur.

FIRE AND EXPLOSION DATA	
Flashpoint	Not applicable
Auto ignition temperature	Approx. 464°C (867°F)
Explosive temperature (5 sec)	Ignites @ approx. 427°C (801°F)
Extinguishing media	Water
Special fire fighting procedures	ALL EXPLOSIVES: DO NOT FIGHT EXPLOSIVES FIRES. Try to keep fire from reaching explosives. Isolate area. Guard against intruders. Division 1.1 Explosives (heavily encased): Evacuate the area for 5000 feet (1 mile) if explosives are heavily encased. Division 1.1 Explosives (not heavily encased): Evacuate the area for 2500 feet (½ mile) if explosives are not heavily encased. Division 1.1 Explosives (all): Consult the <i>2000 Emergency Response Guidebook, Guide 112</i> for further details.
Unusual fire and explosion hazards	Black powder is a deflagrating explosive. It is very sensitive to flame and spark and can also be ignited by friction and impact. When ignited unconfined, it burns with explosive violence and will explode if ignited under even slight confinement.

HEALTH HAZARDS	
General	Black powder is a Division 1.1 Explosive, and detonation may cause severe physical injury, including death. All explosives are dangerous and must be handled carefully and used following approved safety procedures under the direction of competent, experienced persons in accordance with all applicable federal, state, and local laws, regulations, and ordinances.
Carcinogenicity	None of the components of Black powder are listed as a carcinogen by NTP, IARC, or OSHA.

FIRST AID	
Inhalation	<i>Not a likely route of exposure.</i> If inhaled, remove to fresh air. If not breathing, give artificial respiration, preferably by mouth-to-mouth. If breathing is difficult, give oxygen. Seek prompt medical attention.
Eye and skin contact	<i>Not a likely route of exposure.</i> Flush eyes with water. Wash skin with soap and water.
Ingestion	<i>Not a likely route of exposure.</i> If ingested, induce vomiting immediately by giving two glasses of water and sticking finger down throat.
Injury from detonation	Seek prompt medical attention.

SPILL OR LEAK PROCEDURES	
Spill/leak response	Use appropriate personal protective equipment. Isolate area and remove sources of friction, impact, heat, low level electrical current, electrostatic or RF energy. Only competent, experienced persons should be involved in cleanup procedures. Carefully pick up spills with non-sparking and non-static producing tools.
Waste disposal	Desensitize by diluting in water. Open train burning, by qualified personnel, may be used for disposal of small unconfined quantities. Dispose of in compliance with federal regulations under the authority of the <i>Resource Conservation and Recovery Act</i> (40 CFR Parts 260-271).

SPECIAL PROTECTION INFORMATION	
Ventilation	Use only with adequate ventilation.
Respiratory	None
Eye	None
Gloves	Impervious rubber gloves.
Other	Metal-free <i>and</i> non-static producing clothes

SPECIAL PRECAUTIONS	
♦ Keep away from friction, impact, and heat. Do not consume food, drink, or tobacco in areas where they may become contaminated with these materials. ♦ Contaminated equipment must be thoroughly water cleaned before attempting repairs. ♦ Use only non-spark producing tools. ♦ No smoking.	

STORAGE CONDITIONS

Store in a cool, dry place in accordance with the requirements of *Subpart K, ATF: Explosives Law and Regulations* (27 CFR 55.201-55.219).

SHIPPING INFORMATION

Proper shipping name	Black powder	
Hazard class	1.1D	
UN Number	UN0027	
DOT Label & Placard	DOT Label	EXPLOSIVE 1.1D
	DOT Placard	EXPLOSIVES 1.1
Alternate shipping information	Limited quantities of black powder may be transported as "Black powder for small arms", NA0027, class 4.1 pursuant to U.S. Department of Transportation authorization EX-8712212.	

The information contained in this Material Safety Data Sheet is based upon available data and believed to be correct; however, as such has been obtained from various sources, including the manufacturer and independent laboratories, it is given without warranty or representation that it is complete, accurate, and can be relied upon. OWEN COMPLIANCE SERVICES, INC. has not attempted to conceal in any manner the deleterious aspects of the product listed herein, but makes no warranty as to such. Further, OWEN COMPLIANCE SERVICES, INC. cannot anticipate nor control the many situations in which the product or this information may be used; there is no guarantee that the health and safety precautions suggested will be proper under all conditions. It is the sole responsibility of each user of the product to determine and comply with the requirements of all applicable laws and regulations regarding its use. This information is given solely for the purposes of safety to persons and property. Any other use of this information is expressly prohibited.

For further information contact:

David W. Boston, President
OWEN COMPLIANCE SERVICES, INC.
12001 County Road 1000
P.O. Box 765
Godley, TX 76044
Telephone number:
FAX number:

817-551-0660
817-396-4584

MSDS prepared by:

David W. Boston
Original publication date:
Revision date:

12/08/93
12/12/05
12/03/03



MATERIAL SAFETY DATA SHEET

Section 1: Product and Company Information

Product Name(s): Woven Unidirectional Fiberglass Fabric (A-Style Warp Unidirectional), Stitchbonded Fiberglass Fabric, Woven Fiberglass Fabric

Manufacturer: Owens-Corning, World Headquarters, One Owens-Corning Parkway
Attn. Product Stewardship, Toledo, OH, 43659,
Telephone: 1-419-248-8234 (8am-5pm ET weekdays).
OC Fabrics, 1851 S. Sequin Ave., New Braunfels, TX, 78130
Telephone: 1-210-629-4009 (8am-5pm CT weekdays).

Emergency Contacts:

Emergencies ONLY (after 5pm ET and weekends): 1-419-248-5330,
CHEMTREC (24 hours everyday): 1-800-424-9300,
CANUTEC (Canada- 24 hours everyday): 1-613-996-6666.

Health and Technical Contacts:

Health Issues Information (8am-5pm ET): 1-419-248-8234,
Technical Product Information (8am-5pm ET): 1-800-GET-PINK.

Section 2: Composition and Ingredient Information

<u>Common Name</u>	<u>Chemical Name</u>	<u>CAS No.</u>	<u>Wt. %</u>
Non-Hazardous Ingredients			
Fiber Glass Continuous Filament (non respirable)	Fibrous Glass	65997-17-3	94-100
Size	Size	None	0-2
Polyester Yarn	Polyester Yarn	None	0-4

Note: See Section 8 of MSDS for exposure limit data for these ingredients.



MATERIAL SAFETY DATA SHEET

Section 3: Hazards Identification

Appearance and Odor: White/off-white colored solid with no odor.

Emergency Overview

No unusual conditions are expected from this product

Primary Route(s) of Exposure: inhalation, skin, eye

Potential Health Effects:

ACUTE (short term): Fiber glass continuous filament is a mechanical irritant. Breathing dusts and fibers may cause short term irritation of the mouth, nose and throat. Skin contact with dust and fibers may cause itching and short term irritation. Eye contact with dust and fibers may cause short term mechanical irritation. Ingestion may cause short term mechanical irritation of the stomach and intestines. See Section 8 for exposure controls.

CHRONIC (long term): There is no known health effects connected with long term use or contact with this product. See Section 11 of MSDS for more toxicological data.

Medical Conditions Aggravated by Exposure: Long term breathing or skin conditions that are aggravated by mechanical irritants may be at a higher risk for worsening from use or contact with this product.



MATERIAL SAFETY DATA SHEET

Section 4: First Aid Measures

Inhalation: Move person to fresh air. Seek medical attention if irritation persists.

Eye Contact: Flush eyes with running water for at least 15 minutes. Seek medical attention if irritation persists.

Skin Contact: Wash with mild soap and running water. Use a washcloth to help remove fibers. To avoid more irritation, do not rub or scratch affected areas. Rubbing or scratching may force fibers into skin. Seek medical attention if irritation persists.

Ingestion: Ingestion of this material is unlikely. If it does occur, watch the person for several days to make sure that intestinal blockage does not occur.

Section 5: Fire Fighting Measures

Flash Point and Method: None

Flammability Limits (%): None.

Auto Ignition Temperature: Not Applicable.

Extinguishing Media: Water, foam, CO₂ or dry chemical.

Unusual Fire and Explosion Hazards: None known.

Fire Fighting Instructions: Use self contained breathing apparatus (SCBA) in a sustained fire.

Hazardous Combustion Products: Primary combustion products are carbon monoxide, carbon dioxide and water. Other undetermined compounds could be released in small quantities.



MATERIAL SAFETY DATA SHEET

Section 6: Accidental Release Measures

Land Spill: Scoop up material and put into suitable container for disposal as a non-hazardous waste.

Water Spill: This material will sink and disperse along the bottom of waterways and ponds. It can not easily be removed after it is waterborne; however, the material is non-hazardous in water.

Air Release: This material will settle out of the air. If concentrated on land it can then be scooped up for disposal as a non-hazardous waste.

Section 7: Handling and Storage

Storage Temperature: Not applicable.

Storage Pressure: Not applicable.

General: No special storage or handling procedures are required for this material.



MATERIAL SAFETY DATA SHEET

Section 8: Exposure Controls and Personal Protection

<u>Ingredient</u>	<u>OSHA PEL</u> (8-hr TWA)	<u>ACGIH TLV</u> (8-hr TWA)
Fiber Glass Continuous Filament	5 mg/m ³ (respirable dust) 15 mg/m ³ (total dust 1 fiber/cc (proposed)	10 mg/m ³ (inhalable) 3 mg/m ³ (respirable)
Size	None Established	None Established
Polyester Yarn	5 mg/m ³ (respirable dust) 15 mg/m ³ (total dust	10 mg/m ³ (inhalable) 3 mg/m ³ (respirable)

Ventilation: General dilution ventilation and/or local exhaust ventilation should be provided as necessary to maintain exposures below regulatory limits.

Personal Protection:

Respiratory Protection: A properly fitted NIOSH/MSHA approved disposable dust respirator such as the 3M model 8210 (or 8710) or model 9900 (in high humidity environments) or equivalent should be used when: high dust levels are encountered; the level of glass fibers in the air exceeds the OSHA permissible limits; or if irritation occurs. Use respiratory protection in accordance with your company's respiratory protection program, local regulations and OSHA regulations under 29 CFR 1910.134.

Skin Protection: Loose fitting long sleeved shirt that covers to the base of the neck, long pants and gloves. Skin irritation is known to occur chiefly at pressure points such as around neck, wrist, waist and between fingers.

Eye Protection: Safety glasses or goggles.



MATERIAL SAFETY DATA SHEET

Work and Hygienic Practices: Handle using good industrial hygiene and safety practices. Avoid unnecessary contact with dusts and fibers by using good local exhaust ventilation. Remove material from the skin and eyes after contact. Remove material from clothing using vacuum equipment (never use compressed air and always wash work clothes separately from other clothing. Wipe out the washer or sink to prevent loose glass fibers from getting on other clothing). Keep the work area clean of dusts and fibers made during fabrication by using vacuum equipment to clean up dusts and fibers (avoid sweeping or using compressed air as these techniques re-suspend dusts and fibers into the air.) Have access to safety showers and eye wash stations.

Section 9: Physical and Chemical Properties

Vapor Pressure (mm Hg @ 20°C): Not Applicable **pH:** Not Applicable

Vapor Density (Air=1): Not Applicable

Specific Gravity (Water=1): 2.60

Boiling Point: Not Applicable

Solubility in Water: Insoluble

Viscosity: Not Applicable

Appearance: Solid

Physical State: Solid

Odor Type: None

Freezing Point: Not Applicable

Evaporation Rate (n-Butyl Acetate=1): Not Applicable



MATERIAL SAFETY DATA SHEET

Section 10: Stability and Reactivity

General: Stable

Incompatible Materials and Conditions to Avoid: None

Hazardous Decomposition Products: Sizings or binders may decompose in a fire.
See Section 5 of MSDS for combustion products statement.

Hazardous Polymerization: Will not occur.

Section 11: Toxicological Information

CARCINOGENICITY: The table below indicates whether or not each agency has listed each ingredients as a carcinogen:

<u>Ingredient</u>	<u>ACGIH</u>	<u>IARC</u>	<u>NTP</u>	<u>OSHA</u>
Fiber Glass Continuous Filament	A4	3	No	No
Size	No	No	No	No
Polyester Yarn	No	No	No	No
	<u>LD₅₀ Oral</u> (g/kg)	<u>LD₅₀ Dermal</u> (g/kg)	<u>LC₅₀ Inhalation</u> (ppm, 8 hrs.)	
Fiber Glass Continuous Filament	Not Available	Not Available	Not Available	
Size	Not Available	Not Available	Not Available	
Polyester Yarn	Not Available	Not Available	Not Available	



MATERIAL SAFETY DATA SHEET

Fiber Glass Continuous Filament: The International Agency for Research on Cancer (IARC) in June, 1987, categorized fiber glass continuous filament as not classifiable with respect to human carcinogenicity (Group 3). The evidence from human as well as animal studies was evaluated by IARC as insufficient to classify fiber glass continuous filament as a possible, probable, or confirmed cancer causing material.

Section 12: Ecological Information

This material is not expected to cause harm to animals, plants or fish.

Section 13: Disposal Considerations

RCRA Hazard Class: Non-hazardous.



MATERIAL SAFETY DATA SHEET

Section 14: Transport Information

DOT Shipping Names: Not regulated

Hazard Class or Division: None

Secondary: None

Identification No.: None

Packing Group: None

Label(s) required (if not excepted): None

Special Provisions: None

Packaging Exceptions: None

Non-bulk Packaging: None

Bulk packaging: None

EPA Hazardous Substances: None

RQ: None

Quantity Limitations: **Passenger Aircraft:** None
 Cargo Aircraft: None

Marine Pollutants: None

Freight Description: None

Hazardous Material Shipping Description: None



MATERIAL SAFETY DATA SHEET

Transportation of Dangerous Goods - Canada

Proper Shipping Name: Not Regulated

TDG Hazard Classification: (Primary): None (Secondary): None

IMO Classification: None

ICAO/IATA Classification: None

Product Identification Number: None

Packing Group: None

Control Temperature: None

Emergency Temperature: None

Schedule XII Quantity Restriction: None

Reportable Quantity for US Shipments: None

IATA Packing Instructions:

Passenger/Cargo: None

Cargo Only: None

Limited Quantity: None

Maximum Net Quantity per Package:

Passenger/Cargo: None

Cargo Only: None

Limited Quantity: None

Special Provisions: None



MATERIAL SAFETY DATA SHEET

Section 15: Regulatory Information

TSCA Status: Each ingredient is on the Inventory.

NSR Status (Canada): Each ingredient is on the DSL.

SARA Title III:

Hazard Categories:

Acute Health:	Yes
Chronic Health:	No
Fire Hazard:	No
Pressure Hazard:	No
Reactivity Hazard:	No

Reportable Ingredients:

Sec. 302/304:	None
Sec. 313:	None

California Proposition 65: No ingredient is listed.

Clean Air Act: No ingredient is listed.

WHMIS (Canada): Status: Not Controlled

WHMIS Classification(s): None

Section 16: Other Information

<u>HMIS and NFPA Hazard Rating:</u>	<u>Category</u>	<u>HMIS</u>	<u>NFPA</u>
	Acute Health	1	1
	Flammability	0	0
	Reactivity	0	0

NFPA Unusual Hazards: None.

HMIS Personal Protection: To be supplied by user depending upon use.

Revision Summary: This is a new MSDS. (Reformatted 11/25/98)



Dow Building Solutions

1 PRODUCT NAME STYROFOAM™ Highload 40, 60 and 100 Extruded Polystyrene Insulation

2 Manufacturer

The Dow Chemical Company
Building Solutions
200 Larkin
Midland, MI 48674
1-866-583-BLUE (2583)
Fax 1-989-832-1465
www.dowstyrofoam.com/architect

Dow Chemical Canada Inc.
Building Solutions
250 – 6th Ave. SW, Suite 2200
Calgary, AB T2P 3H7
1-866-583-BLUE (2583) (English)
1-800-363-6210 (French)
www.dowstyrofoam.ca/4architects

3 Product Description

STYROFOAM™ Highload extruded polystyrene insulation is a closed-cell foam insulation. Available in compressive strengths of 40, 60 and 100 psi (275, 415 and 690 kPa),

STYROFOAM Highload insulation features superior moisture resistance and R-value* retention. All three STYROFOAM Highload insulation products resist compressive creep and fatigue, delivering long-term compressive strength. Like all STYROFOAM insulation products, STYROFOAM Highload 40, 60 and 100 are durable, versatile and reusable – making them the preferred choices for a variety of high-load applications.

BASIC USE

STYROFOAM™ Highload insulation is ideal for use in low-temperature (freezer floor) applications, highways, airport runways, bridge abutments, parking decks, utility lines, ice rinks and plaza decks. It is the responsibility of the designer to select the proper STYROFOAM Highload insulation product based on the dead and live loads expected in the application.

SIZES

IN THE U.S.:

Butt Edge Thickness:

2" or 3" STYROFOAM™
Highload 40 and 60
2" STYROFOAM™ Highload 100

Width and length:

2' x 8' STYROFOAM
Highload 40, 60 and 100
4' x 8' STYROFOAM
Highload 40

IN CANADA:

Butt Edge

Thickness:

1", 1.5", 2" or 3" (25 mm,
38 mm, 50 mm or 75 mm)
STYROFOAM Highload
40 and 60
2" or 3" (50 mm or 75 mm)
STYROFOAM Highload 100

Width and length:

2' x 8' (600 mm x 2,400 mm)
STYROFOAM Highload
40, 60 and 100

U.S. PROPERTY CHART

TABLE 1

Physical Properties of STYROFOAM™ Highload 40, 60 and 100 Insulation			
Property and Test Method	Value		
	Highload 40	Highload 60	Highload 100
Thermal Resistance ⁽¹⁾ , per inch, ASTM C518, C177, @ 75°F mean temp., ft ² •h•°F/Btu, R-value, min.	5.0	5.0	5.0
Compressive Strength ⁽²⁾ , ASTM D1621, psi, min.	40	60	100
Water Absorption, ASTM C272, % by volume, max. (24hr water immersion)	0.1	0.1	0.1
Water Vapor Permeance ⁽³⁾ , ASTM E96, perms	0.8	0.8	0.8
Maximum Use Temperature, °F	165	165	165
Coefficient of Linear Thermal Expansion, ASTM D696, in/in•°F	3.5 x 10 ⁻⁵	3.5 x 10 ⁻⁵	3.5 x 10 ⁻⁵
Flexural Strength, ASTM C203, psi, min.	60	75	100
Complies with ASTM C578, Type	VI	VII	V

(1) For 1" material

(2) Vertical compressive strength is measured at 5 percent deformation or at yield, whichever occurs first. Since STYROFOAM insulations are visco-elastic materials, adequate design safety factors should be used to prevent long-term creep. For static loads, 3:1 is suggested. For dynamic loads, call 1-866-583-BLUE (2583) for safety factor recommendation.

(3) Water vapor permeance varies with product type and thickness. Values are based on the desiccant method and they apply to insulation 1" or greater in thickness.

CANADA PROPERTY CHART

TABLE 2

Physical Properties of STYROFOAM™ Highload 40, 60 and 100 Insulation			
Property and Test Method	Value		
	Highload 40	Highload 60	Highload 100
Thermal Resistance ⁽¹⁾ , per inch (25 mm), ASTM C518, C177, @ 75°F (24°C) mean temp., ft ² •h•°F/Btu (m ² •°C/W), R-value (RSI), min.	5.0 (.88)	5.0 (.88)	5.0 (.88)
Compressive Strength ⁽²⁾ , ASTM D1621, psi (kPa), min.	40 (275)	60 (415)	100 (690)
Water Absorption, ASTM D2842, % by volume, max. (96hr water immersion)	0.7	0.7	0.7
Water Vapour Permeance ⁽³⁾ , ASTM E96, perms (ng/Pa•s•m ²)	0.6 (35)	0.6 (35)	0.6 (35)
Maximum Use Temperature, °F (°C)	165 (74)	165 (74)	165 (74)
Coefficient of Linear Thermal Expansion, ASTM D696, in/in•°F (mm/m•°C)	3.5 x 10 ⁻⁵ (6.3 x 10 ⁻²)	3.5 x 10 ⁻⁵ (6.3 x 10 ⁻²)	3.5 x 10 ⁻⁵ (6.3 x 10 ⁻²)
Flexural Strength, ASTM C203, psi (kPa), min.	70 (480)	85 (585)	85 (585)
Compressive Modulus (typical), ASTM D1621, psi (kPa)	1,400 (9,650)	2,200 (15,170)	3,700 (25,510)
Complies with CAN/ULC S701, Type	4	4	4

(1) For 1" (25 mm) material

(2) Vertical compressive strength is measured at 5 percent deformation or at yield, whichever occurs first. Since STYROFOAM insulations are visco-elastic materials, adequate design safety factors should be used to prevent long-term creep. For static loads, 3:1 is suggested. For dynamic loads, call 1-866-583-BLUE (2583) for safety factor recommendation.

(3) Water vapour permeance varies with product type and thickness. Values are based on the desiccant method and they apply to insulation 1" (25 mm) or greater in thickness.

4 Technical Data

APPLICABLE STANDARDS

STYROFOAM™ Highload 40, 60 and 100 insulation meets ASTM C578 – Standard Specification for Rigid Cellular Polystyrene Thermal Insulation. Applicable ASTM standards include:

- C518 – Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus
- C177 – Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus
- D1621 – Standard Test Method for Compressive Properties of Rigid Cellular Plastics
- D2842 – Standard Test Method for Water Absorption of Rigid Cellular Plastics
- E96 – Standard Test Methods for Water Vapor Transmission of Materials
- C272 - Standard Test Method for Water Absorption of Core Materials for Structural Sandwich Constructions
- D696 – Standard Test Method for Coefficient of Linear Thermal Expansion of Plastics Between -30°C and 30°C With a Vitreous Silica Dilatometer

TABLE 3

Chemical Resistance ⁽¹⁾ of STYROFOAM™ Highload 40, 60 and 100 Insulation	
Acid, inorganic, weak	Excellent
Acid, inorganic, strong	Excellent
Acid, organic, weak	Excellent
Acid, organic, strong	Good
Bases	Excellent
Alcohols, including isopropyl alcohol	Excellent
Methyl ethyl ketone	Not recommended
Polyglycols, including propylene glycol	Excellent
Hydrocarbons	Not recommended
Salts	Excellent
Insecticides	Not recommended
Kerosene	Poor
Mineral oil USP	Excellent
Naphtha (VMP)	Not recommended
Turpentine	Not recommended
Beer	Good
Gasoline	Not recommended
Fruit juices	Good

(1) Explanation of ratings:

Excellent = The plastic was unaffected for the duration of the test.
Good = A very slight clouding or discoloration of the plastic.
Poor = Considerable change in plastic during exposure.
Not recommended = Severe attack of the plastic. Became soft and unusable after a few hours of exposure.

NOTE: This table should be used as a guide only. For design purposes, specific test data on the intended application may be needed.

- C203 – Standard Test Methods for Breaking Load and Flexural Properties of Block-Type Thermal Insulation

CODE COMPLIANCE

STYROFOAM™ Highload 40, 60 and 100 insulation complies with the following codes:

- International Residential Code (IRC) and International Building Code (IBC); see ICC-ES NER-699, BOCA-ES RR 21-02

- ICBO-ES ER-2275
- Calif. Std. Reg. #CA T064
- Underwriters Laboratories, Inc. (UL) Classified, see Classification Certificate D369

Contact your Dow sales representative or local authorities for state/provincial and local building code requirements and related acceptances.

PHYSICAL/CHEMICAL PROPERTIES

STYROFOAM™ Highload 40, 60 and 100 insulation products exhibit the physical properties indicated in Tables 1 and 2 when tested as represented.

For chemical resistance properties of STYROFOAM Highload 40, 60 and 100 insulation products, see Table 3.

ENVIRONMENTAL DATA

STYROFOAM™ Highload 40, 60 and 100 insulation is manufactured with HCFC blowing agents which have 94 percent less ozone depletion potential than standard CFC blowing agents.

STYROFOAM extruded polystyrene insulation products are reusable in many applications.

FIRE PROTECTION

STYROFOAM™ Highload 40, 60 and 100 insulation is combustible; protect from high heat sources. Local building codes may require a protective or thermal barrier. For more information, consult MSDS, call Dow at 1-866-583-BLUE (2583) or contact your local building inspector.

5 Installation

STYROFOAM™ Highload 40, 60 and 100 insulation boards are easy to handle and install. They can be cut with a utility knife or any sharp blade. Contact a local Dow representative or access the literature library at www.dowstyrofoam.com/architect or www.dowstyrofoam.ca/4architects for more specific instructions.

6 Availability

STYROFOAM™ Highload 40, 60 and 100 insulation products are distributed through an extensive network. For more information, call:
1-800-232-2436 (English)
1-800-565-1255 (French)

7 Warranty

In the United States, a 15-year limited thermal warranty is available.

8 Maintenance

Not applicable.

9 Technical Services

Dow can provide technical information to help address questions when using STYROFOAM™ 40, 60 and 100 insulation products. Technical personnel are available to assist with any insulation project. For technical assistance call:
1-866-583-BLUE (2583) (English)
1-800-363-6210 (French)

10 Filing Systems

- www.dowstyrofoam.com/architect
- www.dowstyrofoam.ca/4architects
- www.sweets.com

IN THE U.S.:

- For Technical Information: **1-866-583-BLUE (2583)**
- For Sales Information: **1-800-232-2436**

THE DOW CHEMICAL COMPANY

- Building Solutions • 200 Larkin • Midland, MI 48674
- www.dowstyrofoam.com/architect**

IN CANADA:

- For Technical Information: **1-866-583-BLUE (2583)** (English); **1-800-363-6210** (French)
- For Sales Information: **1-800-232-2436** (English); **1-800-565-1255** (French)

DOW CHEMICAL CANADA INC.

- Building Solutions • Suite 2200 • 250 – 6th Ave. SW • Calgary, AB T2P 3H7
- www.dowstyrofoam.ca/4architects**

NOTICE: No freedom from any patent owned by Dow or others is to be inferred. Because use conditions and applicable laws may differ from one location to another and may change with time, Customer is responsible for determining whether products and the information in this document are appropriate for Customer's use and for ensuring that Customer's workplace and disposal practices are in compliance with applicable laws and other government enactments. Dow assumes no obligation or liability for the information in this document. NO WARRANTIES ARE GIVEN; ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY EXCLUDED.

COMBUSTIBLE: Protect from high heat sources. Local building codes may require a protective or thermal barrier. For more information, consult MSDS, call Dow at 1-866-583-BLUE (2583) or contact your local building inspector. In an emergency, call 1-989-636-4400 in the U.S. or 1-519-339-3711 in Canada.

Building and/or construction practices unrelated to building materials could greatly affect moisture and the potential for mold formation. No material supplier including Dow can give assurance that mold will not develop in any specific system.

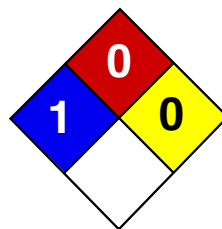
a proud partner of



Printed in U.S.A.

®™Trademark of The Dow Chemical Company
("Dow") or an affiliated company of Dow
Habitat for Humanity is a registered service mark owned by Habitat for Humanity International

Form No. 179-02548X-0807DM
178-00202X-0807DM
McKay189699



Health	1
Fire	0
Reactivity	0
Personal Protection	E

Material Safety Data Sheet

Lead MSDS

Section 1: Chemical Product and Company Identification

Product Name: Lead

Catalog Codes: SLL1291, SLL1669, SLL1081, SLL1459, SLL1834

CAS#: 7439-92-1

RTECS: OF7525000

TSCA: TSCA 8(b) inventory: Lead

CI#: Not available.

Synonym: Lead Metal, granular; Lead Metal, foil; Lead Metal, sheet; Lead Metal, shot

Chemical Name: Lead

Chemical Formula: Pb

Contact Information:

Sciencelab.com, Inc.

14025 Smith Rd.

Houston, Texas 77396

US Sales: **1-800-901-7247**

International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:

1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Lead	7439-92-1	100

Toxicological Data on Ingredients: Lead LD50: Not available. LC50: Not available.

Section 3: Hazards Identification

Potential Acute Health Effects: Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation.

Potential Chronic Health Effects:

Slightly hazardous in case of skin contact (permeator). CARCINOGENIC EFFECTS: Classified A3 (Proven for animal.) by ACGIH, 2B (Possible for human.) by IARC. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to blood, kidneys, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage.

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 if irritation occurs.

Skin Contact: Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops.

Serious Skin Contact: Not available.

Inhalation:

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

Serious Inhalation: Not available.

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. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: May be combustible at high temperature.

Auto-Ignition Temperature: Not available.

Flash Points: Not available.

Flammable Limits: Not available.

Products of Combustion: Some metallic oxides.

Fire Hazards in Presence of Various Substances: Non-flammable in presence of open flames and sparks, of shocks, of heat.

Explosion Hazards in Presence of Various Substances:

Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:

SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Special Remarks on Fire Hazards: When heated to decomposition it emits highly toxic fumes of lead.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill:

Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill:

Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:

Keep locked up.. Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe dust. Wear suitable

protective clothing. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection: Safety glasses. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:

TWA: 0.05 (mg/m³) from ACGIH (TLV) [United States] TWA: 0.05 (mg/m³) from OSHA (PEL) [United States] TWA: 0.03 (mg/m³) from NIOSH [United States] TWA: 0.05 (mg/m³) [Canada] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid. (Metal solid.)

Odor: Not available.

Taste: Not available.

Molecular Weight: 207.21 g/mole

Color: Bluish-white. Silvery. Gray

pH (1% soln/water): Not applicable.

Boiling Point: 1740°C (3164°F)

Melting Point: 327.43°C (621.4°F)

Critical Temperature: Not available.

Specific Gravity: 11.3 (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility: Insoluble in cold water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Incompatible materials, excess heat

Incompatibility with various substances: Reactive with oxidizing agents.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:

Can react vigorously with oxidizing materials. Incompatible with sodium carbide, chlorine trifluoride, trioxane + hydrogen peroxide, ammonium nitrate, sodium azide, disodium acetylide, sodium acetylide, hot concentrated nitric acid, hot concentrated hydrochloric acid, hot concentrated sulfuric acid, zirconium.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Inhalation. Ingestion.

Toxicity to Animals:

LD50: Not available. LC50: Not available.

Chronic Effects on Humans:

CARCINOGENIC EFFECTS: Classified A3 (Proven for animal.) by ACGIH, 2B (Possible for human.) by IARC. May cause damage to the following organs: blood, kidneys, central nervous system (CNS).

Other Toxic Effects on Humans: Slightly hazardous in case of skin contact (irritant), of ingestion, of inhalation.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans:

Acute Potential: Skin: Lead metal granules or dust: May cause skin irritation by mechanical action. Lead metal foil, shot or sheets: Not likely to cause skin irritation Eyes: Lead metal granules or dust: Can irritate eyes by mechanical action. Lead metal foil, shot or sheets: No hazard. Will not cause eye irritation. Inhalation: In an industrial setting, exposure to lead mainly occurs from inhalation of dust or fumes. Lead dust or fumes: Can irritate the upper respiratory tract (nose, throat) as well as the bronchi and lungs by mechanical action. Lead dust can be absorbed through the respiratory system. However, inhaled lead does not accumulate in the lungs. All of an inhaled dose is eventually absorbed or transferred to the gastrointestinal tract. Inhalation effects of exposure to fumes or dust of inorganic lead may not develop quickly. Symptoms may include metallic taste, chest pain, decreased physical fitness, fatigue, sleep disturbance, headache, irritability, reduces memory, mood and personality changes, aching bones and muscles, constipation, abdominal pains, decreasing appetite. Inhalation of large amounts may lead to ataxia, delirium, convulsions/seizures, coma, and death. Lead metal foil, shot, or sheets: Not an inhalation hazard unless metal is heated. If metal is heated, fumes will be released. Inhalation of these fumes may cause "fume metal fever", which is characterized by flu-like symptoms. Symptoms may include metallic taste, fever, nausea, vomiting, chills, cough, weakness, chest pain, generalized muscle pain/aches, and increased white blood cell count. Ingestion: Lead metal granules or dust: The symptoms of lead poisoning include abdominal pain or cramps (lead colic), spasms, nausea, vomiting, headache, muscle weakness, hallucinations, distorted perceptions, "lead line" on the gums, metallic taste, loss of appetite, insomnia, dizziness and other symptoms similar to that of inhalation. Acute poisoning may result in high lead levels in the blood and urine, shock, coma and death in extreme cases. Lead metal foil, shot or sheets: Not an ingestion hazard for usual industrial handling.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations**Waste Disposal:**

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: Not a DOT controlled material (United States).

Identification: Not applicable.

Special Provisions for Transport: Not applicable.

Section 15: Other Regulatory Information**Federal and State Regulations:**

California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Lead California prop. 65: This product contains the following ingredients for which the State of California has found to cause reproductive harm (female) which would require a warning under the statute: Lead California prop. 65: This product contains the following ingredients for which the State of California has found to cause reproductive harm (male) which would require a warning under the statute: Lead California prop. 65 (no significant risk level): Lead: 0.0005 mg/day (value) California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: Lead California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Lead Connecticut hazardous material survey.: Lead Illinois toxic substances disclosure to employee act: Lead Illinois chemical safety act: Lead New York release reporting list: Lead Rhode Island RTK hazardous substances: Lead Pennsylvania RTK: Lead

Other Regulations:

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada): CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC):

R20/22- Harmful by inhalation and if swallowed. R33- Danger of cumulative effects. R61- May cause harm to the unborn child. R62- Possible risk of impaired fertility. S36/37- Wear suitable protective clothing and gloves. S44- If you feel unwell, seek medical advice (show the label when possible). S53- Avoid exposure - obtain special instructions before use.

HMIS (U.S.A.):

Health Hazard: 1

Fire Hazard: 0

Reactivity: 0

Personal Protection: E

National Fire Protection Association (U.S.A.):

Health: 1

Flammability: 0

Reactivity: 0

Specific hazard:

Protective Equipment:

Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Safety glasses.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/10/2005 08:21 PM

Last Updated: 11/06/2008 12:00 PM

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall ScienceLab.com be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if ScienceLab.com has been advised of the possibility of such damages.

MATERIAL SAFETY DATA SHEET

ProX Rocket Motor Reload Kits & Fuel Grains

1.0 PRODUCT / COMPANY IDENTIFICATION

Product Name: Pro29, Pro38, Pro54, Pro75, and Pro98 Rocket Motor Reload Kits
Synonyms: Rocket Motor
Proper Shipping Name: Articles, Explosive, N.O.S. (Ammonium Perchlorate)
Part Numbers: Reload kits: P29R-Y-#G-XX, P38R-Y-#G-XX, P54R-Y-#G-XX,
P29R-Y-#GXL-XX, P38R-Y-#GXL-XX, P54R-Y-#GXL-XX,
P75AC-PG-XX, P98AC-PG-XX, P98AC-MB-PG-XX
Propellant grains: Where: Y = reload type (A = adjustable delay, C = C-slot)
= number of grains &
XX = propellant type

Product Use: Solid fuel motor for propelling rockets

Manufacturer: Cesaroni Technology Inc.
P.O. Box 246
2561 Stouffville Rd.
Gormley, Ont.
Canada L0H 1G0

Telephone Numbers:
Product Information: 1-905-887-2370
24 Hour Emergency Telephone Number: 1-613-996-6666 (CANUTEC)

2.0 COMPOSITION / INFORMATION ON INGREDIENTS

Propellant

Ingredient Name	CAS Number	Percentage
Ammonium Perchlorate	7790-98-9	40-85 %
Metal Powders		1-45 %
Synthetic Rubber		10-30 %

Black Powder Ignition pellet

Ingredient Name	CAS Number	Percentage
Potassium Nitrate.....	7757-79-1	70-76 %
Charcoal.....	n/a	8-18 %
Sulphur.....	7704-34-9	9-20 %
Graphite	7782-42-5	trace

3.0 HAZARDS IDENTIFICATION

Emergency Overview:

These articles contain cylinders of ammonium perchlorate composite propellant, encased in inert plastic parts. The forward closure also contains a few grams of black powder. ProX Rocket motor reload kits are classified as explosives, and may cause serious injury, including death if used improperly. All explosives are dangerous and must be handled carefully and used following approved safety procedures under the direction of competent, experienced personnel in accordance with all applicable federal, state and local laws and regulations. Avoid inhaling exhaust products.

General Appearance:

Cardboard tubes contain various plastic parts. Inside the plastic tube are cylinders of composite propellant (rocket fuel). The forward closure also contains a small quantity of black powder. All parts are odourless solids.

Potential Health Effects:**Eye:**

Not a likely route of exposure. May cause eye irritation.

Skin:

Not a likely route of exposure. Low hazard for usual industrial/hobby handling.

Ingestion:

Not a likely route of exposure.

Inhalation:

Not a likely route of exposure. May cause respiratory tract irritation. Do not inhale exhaust products.

4.0 FIRST AID MEASURES

Eyes:

Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

Skin:

Flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid if irritation develops or persists.

Ingestion:

Do NOT induce vomiting. If conscious and alert, rinse mouth and drink 2-4 cupfuls of milk or water.

Inhalation:

Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

Burns: Burns can be treated as per normal first aid procedures.

5.0 FIRE FIGHTING MEASURES

Extinguishing Media:

In case of fire, use water, dry chemical, chemical foam, or alcohol-resistant foam to contain surrounding fire.

Exposure Hazards During Fire:

Exposure to extreme heat may cause ignition.

Combustion Products from Fire:

During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Fire Fighting Procedures:

Keep all persons and hazardous materials away. Allow material to burn itself out. As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear.

Special Instructions / Notes:

These articles burn rapidly and generate a significant flame for a short period of time. Black powder is a deflagrating explosive. It is very sensitive to flame and spark and can also be ignited by friction and impact. When ignited unconfined, it burns with explosive violence and will explode if ignited under even slight confinement. Do not inhale exhaust products.

6.0 ACCIDENTAL RELEASE MEASURES

Safeguards (Personnel):

Spills: Clean up spills immediately. Replace articles in packaging and boxes and seal securely. Sweep or scoop up using non-sparking tools.

7.0 HANDLING AND STORAGE

Handling:

Keep away from heat, sparks and flame. Avoid contamination. Do not get in eyes, on skin or on clothing. Do not taste or swallow. Avoid prolonged or repeated contact with skin. Follow manufacturer's instructions for use.

Storage: Store in a cool, dry place away from sources of heat, spark or flame. Keep in shipping packaging when not in use.

8.0 EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls:

Use adequate explosion proof ventilation to keep airborne concentrations low. All equipment and working surfaces must be grounded.

Personal Protective Equipment:

Eyes:

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin:

Clothing should be appropriate for handling pyrotechnic substances.

Clothing:

Clothing should be appropriate for handling pyrotechnic substances.

Respirators:

A respirator is not typically necessary. Follow the OSHA respirator regulations found in 29CFR1910.134 or European Standard EN 149. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

9.0 PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	solid
Appearance:	rubber cylinders inside plastic parts
Odour:	none
Odour Threshold:	Not available.
pH:	Not available.
Vapour Pressure:	Not available.
Vapour Density:	Not available.
Viscosity:	Not available.
Evaporation Rate:	Not available.
Boiling Point:	Not available.
Freezing/Melting Point:	Not available.
Coefficient of water/oil distribution:	Not available.
Autoignition Temperature:	280°C
Flash Point:	Not available.
Explosion Limits, lower (LEL):	Not available.
Explosion Limits, upper (UEL):	Not available.
Sensitivity to Mechanical Impact:	unprotected black powder can be ignited by impact
Sensitivity to Static Discharge:	unprotected black powder can be ignited by static discharge
Decomposition Temperature:	> 400°C
Solubility in water:	black powder is soluble in water
Specific Gravity/Density:	black powder = 1.7-2.1 Propellant = not available
Molecular Formula:	Not applicable
Molecular Weight:	Not applicable.

10.0 STABILITY AND REACTIVITY

Chemical Stability:

Stable under normal temperatures and pressures.

Conditions to Avoid:

Heat, static electricity, friction, impact

Incompatibilities with Other Materials:

Combustible or flammable materials, explosive materials

Hazardous Products Of Decomposition:

Oxides of nitrogen

Hazardous Polymerization:

Will not occur.

11.0 TOXICOLOGICAL INFORMATION

Routes of Entry: Skin contact – not likely
Skin absorption – not likely
Eye contact – not likely
Inhalation – not likely
Ingestion – not likely

Effects of Acute Exposure to Product:
No data available

Effects of Chronic Exposure to Product:
No data available

Exposure Limits:

Black Powder Pellets

Ingredient Name	CAS Number	OSHA PEL	ACGIH TLV
Potassium Nitrate	7757-79-1	not established	not established
Charcoal	n/a	not established	not established
Sulphur	7704-34-9	not established	not established
Graphite	7782-42-5	2.5 mg/m ³	15 mmpt (TWA)

Propellant

Ingredient Name	CAS Number	OSHA PEL	ACGIH TLV
Ammonium Perchlorate	7790-98-9	not established	not established
metal powder		varies	varies
Synthetic Rubber		not established	not established

Irritancy of the Product:
No data available

Sensitization to the Product:
No data available

Carcinogenicity:
Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA

Reproductive Toxicity:
No data available

Teratogenicity:
No data available

Mutagenicity:
No data available

Toxically Synergistic Products:
No data available

LD50:
No data available

12.0 ECOLOGICAL INFORMATION

Environmental Data:

Ecotoxicity Data:
Not determined.

EcoFaTE Data:
Not determined.

13.0 DISPOSAL CONSIDERATIONS

Product As Sold: Pack firmly in hole in ground with nozzle pointing up. Ignite motor electrically from a safe distance and wait 5 minutes before approaching. Dispose of spent components in inert trash.

Product Packaging: Dispose of used packaging materials in inert trash.

Special Considerations: Consult local regulations about disposal of explosive materials.

14.0 TRANSPORT INFORMATION

Shipping Information – Canada

TDG Classification: Class 1.4 Explosive
Proper Shipping Name: Articles, Explosive, N.O.S. (Model Rocket Motors)
UN Number: 0351
UN Classification Code: 1.4 C
Packing Group: II
UN Packing Instruction: 101

Shipping Information - USA / IMO

Proper Shipping Name: Articles, Explosive, N.O.S. (Model Rocket Motors)
UN Number: 0351
UN Classification Code: 1.4 C
DOT / IMO Label: Class 1 – Explosive – Division 1.4C

Shipping Information - IATA

Proper Shipping Name: Articles, Explosive, N.O.S. (Model Rocket Motors)
UN Number: 0351
UN Classification Code: 1.4 C
IATA Labels: Class 1 – Explosive – Division 1.4C
Cargo Aircraft Only

15.0 REGULATORY INFORMATION

Canada

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

WHMIS Classification: Not Controlled (explosive)

Domestic Substance List (DSL) Status:
All ingredients are listed on Canada's DSL List.

Canadian Explosives Classification: Class 7.2.5
This product is an authorized explosive in Canada.

These products are not considered "Controlled Good" in Canada under the Controlled Goods Regulations.

United States of America

TSCA Inventory Status:
All ingredients are listed on the TSCA inventory.

Hazardous Chemical Lists	
CERCLA Hazardous Substance (40 CFR 302.4)	No
SARA Extremely Hazardous Substance (40CFR 355)	No
SARA Toxic Chemical (40CFR 372.65)	No

European/International Regulations

The product on this MSDS, or all its components, is included on the following countries' chemical inventories:
EINECS – European Inventory of Existing Commercial Chemical Substances

European Labelling in Accordance with EC Directives

Hazard Symbols: Explosive.

Risk Phrases:

R 2	Risk of explosion by shock, friction, fire or other sources of ignition.
R 11	Highly flammable
R 44	Risk of explosion if heated under confinement.

Safety Phrases:

S 1/2	Keep locked up and out of the reach of children.
S 8	Keep container dry.
S 15	Keep away from heat.
S 16	Keep away from sources of ignition -- No smoking.

- S 17** Keep away from combustible material.
- S 18** Handle and open container with care.
- S 33** Take precautionary measures against static discharges.
- S 41** In case of fire and/or explosion do not breathe fumes.

16.0 OTHER INFORMATION

MSDS Prepared by: Regulatory Affairs Department
Cesaroni Technology Inc.
P.O. Box 246
2561 Stouffville Rd.
Gormley, ON
Canada L0H 1G0

Telephone: 905-887-2370 x239
Fax: 905-887-2375
Web Sites: www.cesaronitech.com
www.Pro38.com

The data in this Material Safety Data Sheet relates only to the specific material or product designated herein and does not relate to use in combination with any other material or in any process.

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no way shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if the company has been advised of the possibility of such damages.

The MSDS format adheres to the standards and regulatory requirements of the United States and may not meet regulatory requirements in other countries.

DuPont Teijin Films
Material Safety Data Sheet

Page 1

"MYLAR" POLYESTER FILM (NOT INCLUDING POLYVINYLIDENE CHLORIDE COATED
TYPES)
MYL045 Revised 27-APR-2004

CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Material Identification

Mylar is a registered trademark of DuPont Teijin Films.

Product Use

OSHA Hazard Communication Standard (29 CFR 1910.1200) requirements for Material Safety Data Sheets do not apply to the product described in this information sheet. This product is excluded as an article.

Tradenames and Synonyms (Remarks)

This data sheet covers the following "Mylar" film types:
A, A101, A102, A301, A302, A631, A701, A951, AB, AC, AGN1, AGN4, AHS1, ALS1, ALS2, AP, AP101, AR, AT, AWH, AXM401, AXM402, AXM901, B, C, CL, CMA121, CND, DA, DCLF, DL, DL1, DM, DMS, DP, E, E101, E101MR, EB11, EB11P, EB21, EB31, EC, EL, EL21, ETSF, FG90, FG140, FG200, FG250, FG313, FGM90, FT, GA10, GA848, GF, GFX951, HP, HR, HR631, HS, HS2, IHP, J101, J102, J301, J401, J402, J502, J956, JSB102, JXM102SB, JXM901, KB, KL, KL1, KM, LB, LB3, LBJ, LBT, LBT2, LJX181, M461, M462, M577, MSX, MA, MBP, MLB, MLBT, MO, M021, MSX, MT, MTE, MTL, OL, OL3, OL12, OL13, OL22, OLAF, OL12AF, OL13AF, OLAF, OLF, P25, PB, PRP, PST, REL, RELT, RS, RSX, RSX631, S, SC, SM462, SMVBT, SP, SR, SRL, ST, ST2, SXM121, SXM141, TLX, TLXMR, TTMHT, VBL, WC, WC11, WC11G, WC22, WOL, XD856, XHDS, XM35, XM35W, XM101, XM123, XM125, XM208AF, XM462MR, XM679, XM679T1MR, XM728WMR, XM841, XM852, XM861, XM918, XMB, XMBLSF, XMDULAM, XMLBH, XMLBH2, XMLD, XMOL60, XMPCL, XPRL, XSM, XSROL, XWOLT, 308, 365, 376, 401, 800, 800C, 808, 811, 813, 814, 816, 820, 822, 823, 834, 840, 841, 844, 845, 850, 851, 852, 854, 864, 890, 891, 7100

This data sheet also covers the following DuPont Teijin Films which are not branded as "Mylar" products:
DuPont Teijin Films, types DB, G2, N5, S1, S2, X2, X2I, X2P, X3I

Company Identification

MANUFACTURER/DISTRIBUTOR
DuPont Teijin Films
U.S. Limited Partnership
1 Discovery Drive
P.O. Box 411
Hopewell, VA 23860 USA

(CHEMICAL PRODUCT/COMPANY IDENTIFICATION - Continued)

PHONE NUMBERS

Product Information : (800) 635-4639 Fax: (804) 530-9867

Transport Emergency : CHEMTREC: 1-800-424-9300

COMPOSITION/INFORMATION ON INGREDIENTS

Components

Material	CAS Number	%
Oriented polyester film. May contain a coextrusion layer. Various fillers or additives used to modify the physical appearance and/or surface properties may be present.		100
Base Film:		
Polyethylene Terephthalate	25038-59-9	64-100
Coextrusion layer (if present):		
Isophthalate Copolymer	24938-04-3	8-20
The following Fillers and/or Additives may be present in one or more film types:		
Barium Sulfate	7727-43-7	<20
Titanium Dioxide	13463-67-7	<20
Poly(Ethylene/Vinyl Acetate)		<10
Acrylic Polymer		<5
Polypropylene	9003-07-0	<5
Polyvinyl Alcohol	9002-89-5	<5
Silica	7631-86-9	<1
Silicone		<1
Carbon Black (only in black films)	1333-86-4	<1
Aluminum	7429-90-5	<1

Components (Remarks)

Material is not known to contain Toxic Chemicals under Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

HAZARDS IDENTIFICATION

Emergency Overview

Appearance: Solid film
Odor: Odorless

No known health hazards at ambient temperature.
Read the entire MSDS for a more thorough evaluation of the hazards.

(HAZARDS IDENTIFICATION - Continued)

Potential Health Effects

High temperature operations using "Mylar" Films can produce fumes or vapors of decomposition products of polyethylene terephthalate and isophthalate polymer. The type and quantity of the fumes or vapors will vary based on temperature, time and other variables. These fumes or vapors may cause eye, nose, throat or respiratory irritation, or other effects such as headache.

Molten polymer can cause thermal burns.

Exposure to components used as fillers is not likely as these are encapsulated in the polymer and fully incorporated into the film.

Carcinogenicity Information

The following components are listed by IARC, NTP, OSHA or ACGIH as carcinogens.

Material	IARC	NTP	OSHA	ACGIH
Carbon Black (only in black films)	2B			

FIRST AID MEASURES-----
First Aid

INHALATION

No specific intervention is indicated as the compound is not likely to be hazardous by inhalation.

However, if exposed to fumes from overheating or combustion, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician if necessary.

SKIN CONTACT

The compound is not likely to be hazardous by skin contact but cleansing the skin after use is advisable.

If molten material gets on skin, cool rapidly with cold water. Do not attempt to remove material from skin. Obtain medical treatment for thermal burn.

EYE CONTACT

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

INGESTION

(FIRST AID MEASURES - Continued)

Ingestion is not an expected route of exposure during normal use of the product. If ingested, consult a physician.

Notes to Physicians

Prolonged eye irritation may occur from pieces of debris sticking to the eyeball or eyelids.

FIRE FIGHTING MEASURES

Flammable Properties

Non-metalized films can be combusted only by remaining in contact with flame. If flame source is stationary, non-metalized films will shrink away and self-extinguish. Non-metalized film remaining in contact with flame can continue to burn slowly, dropping flaming liquid which can spread the fire. Metalized films may support combustion if ignited.

Hazardous gases/vapors produced in fire are carbon dioxide, carbon monoxide, organic acids, aldehydes, alcohols.

During processing, film may pick up a strong static charge. Avoid discharge into dust or solvent laden air as a flash fire or explosion may result.

Extinguishing Media

Water, Foam, Dry Chemical, CO2.

Fire Fighting Instructions

Keep personnel removed and upwind of fire. Wear self-contained breathing apparatus. Wear full protective equipment.

ACCIDENTAL RELEASE MEASURES

Safeguards (Personnel)

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Spill Clean Up

Sweep up to avoid slipping hazard.

HANDLING AND STORAGE

Handling (Personnel)

Do not breathe vapors or fumes that may be evolved during processing.

Avoid skin contact with sharp film edges.

Handling (Physical Aspects)

Rolls of film may telescope. Use caution when handling.

Rolled film should be stored at intended processing temperature for approximately 24 hours prior to use.

Plastic packaging materials can pick up static charge. Polyester film rolls packaged with shrinkwrap (or other plastic overwrap) should be opened or unwrapped only in non-process areas where ignition sources such as solvents are not in use or in storage.

Storage

Store away from heat and sources of ignition. Do not store in direct sunlight. Avoid prolonged storage in high or low temperatures. Recommended storage temperatures are 20 F (-7 C) to 100F (38 C).

EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls

General exhaust is acceptable except where overheating can occur during processing. High temperature operations may require use of local exhaust ventilation to keep employee exposure below recommended limits.

Movement of film over metal or rollers will produce a surface static charge on the film. Consider processing design and procedures that will reduce or dissipate this charge, and eliminate the possibility of unwanted electrical discharge to people, equipment and materials.

Personal Protective Equipment

EYE/FACE PROTECTION

Wear safety glasses.

RESPIRATORY PROTECTION

Respirators are not needed for normal use.

(EXPOSURE CONTROLS/PERSONAL PROTECTION - Continued)

Where airborne concentrations are expected to exceed exposure limits, a NIOSH approved respirator should be selected based on the form and concentration of the contaminant in air and in accordance with OSHA Respiratory Protection Standard CFR 1910.134.

PROTECTIVE CLOTHING

If there is potential for contact with hot/molten material, wear heat resistant impervious clothing and footwear.

Special protective clothing is not needed for normal use. Gloves are recommended as good industrial practice.

Exposure Guidelines

Applicable Exposure Limits

Polyethylene Terephthalate

PEL (OSHA)	: None Established
TLV (ACGIH)	: None Established
AEL * (DuPont)	: 10 mg/m ³ , 8 Hr. TWA, total dust
	: 5 mg/m ³ , 8 Hr. TWA, respirable dust

* AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

PHYSICAL AND CHEMICAL PROPERTIES

Physical Data

Form	: Transparent film
Color	: Colorless to black (depending on film type)
Odor	: Negligible
Melting Point	: ~260 C (~500 F) (PET base film - coextrusion layer or coatings may melt at lower temperatures)
Solubility in Water	: Insoluble
Specific Gravity	: 1.2-1.4
Vapor Pressure	: Negligible @ 20 C (68 F)

STABILITY AND REACTIVITY

Chemical Stability

Stable at normal temperatures and storage conditions.

Incompatibility with Other Materials

Strong acids and bases may hydrolyze the film.

(STABILITY AND REACTIVITY - Continued)

Decomposition

Combustion can produce carbon oxides and hydrocarbon oxidation products, including organic acids, aldehydes and alcohols.

Polymerization

Polymerization will not occur.

TOXICOLOGICAL INFORMATION

Animal Data

Polyethylene Terephthalate
Oral ALD: > 10,000 mg/kg in rats

Polyethylene Terephthalate is not a skin irritant, but is a mild eye irritant.

Toxic effects from short exposures by inhalation resulted in no adverse effects.

Toxic effects from short exposures by ingestion resulted in no adverse effects.

Animal testing indicates that Polyethylene Terephthalate does not have carcinogenic, mutagenic, developmental or reproductive effects.

ECOLOGICAL INFORMATION

Ecotoxicological Information

AQUATIC TOXICITY:

No information is available. Toxicity is expected to be low based on insolubility in water.

DISPOSAL CONSIDERATIONS

Waste Disposal

Preferred options for disposal are (1) recycling, (2) incineration with energy recovery, and (3) landfill. The high fuel value of this product makes option 2 very desirable for material that cannot be recycled. Treatment, storage, transportation, and disposal must be in accordance with applicable federal, state/provincial, and local regulations.

TRANSPORTATION INFORMATION

Shipping Information

DOT
Proper Shipping Name : Not regulated

REGULATORY INFORMATION

U.S. Federal Regulations

TSCA Inventory Status : In compliance with TSCA Inventory
requirements for commercial purposes.

CLEAN AIR ACT STATUS: This product does not contain, and is
not manufactured with ozone depleting chemicals as defined
in 58 FR 8136, February 11, 1993 (final rule).

State Regulations (U.S.)

CONEG STATUS: All "Mylar" products are compliant with CONEG
regulations; the sum of the concentrations of cadmium,
chromium, lead and mercury does not exceed 100 ppm. None of
these metals is used as an ingredient or processing aid.

SUBSTANCES ON THE PENNSYLVANIA HAZARDOUS SUBSTANCE LIST THAT
MAY BE PRESENT AT A CONCENTRATION OF 1% OR MORE (0.01% FOR
SPECIAL HAZARDOUS SUBSTANCES): Barium Sulfate; Titanium
Oxide (TiO₂); Carbon Black (black films only).

SUBSTANCES ON THE NEW JERSEY WORKPLACE HAZARDOUS SUBSTANCE
LIST THAT MAY BE PRESENT AT A CONCENTRATION OF 1% OR MORE
(0.1% FOR SUBSTANCES IDENTIFIED AS CARCINOGENS, MUTAGENS OR
TERATOGENS): Barium Compounds; Titanium Dioxide; Carbon
Black (black films only).

CALIFORNIA PROPOSITION 65 STATUS: The products described
herein do not contain substances that require a warning
pursuant to Propositions 65.

OTHER INFORMATION

NFPA, NPCA-HMIS

NFPA Rating
Health : 1
Flammability : 1
Reactivity : 0

NPCA-HMIS Rating
Health : 0
Flammability : 1
Reactivity : 0

(Continued)

Additional Information

MEDICAL USE: CAUTION: Do not use in medical applications involving permanent implantation in the human body. For other medical applications see DuPont CAUTION Bulletin No. H-50102.

The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

Polyester Films MSDS Coordinator
1007 Market St. Room D-6054A
Wilmington, DE 19898
302-773-0904

Indicates updated section.

This information is based upon technical information believed to be reliable. It is subject to revision as additional knowledge and experience is gained.

End of MSDS



MATERIAL SAFETY DATA SHEET

PARTALL[®] PASTE #2

MSDS Number: P02-002

Effective Date: 14 June 2010

Page 1 of 6

SECTION 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME **PARTALL[®] Paste #2**
GENERIC NAME Wax polishing compound

MANUFACTURER REXCO
 P.O. Box 80996
 Conyers, Georgia 30013
 USA

TRANSPORTATION EMERGENCY:

CHEMTREC (800) 424-9300 U.S.A. (24 hours/day)
CHEMTREC (703) 527-3887 International (Collect calls accepted)

CUSTOMER SERVICE AND PRODUCT EMERGENCY:

REXCO (800) 888-1060 U.S.A and Canada
REXCO (770) 483-7610 International

SECTION 2: COMPOSITION / INFORMATION ON INGREDIENTS

COMPONENT	CAS NUMBER	CONCENTRATION (%)
Light Petroleum Distillate	64742-47-8	64 – 72
Paraffin Wax	8002-74-2	18 – 22
Microcrystalline Wax	64742-42-3	8 – 11
Oxidized Ethene Homopolymer	68609-21-2	2 – 3

SECTION 3: HAZARDS IDENTIFICATION

NFPA RATING: Health 1, Fire 2, Reactivity 0

HMIS RATING: Health 1, Fire 2, Reactivity 0

0=MINIMAL, 1=SLIGHT, 2=MODERATE, 3=HIGH, 4=EXTREME

POTENTIAL HEALTH EFFECTS

EYES Can cause eye irritation. Prolonged or repeated exposure may result in conjunctiva.

SKIN May cause skin irritation. Prolonged or repeated exposure may result in defatting, skin dermatitis.

INHALATION Repeated or prolonged exposure may cause central nervous system depression, including headache, dizziness, loss of coordination, unconsciousness.

INGESTION Can cause nausea and vomiting with danger of Chemical Pneumonia.



MATERIAL SAFETY DATA SHEET

PARTALL[®] PASTE #2

MSDS Number: P02-002

Effective Date: 14 June 2010

Page 2 of 6

CHRONIC HEALTH EFFECTS: Possible central nervous system depression and skin dermatitis.

SYMPTOMS OF EXPOSURE: Symptoms of exposure through inhalation, ingestion, or direct contact with skin may include nausea, vomiting, diarrhea, irritation of nose, throat, airways, or skin, central nervous system depression – possibly including headache, loss of coordination, drowsiness, fatigue, and unconsciousness – and death in extreme cases. Pre-existing eye, skin, or respiratory disorders may be aggravated by exposure to this product.

PRIMARY ROUTES OF ENTRY: Skin contact, skin absorption, eye contact, and inhalation

CANCER INFORMATION: Neither this product nor any of its components is listed as a carcinogen or partial carcinogen by the following agencies: the National Toxicology Program, the International Agency for Research on Cancer, and the Occupational Safety and Health Administration.

SECTION 4: FIRST AID MEASURES

EYES	Flush immediately with cold water for 15 minutes and seek medical attention.
SKIN	Remove contaminated clothing and wash affected area with soap and hot water. If irritation from contact persists, seek medical attention. Launder contaminated clothing – including shoes – prior to reuse.
INHALATION	If light-headed or having difficulty breathing, expose individual to fresh air and/or oxygen. If breathing stops, begin artificial respiration and seek immediate medical attention.
INGESTION	Seek immediate medical attention. DO NOT INDUCE VOMITING. If vomiting occurs spontaneously, keep victim's head below hips to prevent aspiration into lungs. If possible, do not leave victim unattended.

SECTION 5: FIRE FIGHTING MEASURES

FLASH POINT / METHOD: >142 °F (>61 °C) / Tagliabue Closed Cup method (TCC)

AUTO IGNITION TEMPERATURE: 440 °F (226 °C)

FLAMMABLE LIMITS IN AIR (% BY VOLUME): LEL Lower 0.9% / UEL Upper 6.0%

FIRE AND EXPLOSION HAZARDS: Low flash point. Keep work areas free of hot metal surfaces and other sources of ignition.

EXTINGUISHING MEDIA: Use dry chemicals, CO₂, water fog, water spray, or foam.

FIRE FIGHTING INSTRUCTIONS: Wear a NIOSH-approved self contained breathing apparatus in positive pressure mode and full bunker gear. Water may be unsuitable as an extinguishing media but helpful in keeping adjacent containers cool in order to prevent container rupture. Avoid spreading burning liquid with water used for cooling purposes.



MATERIAL SAFETY DATA SHEET

PARTALL[®] PASTE #2

MSDS Number: P02-002

Effective Date: 14 June 2010

Page 3 of 6

SECTION 6: ACCIDENTAL RELEASE MEASURES

IN CASE OF SPILL: Keep sources of ignition and hot metal surfaces isolated from spill. Persons involved in clean-up should wear personal protection equipment. Stop spill at source and prevent from spreading. If spilled as a solid, scrape and then sweep up spilled material. If spilled as a free-flowing liquid, confine spill and allow liquid to solidify prior to clean-up. If run-off occurs, notify proper authorities as required. Place in chemical waste container and dispose of in accordance with local, state, and federal regulations.

SECTION 7: HANDLING AND STORAGE

Store in a cool, dry location at 90 °F (32 °C) or below and away from open flames, heat, and sparks. Keep work areas free of hot metal surfaces and other sources of ignition. Keep container tightly closed when not in use to prevent drying out of material.

Repack only into high-density polyethylene (HDPE). Containers used for repackaging should be thoroughly tested for long-term product compatibility before use. All new containers must exhibit product labels required for proper identification, safety, handling, and storage. Empty containers may contain product residue such as vapors – continue to observe proper handling and storage precautions.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

EYE PROTECTION: Safety glasses, goggles, or face shield are advised. Eye washes are recommended for work areas.

SKIN PROTECTION: Wear impervious gloves, clothing, and shoes to prevent skin contact. Safety showers are recommended for work areas. Remove contaminated clothing and wash in hot water and soap prior to reuse.

RESPIRATORY PROTECTION: Exposure levels should be kept below the PEL or TLV for this product. If exposure exceeds recommended levels, use of NIOSH-approved cartridge respirator or gas mask is advised. Engineering controls should be implemented if necessary to reduce exposure.

ENGINEERING CONTROLS: Provide sufficient general and/or local exhaust (explosion-proof ventilation) to keep exposure below PEL or TLV.

EXPOSURE GUIDELINES

COMPONENT	OSHA PEL	ACGIH TLV
Light Petroleum Distillate	100 ppm PEL/TWA	100 ppm TLV/TWA
Paraffin Wax	None Established	None Established
Microcrystalline Wax	None Established	None Established
Oxidized Ethene Homopolymer	None Established	None Established

Threshold limit for wax fumes is 2 mg/m³ in air for 8-hour workday. Avoid generation and inhalation of wax fumes.

PEL = PERMISSIBLE EXPOSURE LIMITS

TLV = THRESHOLD LIMIT VALUE

TWA = TIME WEIGHTED AVERAGE (8 HOURS)



MATERIAL SAFETY DATA SHEET

PARTALL[®] PASTE #2

MSDS Number: P02-002

Effective Date: 14 June 2010

Page 4 of 6

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: White or Green Paste Wax
ODOR: Solvent
BOILING POINT: 310 - 410 °F (154 - 210 °C)
MELTING POINT: 120 °F (48 °C)
V.O.C. (BY % CALCULATION): 533 g/L
V.O.C. = VOLATILE ORGANIC CONTENT

SPECIFIC GRAVITY (H₂O=1): 0.788
VAPOR PRESSURE (mm Hg): 3.0
VAPOR DENSITY (AIR=1): 1.4
SOLUBILITY IN WATER: No
REACTIVITY IN WATER: No

SECTION 10: STABILITY AND REACTIVITY

STABILITY: Stable

CONDITIONS TO AVOID: Open flames, hot surfaces, or any ignition source.

INCOMPATIBILITY: Incompatible with strong oxidizing agents, strong acids or bases, alkali metals, halogens, and strong alkalis.

HAZARDOUS DECOMPOSITION: Normal combustion forms carbon dioxide and water vapor. Incomplete combustion will produce carbon monoxide and other toxic substances.

HAZARDOUS POLYMERIZATION: Will not occur

SECTION 11: TOXICOLOGICAL INFORMATION

No data available specific to this product. Following is data as pertains to one or more major ingredients:

EYES: Primary Eye Irritation Index (Rabbits): Maximum average score = 3.3 (Maximum score is 110)

SKIN: Primary Skin Irritation Index (Rabbits): 2.2 (Maximum score is 8.0)
Acute Dermal LD50 (Rabbit): 2.0 – 4.0 g/kg for similar products

INHALATION: LC50 (Rat): (male and female) > 6.8 mg/L

INGESTION: Acute Oral LD50 (Rat): > 5 g/kg

SECTION 12: ECOLOGICAL INFORMATION

Product would not be expected to cause damage to the environment and is inherently biodegradable. Product would be expected to biodegrade slowly, depending upon conditions to which it is exposed.



MATERIAL SAFETY DATA SHEET

PARTALL[®] PASTE #2

MSDS Number: P02-002

Effective Date: 14 June 2010

Page 5 of 6

SECTION 13: DISPOSAL CONSIDERATIONS

Waste material may be incinerated at an approved facility where permitted under appropriate Federal, State, and Local regulations.

SECTION 14: TRANSPORT INFORMATION

DOT CLASSIFICATION: This product is not regulated for transportation.

ICAO / IATA CLASSIFICATION: This product is not regulated for transportation.

IMDG CLASSIFICATION: This product is not regulated for transportation.

SECTION 15: REGULATORY INFORMATION

COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT OF 1980 (CERCLA)

Contains no chemicals on the CERCLA hazardous chemicals list.

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 (SARA) TITLE III

SARA 302: Contains no chemicals subject to SARA 302 reporting

SARA 311/312 HAZARD CATEGORIES: Not hazardous

SARA 313: Contains no chemicals subject to SARA 313 reporting

OCCUPATIONAL HEALTH AND SAFETY ADMINISTRATION (OSHA) CLASSIFICATION: Not applicable

CALIFORNIA PROPOSITION 65: Contains no detectable quantities of Proposition 65 chemicals.

WORKPLACE HAZARDOUS MATERIAL INFORMATION SYSTEM (WHMIS) CLASSIFICATION: Not regulated

CHEMICAL INVENTORY: This product is not listed on regulatory inventories or listings. Components are either listed on the following chemical inventories or qualify for an exemption:

UNITED STATES	Toxic Substances Control Act (TSCA)
CANADA	Canadian Domestic Substance List (DSL)
EUROPE	European Inventory of Existing Commercial Chemical Substances (EINECS)
AUSTRALIA	Australian Inventory of Chemical Substances (AICS)
JAPAN	Existing and New Chemical Substances (ENCS)
KOREA	Existing Chemicals List (ECL)
PHILIPPINES	Philippines Inventory of Chemicals and Chemical Substances (PICCS)



MATERIAL SAFETY DATA SHEET

PARTALL[®] PASTE #2

MSDS Number: P02-002

Effective Date: 14 June 2010

Page 6 of 6

SECTION 16: OTHER INFORMATION

All information provided in this Material Safety Data Sheet is believed to be accurate and reliable. REXCO makes no warranty of any kind, express or implied, including warranties of merchantability or fitness for a particular purpose, concerning the safe use of this material in your process or in combination with other substances. Users should make their own tests and assessments as to the suitability of this product or the information contained herein for their particular purposes and uses. .

Prepared by: REXCO Product Stewardship Department



Revised October 23, 2006

POLYCARBONATE

Page 1 of 3

MSDS MATERIAL SAFETY DATA SHEET

I. PRODUCT IDENTIFICATION

PRODUCT NAME: Polycarbonate

PHONE NUMBERS:

BAYER EMERGENCY: (412) 923-1800
BAYER INFORMATION: 1-800-628-5084
CHEMTREC: 1-800-424-9300

II. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Solid tint
ODOR: Slight
PERCENT VOLATILES: N/A
MELTING POINT: 428 – 446°F (220-230°C)
SOLUBILITY IN WATER: Insoluble
SPECIFIC GRAVITY: 1.2

III. STABILITY AND REACTIVITY

STABILITY: Stable
MATERIALS TO AVOID: None known

IV. EXPOSURE CONTROLS/PERSONAL PROTECTION

VENTILATION: Provide natural or mechanical ventilation to control exposure levels below airborne exposure limits. Local mechanical exhaust ventilation should be used at sources of air contamination, such as open process equipment, or during purging operations, to capture gases and fumes that may be emitted. Standard reference sources regarding industrial ventilation should be consulted for guidance about adequate ventilation. In the event of thermal decomposition from overheating the product, evacuate the work area, shut down equipment and provide general ventilation to the room prior to reoccupying.

PROTECTIVE EQUIPMENT

SKIN: None required but fabric gloves are recommended when handling molten material

IV. EXPOSURE CONTROLS/PERSONAL PROTECTION - continued

EYE: Safety glasses are recommended as a good industrial hygiene and safety practice.

RESPIRATOR: NIOSH/MSHA – approved dust respirator recommended if the airborne dust concentration is near or exceeds the nuisance dust exposure limits.

ADDITIONAL PROTECTIVE MEASURES:

The greatest potential for injury occurs when working with molten polymeric resins. During this type of operation it is essential that all workers in the immediate area wear eye and skin protection as protection from thermal burns. Purgings should be collected as small flat thin shapes or thin strands to allow for rapid cooling. Precautions should be taken against auto-ignition of hot, thick masses of the plastic. Quench with water. Grinder dust is an exposure hazard.

EXPOSURE GUIDELINES:

INGREDIENT	AGENCY	VALUE
Nuisance Dust	OSHA-PEL	15mg/m ³
Respirable Dust	OSHA-PEL	5mg/m ³

V. HEALTH HAZARDS IDENTIFICATION**ACUTE OR IMMEDIATE EFFECTS**

SKIN: Contact with hot material will cause thermal burns

EYES: Mechanical irritation to the eyes may occur due to exposure to fines. Eyes may become red and scratchy and may tear.

INHALATION: Toxic gases/fumes given off during burning or thermal decomposition cause respiratory irritation

CHRONIC/CARCINOGENICITY: Not listed as a carcinogen

VI. FIRST AID MEASURES

SKIN: Wash affected areas with soap and water. See a physician if thermal burn occurs

EYES: Flush with plenty of lukewarm water. See a physician or ophthalmologist for follow-up if irritation is present and persists

INHALATION: Move to an area free from risk of further exposure. Give oxygen or artificial respiration as needed. Obtain medical attention

VII. FIRE FIGHTING MEASURES

AUTOIGNITION TEMPERATURE: Above 842°F (450°C) ASTM D-1929B

VII. FIRE FIGHTING MEASURES - continued**HAZARDOUS PRODUCTS OF COMBUSTION:**

Carbon monoxide, carbon dioxide, bisphenol A, diphenyl carbonate, phenol and phenol derivatives. Traces of aliphatic and aromatic hydrocarbons, aldehydes and acids.

EXTINGUISHING MEDIA: Water; carbon dioxide, dry chemical, foam

SPECIAL FIRE FIGHTING INSTRUCTIONS/PRECAUTIONS:

Full emergency equipment with self-contained breathing apparatus must be worn by firefighters

VIII. ACCIDENTAL RELEASE MEASURES**SPILL OR RELEASE:**

If molten material is spilled, allow it to solidify. Remove material mechanically by a method which minimizes the generation of airborne dust and place in appropriately marked containers.

IX. HANDLING AND STORAGE**HANDLING:**

When handling flaked material or during secondary operations, vent storage bins, conveyors, dust collectors, etc. ground handling equipment, keep open flames, sparks and heat away from dusty areas. Maintain highest standards of housekeeping to prevent accumulation of dust.

STORAGE:

Max 200°F (93°C) material should be stored in a clean, dry environment in sealed containers. Material must be dried before processing

X. DISPOSAL CONSIDERATIONS

DISPOSAL: Material may be incinerated or landfilled in compliance with Federal, State, Provincial and Local environmental control regulations.

XI. DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES

The information presented in the Material Safety Data Sheet is based on data believed to be accurate as of the date this Material Safety 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 THIS 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.

Pro75[®] High-Power Reloadable Rocket Motor Systems

FOR USE ONLY BY CERTIFIED HIGH-POWER ROCKETRY USERS 18 YEARS OF AGE OR OLDER

Sale to persons under 18 years of age is prohibited by Federal law

FLAMMABLE MATERIAL – KEEP AWAY FROM OPEN FLAME, CIGARETTES OR OTHER HEAT SOURCES AT ALL TIMES

USE WITHIN 1 YEAR OF MANUFACTURING DATE

TEMPERATURE RANGE: -5 to 30°C

Read this BEFORE you start assembly:

- If you have any questions or require assistance, please contact your dealer. If you are unable to resolve your questions or problems then please contact the manufacturer directly. Assistance is available Mon – Fri. 9am – 4:30pm at (905) 887-2370. Ask for ProXX motor products technical support.
- Read all instructions carefully and be sure you fully understand each step before proceeding with motor assembly.
- Inspect the components of your reload kit carefully before you start assembly. DO NOT use any parts that appear damaged or faulty in any way.
- Do not tamper with or modify the hardware or reload kit components in any way. Not only will this void all product warranty, it could cause catastrophic failure of your motor system and result in damage to your rocket vehicle, launch equipment and create a hazard to persons or property.
- Reload kit components are designed for ONE USE ONLY, and may not be reused. Reuse of any of these components could result in motor failure and will void product warranty.
- Follow the safety code and all rules and regulations of your sport rocketry association. Also ensure that you are in compliance with all local, state/provincial, and Federal laws in all activities involving high power rockets and rocket motors.

Parts checklist:



Pro75® hardware components (if used):

- ✓ Appropriate size of motor case
- ✓ Forward closure
- ✓ Nozzle holder
- ✓ Threaded retaining rings (2)

Reload kit components:

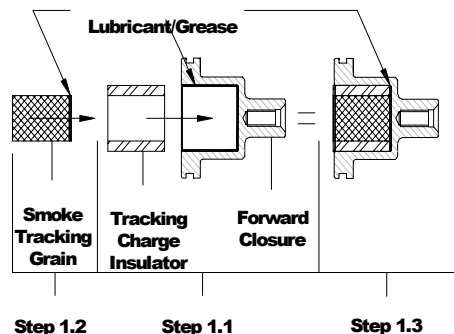
- ✓ Case liner (phenolic tube)
- ✓ Nozzle
- ✓ Forward insulator disk
- ✓ P75-ORK (o-ring kit)
- ✓ P75-TSI-KIT (smoke tracking grain/insulator & igniter kit)
- ✓ Propellant grains (check reload kit package for number and type required for your motor)

Assembly instructions

- Be sure to follow the correct instructions for the brand of motor hardware you are using!
- Step 1 is the same for both brands of hardware.
- All o-rings are pre-lubricated at the factory where required.
- Three o-rings are supplied in the P75-ORK o-ring kits. The two larger o-rings are used with both Pro75® and RMS™ hardware. The smaller o-ring is only used with Pro75® hardware.
- Do not apply lubricant to the grain spacer o-rings, they are for spacing only.
- Phenolic and phenolic/paper components such as the nozzle and case liner tube are brittle and can be cracked, broken or otherwise damaged by excessive force or impact. Please be careful during handling and assembly. If you suspect a part has been damaged in any way, STOP and do not proceed with assembly and especially firing until inspected and replaced if necessary.

1. Forward Closure Assembly

- 1.1. Apply a light coating of o-ring lubricant or grease to the inside of the cavity in the forward closure. Insert the smoke tracking charge insulator into this cavity and ensure it is seated fully.
- 1.2. Apply a liberal layer of grease or o-ring lubricant to one end of the smoke tracking grain. Be sure the entire face is coated.
- 1.3. Insert the smoke tracking grain into the smoke tracking charge insulator, coated end first. Push the grain in with sufficient force to fully seat it and spread the lubricant as shown. The excess lubricant will help prevent gas leakage forward as well as protecting the forward closure from heat and combustion products from the smoke tracking charge.



You may now proceed to the remainder of the instructions for your brand of motor hardware.

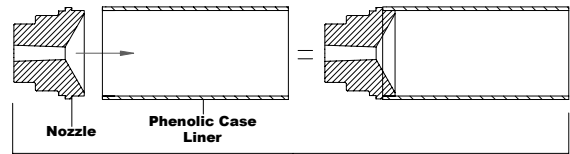
Step 2 is for Pro75® hardware users.

Step 3 is for RMS™ hardware users.

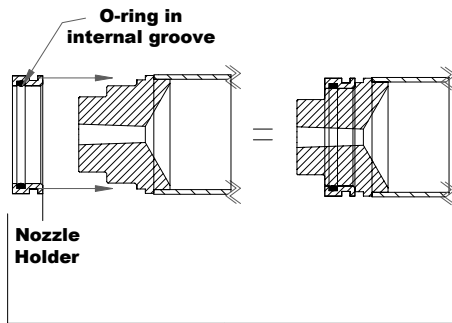
2. Motor Assembly: Pro75® Hardware.

Before proceeding, inspect the external o-ring grooves on the forward closure and nozzle holder, as well as the internal groove on the nozzle holder. Clean thoroughly if necessary to remove ALL combustion residue and debris. Also ensure that the inside of the motor case has been thoroughly cleaned.

- 2.1. Check both ends of the phenolic case liner to ensure that the inside ends have been chamfered or deburred. If not, use a hobby knife or coarse sandpaper to remove the sharp inner edge to allow components to be inserted easily.



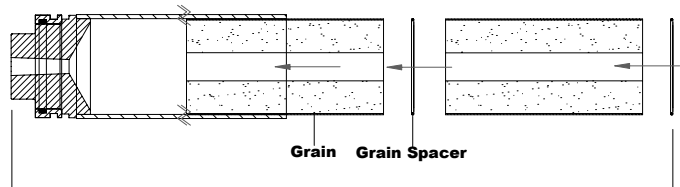
Step 2.1 & 2.2



Step 2.3

- 2.2. Fit the nozzle to one end of the paper/phenolic case liner tube. It may be a snug fit. Push it carefully but with sufficient force to seat the shoulder on the nozzle all the way into the insulator tube.
- 2.3. Locate the smaller o-ring in the P75-ORK o-ring kit. Fit the o-ring to the internal groove of the nozzle holder. Push the nozzle holder over the nozzle until fully seated. Apply additional lubricant to the nozzle exit section if necessary to facilitate assembly.
- 2.4. For steps 2.5 – 2.6 work with the nozzle/case liner assembly and motor case horizontally on your work surface.

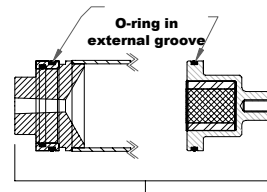
- 2.5. Insert one propellant grain into the forward end of the case liner and push it a short way into the tube. Fit one grain spacer o-ring to the top face of the grain, ensuring it sits flat on the end of the grain. Insert the second grain, push it in a short ways, then add another grain spacer, and so on until you have loaded all propellant grains into the case liner.



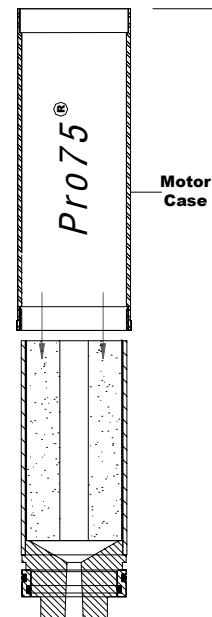
Step 2.5

- 2.5.1. There should be sufficient space after the last grain is inserted to fit the last spacer in place so that it is flush or extends only slightly from the end of the tube. If it extends out by more than 1/3 of its own thickness, remove it and do not use. Only this spacer may be omitted and only if necessary to fit.

- 2.6. Carefully install the two larger o-rings into the external grooves of the nozzle holder and forward closure. Handle these components with care from this point on so as not to damage or contaminate the o-rings.



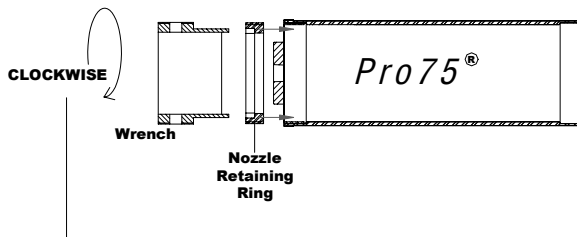
- 2.7. Place the case liner/nozzle assembly on your work surface with the nozzle end down, and slide the motor case down rear end first (end with thrust ring) over the top of the liner towards the nozzle. **Note:** a light coat of grease on the liner exterior will aid assembly, disassembly and cleanup!
- 2.8. Lay the motor case assembly down horizontally, and push on the nozzle ring until the assembly is far enough inside the case that the threads are partly exposed and the screw ring can be threaded into the rear of the case. Don't push on the nozzle itself as you will push it out of the nozzle holder.



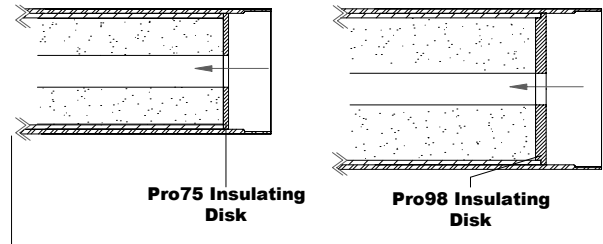
Step 2.7

2.9. Screw in the nozzle retaining ring using the supplied wrench, pushing the nozzle/nozzle ring/case liner assembly forward as you proceed. Screw it in *only until the retaining ring is exactly even with the end of the motor case - do not thread it in as far as it will go*. Then, back the retaining ring out one half of a turn.

2.10. Fit the forward insulating disk to the top of the case liner, checking that the top grain spacer (if used) is still properly in place.



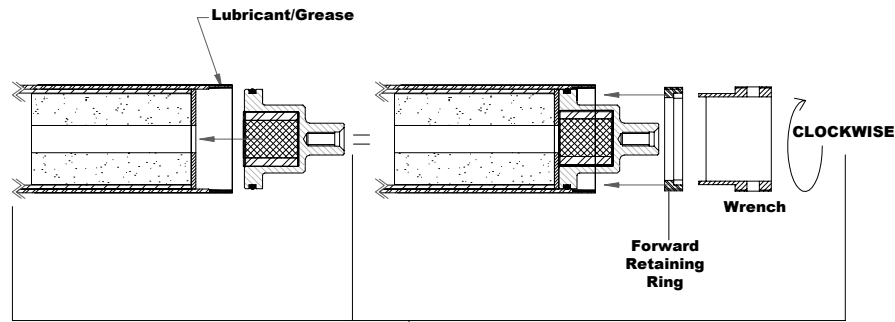
Step 2.9



Step 2.10

2.11. Verify that the inside of the motor case is clean ahead of the liner assembly before proceeding. Wipe with a clean rag, tissue or wet-wipe if required. Apply a light coat of silicone o-ring lubricant onto this area after cleaning.

2.12. Insert the assembled forward closure into the top of the motor case, pushing it down carefully with your fingers until you can thread in the retaining ring. Thread in the forward retaining ring using the wrench, until you feel it take up a load against the top of the case liner. At this point the ring should be approximately flush with the end of the motor case, or slightly submerged. If it extends out the case at this point by more than about one half a turn, check the nozzle end to make sure the ring is not screwed in too far forward. If so, unscrew the nozzle retaining ring another half turn and screw the forward closure retainer in further.



Step 2.11 & 2.12

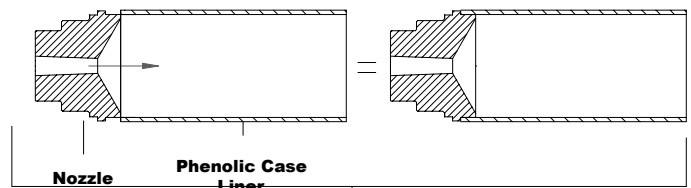
NOTE: it is best to have the forward closure retaining ring flush or slightly submerged and the nozzle retaining ring protruding by a half turn or so, than vice versa. There is more tolerance for o-ring location at the nozzle end. There will always be some minor variation in the length of internal components due to manufacturing tolerances.

2.13. Skip ahead to Section 4, Preflight preparation.

3. Motor Assembly, RMS™ Hardware.

3.1. Check both ends of the phenolic case liner to ensure that the inside ends have been chamfered or deburred. If not, use a hobby knife or coarse sandpaper to remove the sharp inner edge to allow components to be inserted easily.

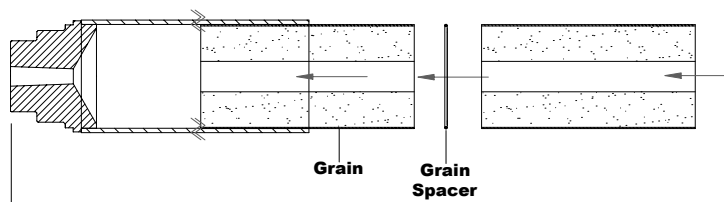
3.2. Fit the nozzle to one end of the paper/phenolic case liner tube. It may be a snug fit. Push it carefully but with sufficient force to seat the shoulder on the nozzle all the way into the insulator tube.



Step 3.2

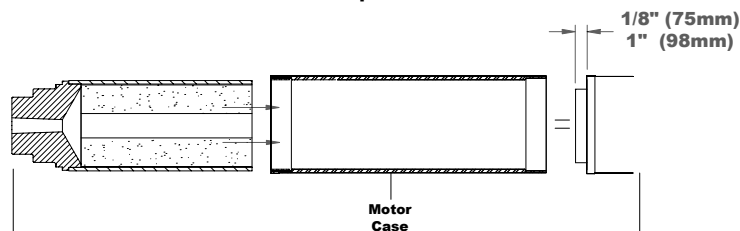
3.3. For steps 3.4 – 3.8 work with the nozzle/case liner assembly and motor case horizontally on your work surface.

- 3.4. Insert one propellant grain into the forward end of the case liner and push it a short way into the tube. Fit one grain spacer o-ring to the top face of the grain, ensuring it sits flat on the end of the grain. Insert the second grain, push it in a short way, then add another grain spacer, and so on until you have loaded all propellant grains into the case liner.



Step 3.4

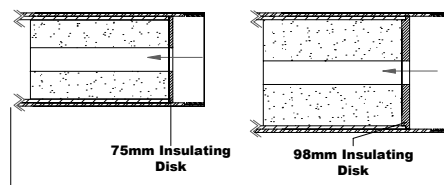
- 3.4.1. There should be sufficient space after the last grain is inserted to fit the last spacer in place so that it is flush or extends only slightly from the end of the tube. If it extends out by more than 1/3 of its own thickness, remove it and do not use. Only this spacer may be omitted and only if necessary to fit.



Step 3.5

- 3.5. Slide the completed liner/nozzle/grain assembly into the motor case until the nozzle protrudes about 1/8" from the end of the case. **Note:** a light coat of grease on the liner exterior will aid assembly, disassembly and cleanup!

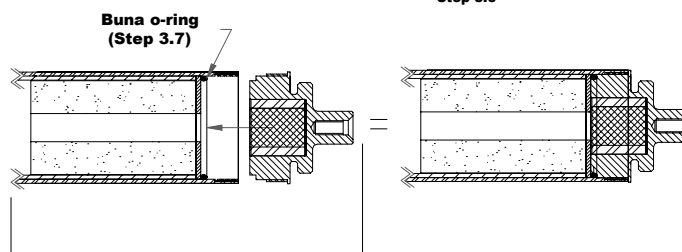
- 3.6. Fit the forward insulating disk to the top of the case liner, checking that the top grain spacer (if used) is still properly in place.



Step 3.6

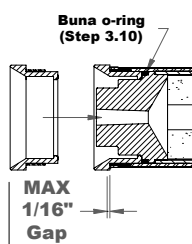
- 3.7. Place one of the larger pre-lubricated o-rings from the P75-ORK kit into the forward end of the case until it is seated against the forward insulator.

- 3.8. Thread the completed forward closure into the forward end of the motor case by hand until it is seated against the case. **NOTE:** There will be considerable resistance to threading in the closure in the last 1/8" to 3/16" of travel, due to compression of the o-ring.



Step 3.7 & 3.8

- 3.9. Hold the motor vertically on your work surface with the forward closure downwards, and push down on the nozzle to ensure the liner/nozzle assembly is seated fully forward.



Step 3.10 & 3.11

- 3.10. Place the other identical o-ring into the groove in the nozzle.

- 3.11. Thread the aft closure into the motor case until it is seated. It is normal for a small gap (up to about 1/16") to remain between the closure and the end of the case, due to manufacturing tolerances on internal components. **Note:** There will be considerable resistance to threading in the closure in the last 1/8" to 3/16" of travel, due to compression of the o-ring.

- 3.12. Proceed to Section 4, Preflight preparation.

4. Preflight Preparation.

- 4.1. Prepare the rocket's recovery system, before motor installation if possible.
- 4.2. Install the motor in your rocket, ensuring that it is securely mounted with a positive means of retention to prevent it from being ejected during any phase of the rocket's flight.
- 4.3. **IMPORTANT: DO NOT INSTALL THE IGNITER IN THE MOTOR UNTIL YOU HAVE THE ROCKET ON THE LAUNCH PAD, OR IN A SAFE AREA DESIGNATED BY THE RANGE SAFETY OFFICER.** Follow all rules and regulations of your rocketry association, and/or the National Fire Protection Association (NFPA) Code 1127 where applicable.
- 4.4. Install the supplied igniter, ensuring that it travels forward until it is in contact with the forward closure. Securely retain the igniter to the motor nozzle with tape, or (if supplied) the plastic cap, routing the wires through one of the vent holes. Ensure that whatever means you use provides a vent for igniter gases to prevent premature igniter ejection.
- 4.5. Launch the rocket in accordance with all Federal, State/Provincial, and municipal laws as well as the Safety Code of your rocketry association, as well as NFPA Code 1127 where applicable.

5. Post Flight Cleanup.

Do not try to dismount or disassemble your motor until it has thoroughly cooled down after firing. Some components such as the nozzle may be extremely hot for some time after firing.

Perform motor cleanup as soon as possible after firing, however, as combustion residues are corrosive to motor components, and become very difficult to remove after several hours.

- 5.1. Unthread and remove the forward and rear closures. Remove the nozzle holder from the nozzle.
- 5.2. Remove the phenolic tracking smoke charge insulator from the forward closure.
- 5.3. Remove all o-rings.
- 5.4. Discard all reload kit components with regular household waste, after they have completely cooled down.
- 5.5. Use wet wipes, or paper towels or rags dampened with water or vinegar to thoroughly clean all residue, grease etc. off all hardware components. Pay close attention to internal and external o-ring grooves. A cotton swab or small stick of balsa is an excellent tool for cleaning these grooves.
- 5.6. Apply a light coat of grease or o-ring lubricant to all threaded sections and reassemble threaded components for storage.

MEANS OF DISPOSAL: The propellant grains, smoke tracking charge, and the igniter are extremely flammable and burn with an intense, hot flame. The remainder of the components are inert and may be disposed of with household trash. To destroy the flammable components, dig a shallow hole in the ground in a remote area, away from any buildings, trees, people, or any other combustibles. Place the propellant grains and smoke tracking module in the hole. Install the igniter into the core of one of the propellant grains and secure with tape. Ignite electrically from a minimum distance of 15 meters. Douse any smoldering paper residue and discard. Ensure that you are not in violation of any local or state regulations for this procedure. If in doubt, contact your local fire department. Please direct any questions regarding safe disposal to our technical support number on page one of this document.

First Aid: If ingested, induce vomiting. Burns from flames are to be treated as regular burns with normal first aid procedures. In either case, seek medical attention.

Cesaroni Technology Incorporated ("CTI") certifies that it has exercised reasonable care in the design and manufacture of its products. We do not assume any responsibility for product storage, transportation or usage. **CTI** shall not be held responsible for any personal injury or property damage resulting from the improper handling, storage or use of their products. The buyer assumes all risks and liabilities and accepts and uses **CTI** products on these conditions. No warranty either expressed or implied is made regarding **Pro75®** products, except for replacement or repair, at **CTI's** option, of those products which are proven to be defective in manufacture within one (1) year from the date of original purchase. For repair or replacement under this warranty, please contact your point of purchase. Proof of purchase will be required. Your province or state may provide additional rights not covered by this warranty.

⇒ Check out our web site at <http://www.Pro-X.ca> for tech tips, FAQ's, user feedback and photos, or e-mail us at ProX@cesaroni.net
⇒ For technical and warranty inquiries, please contact your Pro75® dealer.

Pro75® is a registered trademark of Cesaroni Technology Incorporated. Patent # US06079202. Other patents pending. Made in Canada.

MATERIAL SAFETY DATA SHEET

FORMULA FIVE[®] MOLD RELEASE WAX

MSDS Number: F5MRW-001

Effective Date: 20 June 2003

Page 1 of 5

SECTION 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME **FORMULA FIVE[®] Mold Release Wax**
GENERIC NAME Wax polishing compound

MANUFACTURER REXCO
P.O. Box 80996
Conyers, Georgia 30094
USA

TRANSPORTATION EMERGENCY:

CHEMTREC (800) 424-9300 U.S.A. (24 hours/day)
CHEMTREC (703) 527-3887 International (Collect calls accepted)

CUSTOMER SERVICE AND PRODUCT EMERGENCY:

REXCO (800) 888-1060 U.S.A and Canada
REXCO (770) 483-7610 International

SECTION 2: COMPOSITION / INFORMATION ON INGREDIENTS

COMPONENT	CAS NUMBER	CONCENTRATION (%)
Light Petroleum Distillate	64742-47-8	64 – 76
Carnauba Wax	8015-86-9	12 – 18
Paraffin Wax	8002-74-2	8 – 12
Dimethylpolysiloxane	63148-62-9	4 – 6

SECTION 3: HAZARDS IDENTIFICATION

NFPA RATING: Health 1, Fire 2, Reactivity 0

HMIS RATING: Health 1, Fire 2, Reactivity 0

0=MINIMAL, 1=SLIGHT, 2=MODERATE, 3=HIGH, 4=EXTREME

POTENTIAL HEALTH EFFECTS

EYES Can cause eye irritation. Prolonged or repeated exposure may result in conjunctiva.
SKIN May cause skin irritation. Prolonged or repeated exposure may result in defatting, skin dermatitis.
INHALATION Repeated or prolonged exposure may cause central nervous system depression, including headache, dizziness, loss of coordination, unconsciousness.
INGESTION Can cause nausea and vomiting with danger of Chemical Pneumonia.

CHRONIC HEALTH EFFECTS: Possible central nervous system depression and skin dermatitis.

MATERIAL SAFETY DATA SHEET

FORMULA FIVE[®] MOLD RELEASE WAX

MSDS Number: F5MRW-001

Effective Date: 20 June 2003

Page 2 of 5

SYMPTOMS OF EXPOSURE: Symptoms of exposure through inhalation, ingestion, or direct contact with skin may include nausea, vomiting, diarrhea, irritation of nose, throat, airways, or skin, central nervous system depression – possibly including headache, loss of coordination, drowsiness, fatigue, and unconsciousness – and death in extreme cases. Pre-existing eye, skin, or respiratory disorders may be aggravated by exposure to this product.

PRIMARY ROUTES OF ENTRY: Skin contact, skin absorption, eye contact, and inhalation

CANCER INFORMATION: Neither this product nor any of its components is listed as a carcinogen or partial carcinogen by the following agencies: the National Toxicology Program, the International Agency for Research on Cancer, and the Occupational Safety and Health Administration.

SECTION 4: FIRST AID MEASURES

EYES	Flush immediately with cold water for 15 minutes and seek medical attention.
SKIN	Remove contaminated clothing and wash affected area with soap and hot water. If irritation from contact persists, seek medical attention. Launder contaminated clothing – including shoes – prior to reuse.
INHALATION	If light-headed or having difficulty breathing, expose individual to fresh air and/or oxygen. If breathing stops, begin artificial respiration and seek immediate medical attention.
INGESTION	Seek immediate medical attention. DO NOT INDUCE VOMITING. If vomiting occurs spontaneously, keep victim's head below hips to prevent aspiration into lungs. If possible, do not leave victim unattended.

SECTION 5: FIRE FIGHTING MEASURES

FLASH POINT / METHOD: >142 °F (>61 °C) / Tagliabue Closed Cup method (TCC)

AUTO IGNITION TEMPERATURE: 440 °F (226 °C)

FLAMMABLE LIMITS IN AIR (% BY VOLUME): LEL Lower 0.9% / UEL Upper 6.0%

FIRE AND EXPLOSION HAZARDS: Low flash point. Keep work areas free of hot metal surfaces and other sources of ignition.

EXTINGUISHING MEDIA: Use dry chemicals, CO₂, water fog, water spray, or foam.

FIRE FIGHTING INSTRUCTIONS: Wear a NIOSH-approved self contained breathing apparatus in positive pressure mode and full bunker gear. Water may be unsuitable as an extinguishing media but helpful in keeping adjacent containers cool in order to prevent container rupture. Avoid spreading burning liquid with water used for cooling purposes.

SECTION 6: ACCIDENTAL RELEASE MEASURES

IN CASE OF SPILL: Keep sources of ignition and hot metal surfaces isolated from spill. Persons involved in clean-up should wear personal protection equipment. Stop spill at source and prevent from spreading. If spilled as a solid, scrape and then sweep up spilled material. If spilled as a free-flowing liquid, confine spill

MATERIAL SAFETY DATA SHEET

FORMULA FIVE[®] MOLD RELEASE WAX

MSDS Number: F5MRW-001

Effective Date: 20 June 2003

Page 3 of 5

and allow liquid to solidify prior to clean-up. If run-off occurs, notify proper authorities as required. Place in chemical waste container and dispose of in accordance with local, state, and federal regulations.

CAUTION! FLOORS COVERED WITH RESIDUAL MATERIAL BECOME EXTREMELY SLIPPERY.

SECTION 7: HANDLING AND STORAGE

Store in a cool, dry location at 90 °F (32 °C) or below and away from open flames, heat, and sparks. Keep work areas free of hot metal surfaces and other sources of ignition. Keep container tightly closed when not in use to prevent drying out of material.

Repack only into high-density polyethylene (HDPE). Containers used for repackaging should be thoroughly tested for long-term product compatibility before use. All new containers must exhibit product labels required for proper identification, safety, handling, and storage. Empty containers may contain product residue such as vapors – continue to observe proper handling and storage precautions.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

EYE PROTECTION: Safety glasses, goggles, or face shield are advised. Eye washes are recommended for work areas.

SKIN PROTECTION: Wear impervious gloves, clothing, and shoes to prevent skin contact. Safety showers are recommended for work areas. Remove contaminated clothing and wash in hot water and soap prior to reuse.

RESPIRATORY PROTECTION: Exposure levels should be kept below the PEL or TLV for this product. If exposure exceeds recommended levels, use of NIOSH-approved cartridge respirator or gas mask is advised. Engineering controls should be implemented if necessary to reduce exposure.

ENGINEERING CONTROLS: Provide sufficient general and/or local exhaust (explosion-proof ventilation) to keep exposure below PEL or TLV.

EXPOSURE GUIDELINES

COMPONENT	OSHA PEL	ACGIH TLV
Light Petroleum Distillate	100 ppm PEL/TWA	100 ppm TLV/TWA
Carnauba Wax	None Established	None Established
Paraffin Wax	None Established	None Established
Dimethylpolysiloxane	None Established	None Established

Threshold limit for wax fumes is 2 mg/m³ in air for 8-hour workday. Avoid generation and inhalation of wax fumes.

PEL = PERMISSIBLE EXPOSURE LIMITS

TLV = THRESHOLD LIMIT VALUE

TWA = TIME WEIGHTED AVERAGE (8 HOURS)

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Tan Paste Wax
ODOR: Solvent

SPECIFIC GRAVITY (H₂O=1): 0.788
VAPOR PRESSURE (mm Hg): 3.0

MATERIAL SAFETY DATA SHEET

FORMULA FIVE[®] MOLD RELEASE WAX

MSDS Number: F5MRW-001

Effective Date: 20 June 2003

Page 4 of 5

BOILING POINT: 310 - 410 °F (154 - 210 °C)

MELTING POINT: 120 °F (48 °C)

V.O.C. (BY % CALCULATION): 533 g/L

V.O.C. = VOLATILE ORGANIC CONTENT

VAPOR DENSITY (AIR=1): 1.4

SOLUBILITY IN WATER: No

REACTIVITY IN WATER: No

SECTION 10: STABILITY AND REACTIVITY

STABILITY: Stable

CONDITIONS TO AVOID: Open flames, hot surfaces, or any ignition source.

INCOMPATIBILITY: Incompatible with strong oxidizing agents, strong acids or bases, alkali metals, halogens, and strong alkalis.

HAZARDOUS DECOMPOSITION: Normal combustion forms carbon dioxide and water vapor. Incomplete combustion will produce carbon monoxide and other toxic substances.

HAZARDOUS POLYMERIZATION: Will not occur

SECTION 11: TOXICOLOGICAL INFORMATION

No data available specific to this product. Following is data as pertains to one or more major ingredients:

EYES: Primary Eye Irritation Index (Rabbits): Maximum average score = 3.3 (Maximum score is 110)

SKIN: Primary Skin Irritation Index (Rabbits): 2.2 (Maximum score is 8.0)

Acute Dermal LD50 (Rabbit): 2.0 – 4.0 g/kg for similar products

INHALATION: LC50 (Rat): (male and female) > 6.8 mg/L

INGESTION: Acute Oral LD50 (Rat): > 5 g/kg

SECTION 12: ECOLOGICAL INFORMATION

Product would not be expected to cause damage to the environment and is inherently biodegradable. Product would be expected to biodegrade slowly, depending upon conditions to which it is exposed.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste material may be incinerated at an approved facility where permitted under appropriate Federal, State, and Local regulations.

MATERIAL SAFETY DATA SHEET

FORMULA FIVE[®] MOLD RELEASE WAX

MSDS Number: F5MRW-001

Effective Date: 20 June 2003

Page 5 of 5

SECTION 14: TRANSPORT INFORMATION

DOT CLASSIFICATION: This product is not regulated for transportation.

ICAO / IATA CLASSIFICATION: This product is not regulated for transportation.

IMDG CLASSIFICATION: This product is not regulated for transportation.

SECTION 15: REGULATORY INFORMATION

COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT OF 1980 (CERCLA)

Contains no chemicals on the CERCLA hazardous chemicals list.

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 (SARA) TITLE III

SARA 302: Contains no chemicals subject to SARA 302 reporting

SARA 311/312 HAZARD CATEGORIES: Not hazardous

SARA 313: Contains no chemicals subject to SARA 313 reporting

OCCUPATIONAL HEALTH AND SAFETY ADMINISTRATION (OSHA) CLASSIFICATION: Not applicable

CALIFORNIA PROPOSITION 65: Contains no detectable quantities of Proposition 65 chemicals.

WORKPLACE HAZARDOUS MATERIAL INFORMATION SYSTEM (WHMIS) CLASSIFICATION: Not regulated

CHEMICAL INVENTORY: This product is not listed on regulatory inventories or listings. Components are either listed on the following chemical inventories or qualify for an exemption:

UNITED STATES	Toxic Substances Control Act (TSCA)
CANADA	Canadian Domestic Substance List (DSL)
EUROPE	European Inventory of Existing Commercial Chemical Substances (EINECS)
AUSTRALIA	Australian Inventory of Chemical Substances (AICS)
JAPAN	Existing and New Chemical Substances (ENCS)
KOREA	Existing Chemicals List (ECL)
PHILIPPINES	Philippines Inventory of Chemicals and Chemical Substances (PICCS)

SECTION 16: OTHER INFORMATION

All information provided in this Material Safety Data Sheet is believed to be accurate and reliable. REXCO makes no warranty of any kind, express or implied, including warranties of merchantability or fitness for a particular purpose, concerning the safe use of this material in your process or in combination with other substances. Users should make their own tests and assessments as to the suitability of this product or the information contained herein for their particular purposes and uses.

Prepared by: REXCO Product Stewardship Department

MATERIAL SAFETY DATA SHEET

23850 - 1001

DATE: 02/18/05

Revision #7 Page 1 of 2

Section 1

PACER TECHNOLOGY
9420 Santa Anita Avenue
Rancho Cucamonga, CA 91730

HAZARD RATING

2
1 x 1

For Chemical Emergency Only:

In the US & Canada (800) 424-9300
Int'l & Wash DC (COLLECT) (703) 527-3887
Telephone for Information: (909) 987-0550

PRODUCT IDENTIFICATION: ZAP-A-GAP CA+**Section 2 - HAZARDOUS INGREDIENTS INFORMATION:**

Hazardous Components (Common Names, CAS Number)	OSHA PEL	ACGIH TLV	OTHER LIMITS	% OPTION
Ethyl-2-Cyanoacrylate (7085-85-0)	NE	NE	0.2ppm TWA	60-100
Poly (Methyl Methacrylate) (9011-14-7)	NE	NE		10-30
Hydroquinone* (123-31-9)	2mg/m3	2mg/m3		0-1

*This ingredient is subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments & Reauthorization Act of 1986 (SARA) and 40 CFR 372.

Section 3 - PHYSICAL/CHEMICAL CHARACTERISTICS:

Boiling Point: 365 F Specific Gravity (H₂O=1): 1.06
Vapor Density (Air=1): nil-NE Melting Point: NE
Vapor Pressure (mm Hg): 1 @ 20 C Evaporation Rate (Butyl acetate=1): nil-NE
Solubility in Water: Insoluble, material reacts to hardened mass for non-hazardous waste.
Appearance & Odor: Transparent water-white to straw colored liquid with stimulative odor.

Section 4 - FIRE AND EXPLOSION HAZARD DATA:

Flash Point (Method Used): 185 F (TCC) Flammable Limits: LEL: NE UEL: NE
Extinguishing Media: Flush with large amounts of water or dry chemical extinguisher.
Special Fire Fighting Procedures: Fumes may be irritating if not burning and require air supply with goggles while applying large amounts of water or dry chemical extinguisher.
Unusual Fire and Explosion Hazards: None. Combustible requiring the above procedures.

Section 5 - REACTIVITY DATA:

Stability: Stable XX Conditions to Avoid: Excessive heat above 176 F, moisture and alkalines. Stable up to 122 F. Store in a cool dry place.
Incompatibility (Materials to Avoid): Polymerized by water, alcohol, amines, alkaline materials and direct UV.
Hazardous Decomposition Products: Combustible by-products of carbon monoxide/dioxide.
Hazardous Polymerization: May Not Occur XX

Section 6 - HEALTH HAZARD DATA:

Route(s) of Entry: Inhalation: Yes Skin: NO Ingestion: LD50 = 12.2cc/kg
Health Hazards (Acute and Chronic): (mice)
Acute - Irritates eyes, mucous membranes.
~~Chronic - No residual effects of acute properties.~~

MATERIAL SAFETY DATA SHEET**ZAP-A-GAP CA+****Rev. 7**

Page 2 of 2

Carcinogenicity: NTP: No IARC Monographs: No OSHA Regulated: No

Signs and Symptoms of Exposure & First Aid Procedures:

Eye contact - Tearing from eye irritation. Remove to fresh air. Flush areas of contact with water. Adhesive will disassociate from eye/eyelids over time, usually within several hours. Temporary weeping of eyes/double vision may be experienced until clearance is achieved.

Skin contact - Immerse bonded areas in warm, soapy water. Peel or roll skin apart. Remove cured adhesive with several applications of warm, soapy water. Prolonged or repeated contact at elevated levels may cause dermatitis in sensitive individuals.

Inhalation - Irritation of mucous membranes/coughing. Remove to fresh air. Prolonged or repeated exposure at elevated levels may produce allergic reactions with asthma-like symptoms in sensitive individuals.

Ingestion - Lips may become stuck together: apply copious amounts of warm water & encourage wetting/pressure from saliva inside mouth. Peel or roll (do not pull) lips apart. It is almost impossible to swallow cyanoacrylate as adhesive solidifies upon contact with saliva & may adhere to inside of mouth. Saliva will lift adhesive in 1-2 days, avoid swallowing adhesive after detachment.

Medical Conditions Generally Aggravated by Exposure: Pre-existing skin, eye and respiratory disorders may be aggravated by exposure.

Section 7 - PRECAUTIONS FOR SAFE HANDLING AND USE:

Steps to Be Taken in Case Material is Released or Spilled: Polymerize with water. Solid material may be scraped from surface.

Waste Disposal Method: Incinerate solid combustible waste or dump as chemical waste according to local, state and federal regulations.

Precautions to Be Taken in Handling and Storing: Avoid contact with clothing as contact can cause burn. Avoid moisture, direct UV-sunlight and do not store above 25 C. Keep containers closed tightly when not in use. Ideal storage: 5-10 C.

Other Precautions: Avoid breathing vapor, contact with eyes/skin. Allow product to reach room temperature before use.

Section 8 - CONTROL MEASURES:

Respiratory Protection (Specify Type): A NIOSH-approved organic vapor canister may be used to maintain vapor concentration below TLV.

Ventilation: Local Exhaust: To maintain vapor concentration below TLV.

Mechanical (General): Large amounts used to 0.2ppm.

Protective Clothing or Equipment: Safety glasses with side shield, Vinyl (polyethylene) non-sticking gloves, rubber apron to protect clothing.

Work/Hygienic Practices: Soap and water helps remove adhesive from skin.

NE = Not established

The data contained herein is based upon information that Pacer Technology believes to be reliable. Users of this product have the responsibility to determine the suitability of use and to adopt all necessary precautions to ensure the safety and protection of property and persons involved in said use. All statements or suggestions are made without warranty, express or implied, regarding accuracy of the information, the hazards connected with the use of the material or the results to be obtained from the use thereof.

SAFETY DATA SHEET



Date Issued: 01/22/2010

MSDS No: Z-Poxy Finishing resin - B (hardener)

Date-Revised: 01/22/2010

Revision No: 1

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

PRODUCT DESCRIPTION: Z-Poxy Finishing resin - B (hardener) - PT40

MANUFACTURER

Pacer Technology
 9420 Santa Anita Avenue
 Rancho Cucamonga CA 91730-6117
Emergency Contact: CHEMTREC
Product Stewardship: 800-424-9300
Alternate Emergency Phone: 703-527-3887
Service Number: 909-987-0550
Alternate Customer Service: 800-538-3091

2. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS	EINECS	Content
Benzyl alcohol	100-51-6	202-859-9	20 - 40
2,4,6-TRIS(DIMETHYLAMINOMETHYL)PHENOL	90-72-2	202-013-9	10 - 15
3-AMINOMETHYL-3,5,5-TRIMETHYLCYCLOHEXYLAMINE	2855-13-2	220-666-8	3 - 5
3,6,9-TRIAZAUNDECAMETHYLENEDIAMINE	112-57-2	203-986-2	1 - 10
Bis(dimethylamino)methyl phenol	71074-89-0		3

3. HAZARDS IDENTIFICATION

HAZARD DESIGNATION

"Xn" - Harmful

EMERGENCY OVERVIEW

PHYSICAL APPEARANCE: Light yellow colored viscous liquid.

IMMEDIATE CONCERNS: R20/22: Harmful by inhalation and if swallowed.

R36/38: Irritating to eyes and skin.

S2: Keep Out of Reach of Children.

POTENTIAL HEALTH EFFECTS

EYES: S24/25: Avoid Contact with skin and eyes.

SKIN: R43: May cause sensitization by skin contact.

INGESTION: Irritating to mouth, throat and stomach.

INHALATION: Irritating to the nose, throat and respiratory tract.

SIGNS AND SYMPTOMS OF OVEREXPOSURE

EYES: Causes eye irritation.

SKIN: R43: May cause sensitization by skin contact.

INGESTION: Ingestion of this material can cause mouth, throat, esophageal, and gastrointestinal tract irritation.

INHALATION: Prolonged or excessive inhalation may cause respiratory tract irritation.

ACUTE TOXICITY: Slightly irritating to eyes and respiratory tracts.

CHRONIC EFFECTS: Irritating to eyes, respiratory system and skin.

SAFETY DATA SHEET



Date Issued: 01/22/2010

MSDS No: Z-Poxy Finishing resin - B (hardener)

Date-Revised: 01/22/2010

Revision No: 1

MEDICAL CONDITIONS AGGRAVATED: Pre-existing skin, eye and lung conditions.

ROUTES OF ENTRY: Inhalation, ingestion and skin absorption are major routes of entry.

IRRITANCY: Irritating to eyes, respiratory system and skin.

SENSITIZATION: May cause allergic skin reaction.

WARNING CAUTION LABELS: Harmful. Keep out of Reach of Children.

COMMENTS HEALTH: S46: If swallowed, seek medical advice immediately and show this container or label.

COMMENTS: Contains epoxy constituents. See information supplied by manufacturer.

4. FIRST AID MEASURES

EYES: S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

SKIN: Irritation occurs upon direct contact. Remove contaminated clothing and wash affected areas with soap and water.

INGESTION: S46: If swallowed, seek medical advice immediately and show this container or label.

INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

5. FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: Water spray, foam, carbon dioxide, dry chemicals.

FIRE FIGHTING PROCEDURES: Use water spray to keep fire-exposed containers cool and to knock down vapors which may result from product decomposition.

FIRE FIGHTING EQUIPMENT: As in any fire, wear self-contained breathing apparatus pressure-demand, (MSHA/NIOSH approved or equivalent) and full protective gear.

HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide/dioxide in a fire. Ammonia when heated. Irritating and toxic fumes at elevated temperatures. Nitrogen oxides in a fire, which can react with water vapor to form corrosive nitric acid (TVL 2ppm). Combustion of product under oxygen-starved conditions can be expected to produce toxic products including nitriles and amides.

6. ACCIDENTAL RELEASE MEASURES

SMALL SPILL: Clean up spills immediately, observing precautions in Protective Equipment section.

LARGE SPILL: Absorb the liquid and scrub the area with detergent and water. Avoid runoff into storm sewers and ditches which lead to waterways.

ENVIRONMENTAL PRECAUTIONS

WATER SPILL: R52/53: Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

7. HANDLING AND STORAGE

GENERAL PROCEDURES: S51: Use only in well-ventilated areas.

HANDLING: Avoid breathing (dust, vapor, mist, gas). Avoid contact with skin, eyes and clothing. Keep container

SAFETY DATA SHEET



Date Issued: 01/22/2010

MSDS No: Z-Poxy Finishing resin - B (hardener)

Date-Revised: 01/22/2010

Revision No: 1

closed when not in use.

STORAGE: Store in a cool place in original container and protect from sunlight. Keep away from sources of ignition.

STORAGE TEMPERATURE: Ambient room temperature (70F/21C).

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS: Use only in a well ventilated area.

PERSONAL PROTECTIVE EQUIPMENT

EYES AND FACE: S36/37/39: Wear suitable protective clothing, gloves and eye/face protection.

SKIN: S24: Avoid contact with skin.

RESPIRATORY: S51: Use only in well-ventilated areas.

PROTECTIVE CLOTHING: S24: Avoid contact with skin. and clothing. Launder contaminated clothing before reuse.

WORK HYGIENIC PRACTICES: Avoid contact with skin and eyes. Wash thoroughly after handling.

9. PHYSICAL AND CHEMICAL PROPERTIES

FLASHPOINT AND METHOD: 93 °C (200 °F) Pensky-Martens CC

FLAMMABLE LIMITS: Not Established

Chemical Name	Flash Point (°C)
Benzyl alcohol	200

PHYSICAL STATE: Liquid

ODOR: Ammonia Odor.

APPEARANCE: Pale yellow viscous liquid.

VAPOR PRESSURE: Not Established

VAPOR DENSITY: Not Established

SOLUBILITY IN WATER: Slightly soluble.

EVAPORATION RATE: Not Established

SPECIFIC GRAVITY: 1.040 (water=1)

10. STABILITY AND REACTIVITY

STABLE: Yes

HAZARDOUS POLYMERIZATION: No

STABILITY: Stable.

CONDITIONS TO AVOID: Avoid storage near large masses of epoxy resins.

SAFETY DATA SHEET



Date Issued: 01/22/2010

MSDS No: Z-Poxy Finishing resin - B (hardener)

Date-Revised: 01/22/2010

Revision No: 1

HAZARDOUS DECOMPOSITION PRODUCTS: Combustible by-products of carbon monoxide/dioxide, hydrogen sulfide and oxides of sulfur.

INCOMPATIBLE MATERIALS: Avoid strong oxidizing agents and amines especially when hot.

11. TOXICOLOGICAL INFORMATION

ACUTE

Chemical Name	ORAL LD ₅₀ (rat)	DERMAL LD ₅₀ (rabbit)	INHALATION LC ₅₀ (rat)
Benzyl alcohol	1230	2000	1000

EYE EFFECTS: Mildly to moderately irritating.

SKIN EFFECTS: Irritating to skin. May cause allergic skin reaction with prolonged contact.

SENSITIZATION: Irritating to skin. May cause allergic skin reaction with prolonged contact.

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL DATA: Do not flush to sewer.

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: Cure by mixing with equal portion of paired component for non-hazardous solid waste disposal.

FOR LARGE SPILLS: Dike area to contain spill. Take precautions as necessary to prevent contamination of ground and surface waters. Recover spilled material on adsorbent, such as sawdust or vermiculite, and sweep into closed containers for disposal. After all visible traces, including ignitable vapors, have been removed thoroughly wet vacuum the area. Do not flush to sewer. If area of spill is porous, remove as much contaminated earth and gravel, etc. as necessary and place in closed containers for disposal.

PRODUCT DISPOSAL: Do not empty into drains, dispose of this material and its container at hazardous or special waste collection point.

14. TRANSPORT INFORMATION

AIR (ICAO/IATA)

SHIPPING NAME: Not restricted

VESSEL (IMO/IMDG)

SHIPPING NAME: Not restricted

15. REGULATORY INFORMATION

EUROPEAN COMMUNITY

EEC LABEL SYMBOL AND CLASSIFICATION



"Xn" - Harmful

SAFETY DATA SHEET



Date Issued: 01/22/2010

MSDS No: Z-Poxy Finishing resin - B (hardener)

Date-Revised: 01/22/2010

Revision No: 1

16. OTHER INFORMATION

APPROVED BY: Mary Robles **TITLE:** Regulatory Affairs Manager

REVISION SUMMARY: Revision #: 1. This MSDS replaces the January 22, 2010 MSDS. Any changes in information are as follows: In Section 15: EEC Symbol Id.

MANUFACTURER DISCLAIMER:

To the best of our knowledge, the information contained herein is accurate. However, Pacer Technology does not assume any liability 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 which exist.

SAFETY DATA SHEET



Date Issued: 12/04/2007

MSDS No: Z-Poxy Quick Set Formula - Resin

Date-Revised: 01/22/2010

Revision No: 1

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

PRODUCT DESCRIPTION: Z-Poxy Quick Set Formula - Resin - PT36, PT37, PT38

MANUFACTURER

Pacer Technology
9420 Santa Anita Avenue
Rancho Cucamonga CA 91730-6117
Emergency Contact: CHEMTREC
Product Stewardship: 800-424-9300
Alternate Emergency Phone: 703-527-3887
Service Number: 909-987-0550
Alternate Customer Service: 800-538-3091

2. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS	EINECS	Content
Bisphenol a/epichlorohydrin resin	25068-38-6	- -	90 - 100

3. HAZARDS IDENTIFICATION

HAZARD DESIGNATION

"Xi" - Irritant

EMERGENCY OVERVIEW

PHYSICAL APPEARANCE: Light yellow colored viscous liquid.

IMMEDIATE CONCERNS: Slightly irritating to eyes and skin.

POTENTIAL HEALTH EFFECTS

EYES: Contact may cause eye irritation.

SKIN: Irritating to skin. May cause allergic skin reaction with prolonged contact.

INHALATION: Causes respiratory tract irritation.

SIGNS AND SYMPTOMS OF OVEREXPOSURE

EYES: Causes eye irritation.

SKIN: Irritating to skin. May cause allergic skin reaction with prolonged contact.

INGESTION: Causes respiratory tract irritation.

MEDICAL CONDITIONS AGGRAVATED: Pre-existing eye and skin disorders or lung allergies may be aggravated by exposure.

ROUTES OF ENTRY: Direct contact with skin or eyes.

IRRITANCY: Irritating to eyes, respiratory system and skin.

SENSITIZATION: May cause allergic skin reaction.

4. FIRST AID MEASURES

EYES: Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Have eyes examined and tested by medical personnel.

SAFETY DATA SHEET



Date Issued: 12/04/2007

MSDS No: Z-Poxy Quick Set Formula - Resin

Date-Revised: 01/22/2010

Revision No: 1

SKIN: Immediately wash skin with soap and plenty of water. Remove contaminated clothing. Get medical attention if symptoms reoccur. Wash clothing before reuse.

INGESTION: If swallowed, do NOT induce vomiting. Give victim a glass of water or milk. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person.

INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

5. FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: Use alcohol foam, carbon dioxide, or water spray when fighting fires involving this material.

FIRE FIGHTING PROCEDURES: Use water spray to keep fire-exposed containers cool and to knock down vapors which may result from product decomposition.

FIRE FIGHTING EQUIPMENT: As in any fire, wear self-contained breathing apparatus pressure-demand, (MSHA/NIOSH approved or equivalent) and full protective gear.

HAZARDOUS DECOMPOSITION PRODUCTS: Carbon Dioxide, Carbon Monoxide and other toxic or irritating compounds may form when heated to decomposition.

6. ACCIDENTAL RELEASE MEASURES

SMALL SPILL: Clean up spills immediately, observing precautions in Protective Equipment section.

LARGE SPILL: Absorb the liquid and scrub the area with detergent and water. Avoid runoff into storm sewers and ditches which lead to waterways.

ENVIRONMENTAL PRECAUTIONS

WATER SPILL: This material is a water pollutant and should be prevented from contaminating soil or from entering sewage and drainage systems and bodies of water.

7. HANDLING AND STORAGE

GENERAL PROCEDURES: Use with adequate ventilation. Avoid contact with eyes, skin and clothing.

HANDLING: Avoid breathing (dust, vapor, mist, gas). Avoid contact with skin, eyes and clothing. Keep container closed when not in use.

STORAGE: Store in a cool place in original container and protect from sunlight. Keep away from sources of ignition.

STORAGE TEMPERATURE: Ambient room temperature (70F/21C).

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS: Use only in a well ventilated area.

PERSONAL PROTECTIVE EQUIPMENT

EYES AND FACE: For normal conditions, wear safety glasses. Where there is reasonable probability of liquid contact, wear splash-proof goggles.

SKIN: S24: Avoid contact with skin.

RESPIRATORY: Use only in a well ventilated area.

PROTECTIVE CLOTHING: S24: Avoid contact with skin. and clothing. Launder contaminated clothing before

SAFETY DATA SHEET



Date Issued: 12/04/2007

MSDS No: Z-Poxy Quick Set Formula - Resin

Date-Revised: 01/22/2010

Revision No: 1

reuse.

WORK HYGIENIC PRACTICES: Avoid contact with skin and eyes. Wash thoroughly after handling.

9. PHYSICAL AND CHEMICAL PROPERTIES

FLASHPOINT AND METHOD: 249°C (480°F) Pensky-Martens CC

PHYSICAL STATE: Liquid

ODOR: Irritating odor.

APPEARANCE: Light yellow colored viscous liquid.

VAPOR PRESSURE: 0.03 mmHg at 25°C (77°F)

VAPOR DENSITY: Not Applicable

BOILING POINT: > 249°C (500°F)

EVAPORATION RATE: Not Applicable.

SPECIFIC GRAVITY: 1.160 (water=1)

(VOC): Not Applicable.

10. STABILITY AND REACTIVITY

STABLE: Yes

HAZARDOUS POLYMERIZATION: No

STABILITY: Stable.

POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID: Avoid temperatures above (300) F (148) C.

HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide, aldehydes, acids and other organic substances may be formed during combustion (>500F) temperature degradation.

INCOMPATIBLE MATERIALS: Strong acids, oxidizing agents, mineral and organic bases, and especially aliphatic amines.

11. TOXICOLOGICAL INFORMATION

EYE EFFECTS: Mildly to moderately irritating.

SKIN EFFECTS: Irritating to skin. May cause allergic skin reaction with prolonged contact.

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL DATA: Do not flush to sewer.

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: Cure by mixing with equal portion of paired component for non-hazardous solid waste disposal.

SAFETY DATA SHEET



Date Issued: 12/04/2007

MSDS No: Z-Poxy Quick Set Formula - Resin

Date-Revised: 01/22/2010

Revision No: 1

FOR LARGE SPILLS: Dike area to contain spill. Take precautions as necessary to prevent contamination of ground and surface waters. Recover spilled material on adsorbent, such as sawdust or vermiculite, and sweep into closed containers for disposal. After all visible traces, including ignitable vapors, have been removed thoroughly wet vacuum the area. Do not flush to sewer. If area of spill is porous, remove as much contaminated earth and gravel, etc. as necessary and place in closed containers for disposal.

PRODUCT DISPOSAL: Do not empty into drains, dispose of this material and its container at hazardous or special waste collection point.

14. TRANSPORT INFORMATION

ROAD AND RAIL (ADR/RID)

PROPER SHIPPING NAME: Not Applicable.

AIR (ICAO/IATA)

SHIPPING NAME: Not Applicable.

VESSEL (IMO/IMDG)

SHIPPING NAME: Not Applicable.

15. REGULATORY INFORMATION

EUROPEAN COMMUNITY

EEC LABEL SYMBOL AND CLASSIFICATION



"Xi" - Irritant
IRRITANT

16. OTHER INFORMATION

APPROVED BY: Mary Robles **TITLE:** Regulatory Affairs Manager

REVISION SUMMARY: Revision #: 1. This MSDS replaces the December 04, 2007 MSDS.

MANUFACTURER DISCLAIMER:

To the best of our knowledge, the information contained herein is accurate. However, Pacer Technology does not assume any liability 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 which exist.