



MATERIAL SAFETY DATA SHEET

NAME OF PRODUCT ELASTO-THANE 227/227R GUNGRADE (B-COMPONENT) MSDS DATE:3/14/2012

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: ELASTO-THANE 227/227R GG (B-COMPONENT)
PRODUCT CODES: ET227R/227R-B
MANUFACTURER: ER SYSTEMS (AN ITW COMPANY)
ADDRESS: 12271 MONARCH STREET, GARDEN GROVE, CA 92841
INFORMATION PHONE: 714-898-0025
FAX NUMBER: 714-898-5687

EMERGENCY Contact during transport
INFOTRAC 1-800-535-5053
CUSTOMER ID: 74919

CHEMICAL FAMILY: POLYURETHANE

PRODUCT USE: POLYMER FOR POLYURETHANE MEMBRANES
PREPARED BY: ER SYSTEMS

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

HAZARDOUS COMPONENTS / CAS #	OSHA PEL	ACGIH TLV	OSHA STEL	LD50/LC50	WT %
Diphenylmethane Diisocyanate (MDI) #mixture	0.20 mg/m ³ (ceiling)	0.05 mg/m ³ (8hr, 40hr/week)		LD50 (rat, oral): > 5000mg/kg LD50 (rabbit, dermal):>5000mg/kg	<35%
Butyl Benzyl Phthalate #85-68-7	NA	NA	NA	LD50 (oral, rat) = 20400 mg/kg LD50 (Dermal, Rabbit) = >10000 mg/kg LC50 (inhalation, 4h, rat)= > 6.7 mg/l Eye irritation: slight, rabbit, 24 hrs	<65%

SECTION 2 NOTES: * Indicates chemical subject to reporting requirements as per SARASection 313 of title III and of 40 CFR 372.
All chemicals comprising this product are listed on the TSCA inventory (Toxic Substance Control Act Inventory).
NA = not available

SECTION 3: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: Use proper ventilation. Wear protective equipment and clothing. Do not inhale vapor and mist. Do not ingest. Avoid skin and eye contact. Keep Children, animals and expectant mothers away.

ROUTES OF ENTRY:Eye, Skin, Inhalation, Ingestion

POTENTIAL HEALTH EFFECTS :

ACUTE HEALTH HAZARDS:

EYES: Vapor and/or mist may cause eye irritation. May cause redness, tearing and itching.

SKIN: Skin contact may cause irritation, itching and redness.

INGESTION: May cause irritation of the mouth, pharynx, esophagus and stomach. May cause gastrointestinal irritation, nausea and vomiting.

INHALATION: May cause respiratory tract irritation. May cause coughing and tightness in chest with difficulty in breathing..

CHRONIC HEALTH HAZARDS: Prolonged and Repeated contact may cause asthma like conditions, sensitization, allergic skin reaction (rash, hive-like, acme, itching) and respiratory and skin sensitization. This can be avoided with using proper personnel protective equipment.



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MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: Pre-existing eye, skin, liver, kidney and respiratory disorders may be aggravated by exposure.

CARCINOGENICITY: None known

SECTION 4: FIRST AID MEASURES

EYES: Immediately flush with plenty of water for at least 15 minutes. Keep eyelids open. Consult a physician immediately.

SKIN: Remove contaminated clothing. Wash material off with plenty of soap and water. If redness, itching or burning develops, consult a physician. Wash contaminated clothing before reuse.

INGESTION: Do not induce vomiting unless advised by a physician. Call nearest Poison Control Center or Physician immediately. If conscious, drink plenty of water. If person vomits, place him/her in the recovery position. Never give anything by mouth to an unconscious person.

INHALATION: Remove victim from exposure to fresh air. If difficulty with breathing, administer oxygen or artificial respiration. A trained personnel should be available at the site to help proper care. Seek medical attention.

NOTES TO PHYSICIANS OR FIRST AID PROVIDERS: N/A

SECTION 5: FIRE-FIGHTING MEASURES

FLAMMABLE LIMITS IN AIR, UPPER: not available
(% BY VOLUME) LOWER: not available

FLASH POINT: F: > 250 °F ; (based on reactants used for the pre-polymer)

AUTOIGNITION TEMPERATURE: not available

HMIS HAZARD CLASSIFICATION

HEALTH: 2 FLAMMABILITY: 1 REACTIVITY: 1
PROTECTION: gloves, respirator, eye goggles, clothing (coverall/apron)

EXTINGUISHING MEDIA: In case of fire, use Dry chemical foam, carbon dioxide, halogenated agents. If water is used, use very large quantities. The reaction between water and hot isocyanate may be vigorous.

SPECIAL FIRE FIGHTING PROCEDURES: At higher temperature pressure build up in sealed containers. Use water to cool containers exposed to fire. Wear self-contained breathing apparatus with full face piece and protective clothing.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Water contamination will produce carbon dioxide. Do not reseal contaminated containers as pressure buildup may result in rupturing of the container. If containers are exposed to high temperature, vapors in the closed container can result to pressure build up that could cause rupture and fire hazard. Empty containers retains product residue (liquid/vapor) which can be dangerous. Do not pressurize, cut, weld braze, solder, drill, grind or expose to heat, flame, sparks, static electricity or other ignition sources.

HAZARDOUS DECOMPOSITION PRODUCTS: In case of fire, combustion products such as carbon dioxide, carbon monoxide, and nitrogen oxides may evolve. Trace amount of hydrogen cyanide may enter also.

SECTION 5 NOTES:

SECTION 6: ACCIDENTAL RELEASE MEASURES

ACCIDENTAL RELEASE MEASURES: In case of small spill, damaged containers, and leak, collect in a container. Eliminate ignition sources. Ventilate the area. Clean-up personnel should wear appropriate equipment and clothing. Clean the uncured material using solvent such as



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acetone. If material is cured, scrape it off and collect in a waste disposal container. Large spills should be contained immediately.

Collected/pumped into the waste container drums/totes. Do not contaminate with water. Avoid material to go into sewer and drains.

SECTION 6 NOTES: Do not close the waste disposal container air-tight. If, material may get contaminated, it can react and cause rupture of the container.

SECTION 7: HANDLING AND STORAGE

HANDLING AND STORAGE: Store in a cool and dry, well ventilated and covered location. Wear protective clothing and equipment. Use with adequate ventilation. Do not contaminate with water. Open containers should be purged with Nitrogen Blanket before closing to avoid skinning.

OTHER PRECAUTIONS: Individuals with existing respiratory disease such as chronic bronchitis, emphysema or asthma like conditions should avoid exposure to isocyanates or related products. Do not drink, eat, or smoke while working with the product. Wash before such an activity.

KEEP AWAY FROM CHILDREN. Keep away from ignition sources such as fire, flame, sparks etc.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS:

VENTILATION : General and local ventilation suggested.

RESPIRATORY PROTECTION: Wear MSHA/NIOSH approved organic vapor or charcoal filtered cartridge respirator or positive pressure supplied air respirator with full face piece or an air-supplied hood.

EYE PROTECTION: Chemical tight goggles, full face shield in addition if splashing is possible.

SKIN PROTECTION: Nitrile, neoprene or butyl rubber gloves.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT: Tyvek, neoprene, butyl, and nitrile rubber based clothing have excellent resistance to Polyisocyanate based products. Provide eyewash station and safety showers in the work area. Provide emergency safety plans if regulations require. Give proper training of the usage and application of the products.

WORK HYGIENIC PRACTICES: Do not drink eat or smoke while working. Wash before doing so.

EXPOSURE GUIDELINES: see section 2.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Liquid Mixture, self-leveling consistency, solvent free.

Color: Yellowish to clear

ODOR: Mild aromatic Odor

PHYSICAL STATE: Fluid

pH AS SUPPLIED: No data available

BOILING POINT: F: above 300°F (148.8°C)

MELTING POINT: not applicable

FREEZING POINT: Not Applicable

VAPOR PRESSURE (mmHg): not available

VAPOR DENSITY (AIR = 1): Greater than air

SPECIFIC GRAVITY (H₂O = 1): 1.13 – 1.16

EVAPORATION RATE: less than one

SOLUBILITY IN WATER: insoluble in water. Will react slowly with water.

PERCENT SOLIDS BY WEIGHT: >= 99.99%

PERCENT VOLATILE: weight → <=0.01%

VISCOSITY: < 500 cps @ 75°F (23.88°C)



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SECTION 10: STABILITY AND REACTIVITY

STABILITY: Stable

CONDITIONS TO AVOID (STABILITY): Avoid water contact, alcohol, amines, acids and alkalis. Avoid high temperature.

INCOMPATIBILITY (MATERIAL TO AVOID): Avoid Oxidizing Agents.

HAZARDOUS DECOMPOSITION OR BY-PRODUCTS: Carbon Monoxide, Carbon Dioxide, Oxides of Nitrogen,,

HAZARDOUS POLYMERIZATION: Will not occur under normal conditions.

CONDITIONS TO AVOID (POLYMERIZATION): Avoid high temperatures. Avoid moisture contact. Will react with moisture. Reaction with moisture and/or at high temperature may cause pressure build-up in a closed container that could result to rupture of the container.

SECTION 11: TOXICOLOGICAL INFORMATION

TOXICOLOGICAL INFORMATION:

Toxicity to animals: (4,4, Methylene Diisocyanate)

LD50 rat, oral: > 5000mg/kg

LD50 rabbit, Dermal: > 5000mg/kg

Inhalation: Respiratory irritant and potential sensitizer. Repeated and/prolonged overexposure inhalation of vapors or aerosol at levels above the occupational exposure limit could cause respiratory sensitization. Symptoms may include: irritation to eyes, nose, throat and lungs, dryness of the throat, tightness of chest and difficulty in breathing.

Skin Contact: Moderate irritant. Repeated and/or prolonged contact with skin may cause skin sensitization.

Eye Contact: vapor, aerosol and liquid are irritant to eyes.

Ingestion: Ingestion may cause irritation of the gastrointestinal tract.

(Butyl Benzyl Phthalate)

LD50 (oral, rat) = 20400 mg/kg

LD50 (Dermal, Rabbit) = >10000 mg/kg

LC50 (inhalation, 4h, rat)= > 6.7 mg/l

Eye irritation: slight, rabbit, 24 hrs

SECTION 11 NOTES: Exposure can be reduced if proper care is taken wearing protective equipment and clothing as well as proper hygienic practices.

SECTION 12: ECOLOGICAL INFORMATION

ECOLOGICAL INFORMATION:

No data available on final product.

On components: (4,4, Methylene Diisocyanate, polymeric MDI)

Ecotoxicity: Polymeric MDI

LC50 (Zebra Fish) > 1000mg/l ; EC50 *Daphnia magna)(24 hrs) > 1000mg/l; EC50 (E. Coli) > 100 mg/l

Persistence and Degradation: Immiscible with water, but will react with water to produce inert and non-biodegradable solids.

SECTION 13: DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD: Use excess product in an alternate beneficial application. If not usable, then product is subject to hazardous waste treatment, storage, and disposal requirements under RCRA. Recycle or incinerate waste at EPA approved facility or dispose of in accordance with local, federal and state regulations.



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SECTION 14: TRANSPORT INFORMATION

U.S. DEPARTMENT OF TRANSPORTATION : NOT REGULATED

WATER TRANSPORTATION: NOT REGULATED

AIR TRANSPORTATION : NOT REGULATED

SECTION 15: REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS

TSCA (TOXIC SUBSTANCE CONTROL ACT): All components used in this products are listed in Toxic Substance Control Act (TSCA).

CERCLA (COMPREHENSIVE RESPONSE COMPENSATION, AND LIABILITY ACT):

4,4, MDI CAS #101-68-8 RQ (5000lbs)

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT):

311/312 HAZARD CATEGORIES: Acute Health Hazard, Chronic Health Hazard

313 REPORTABLE INGREDIENTS:

Diisocyanate Compounds (Category Code N120)

STATE REGULATIONS: California Proposition 65: This product contains chemicals known to the State of California to cause cancer, birth defects and/or other reproductive harm.: none known

OTHER INFORMATION:

WHMIS: Class D-1A, Class D-2A, Class D2B

SECTION 16: OTHER INFORMATION

PREPARATION INFORMATION: 3/14/2012

DISCLAIMER:

A MSDS such as this cannot be expected to cover all possible individual situations. The end user of this product has the responsibility to provide a safe workplace. All aspects of an individual operation should be examined to determine if, or where, precautions – in addition to those described herein – are required. Any health and safety information contained herein should be passed on to your customers and/or employees.

The opinions expressed herein are those of qualified experts within Pacific Polymers. We believe that the information contained herein is current as of the date of this Material Safety Data Sheet. Since the use of this information and the use of this product are not within the control of Pacific Polymers final determination of suitability of this product is the sole responsibility of the user. It is the responsibility of the user to comply with all applicable Federal, State and Local laws and regulations.