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## Material Safety Data Sheet

### RF-E Hardener

#### 1. IDENTIFICATION OF THE SUBSTANCE AND COMPANY

<b>Trade Names:</b>	RF-E Hardener	<b>Emergency Phone Number:</b>	800-424-9300
<b>Description:</b>	Isocyanate / Rubber Adhesive / Curative Accelerator	<b>International Number:</b>	202-483-7616
<b>Company Identification:</b>	Blair Rubber Company 5020 Panther Parkway Seville, OH 44273	<b>Information Number:</b>	330-769-5583

#### 2. COMPOSITION/INFORMATION ON THE COMPONENTS

Cas No.		Percentage (W/W)	Exposure Limits ACGIH OSHA	
Ethyl Acetate	141-78-6	60 - 90	400 ppm TLV	400 ppm TWA
Tris (4-isocyanatophenyl) Thiophosphate	4151-51-3	10 - 30	0.005 ppm TLV	N.A.
Monochlorobenzene	108-09-7	1 - 5	N.A.	N.A.

#### 3. HAZARDS IDENTIFICATION

HMIS HEALTH: 2 FLAMMABILITY: 3 INSTABILITY: 0

##### Potential Acute Health Effects:

**Eye Contact :** High vapor concentration will cause eye irritation, tearing, reddening, and swelling. Left untreated, corneal damage may result.

**Skin Contact :** Repeated or prolonged contact may cause defatting and drying of the skin which may result in skin irritation and dermatitis.

**Inhalation :** Isocyanate vapour/mists at concentrations above the exposure limits can irritate (burning sensation) the mucous membranes in the respiratory tract causing runny nose, sore throat, coughing, chest discomfort, difficult breathing and reduced pulmonary functioning. Persons with pre-existing non specific bronchial hyperreactivity can respond to concentrations below the TLV with similar symptoms as well as asthma attack. Exposure well above the TLV may lead to bronchitis, bronchial spasm and pulmonary edema. Effects are usually reversible. Chemical or hypersensitive pneumonitis, with flu-like symptoms have also been reported. These symptoms can be delayed up to several hours after exposure. Solvent vapours may be irritating to the eyes, nose and throat. May cause headache, dizziness and nausea. May result in narcosis. May cause fatigue and loss of appetite.

**Ingestion :** Harmful if swallowed. Causes irritation of the mouth, throat and esophagus. May result in abdominal pain, nausea, vomiting and diarrhea.

**Chronic Exposure Effects :** Prolonged contact may cause reddening, swelling, rash, scaling, blistering and in some cases skin sensitization. Prolonged or repeated skin contact may result in dry, defatted and cracked skin causing increased susceptibility to infection. Repeated or prolonged contact with eyes may cause conjunctivitis. As a result of previous repeated overexposure or a single large dose, certain individuals develop sensitization which will cause them to react to a later exposure to product at levels well below the TLV. Symptoms including chest tightness, wheezing, cough, shortness of breath or asthma attack could be immediate or delayed. There are reports that once sensitized, an individual can experience these symptoms upon exposure to dust, cold air, or other irritants. This increased lung sensitivity can persist for weeks and in severe cases several years. Prolonged or repeated exposure may cause lung damage, including a decrease in lung function. May cause permanent brain and nervous system damage. Symptoms include loss of memory, low of intellectual ability and loss of coordination. Possible damage to liver and kidneys.

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#### 4. FIRST AID MEASURES

**EYE CONTACT:** Immediately flush eyes with gently flowing water for at least 15 minutes or until the chemical is removed. Hold eyelids open during flushing. Take care not to rinse the contaminated water into the unaffected eye or face. Seek immediate medical attention.

**SKIN CONTACT:** Remove contaminated clothing, including shoes, after flushing with water has begun. Flush with copious amounts of water. If irritation persists or signs of toxicity occur, seek medical attention.

**INHALATION (Breathing):** If symptoms are experienced, remove source of contamination and, move victim to fresh air. If symptoms persist, get medical attention. If the affected person is not breathing, apply artificial respiration. If breathing is difficult, give oxygen. In situations where administering oxygen is appropriate, first aid administrator must be trained in the safe use and handling of oxygen. It is preferable to administer oxygen under a doctor's supervision or advice. If the heart has stopped, trained personnel should begin cardiopulmonary resuscitation (CPR) immediately. Obtain medical attention IMMEDIATELY.

**INGESTION (Swallowing):** Seek immediate medical attention. DO NOT induce vomiting. Do not attempt to give anything by mouth to an unconscious or convulsing person. Give 1 to 2 cups of milk or water to drink. IMMEDIATELY contact local Poison Control Center. If spontaneous vomiting occurs, have victim lean forward with head down to avoid aspirating liquid into the lungs. Administer artificial respiration if breathing has stopped. If the heart has stopped, trained personnel should begin cardiopulmonary resuscitation (CPR) immediately.

**NOTE TO PHYSICIAN :** Treatment based on sound judgment of physician and individual reactions of patient. EYE: Stain for evidence of corneal injury. If cornea is burned, instill antibiotic steroid preparation frequently. Workplace vapours have produced reversible corneal epithelial edema impairing vision. SKIN : This compound is a known skin sensitizer. Treat symptomatically as for contact dermatitis or thermal burns. If burned, treat as thermal burn. INGESTION : Treat symptomatically. There is NO specific antidote. Inducing vomiting is contraindicated because of the irritation nature of this compound. RESPIRATORY : This compound is a known pulmonary sensitizer. Treatment is essentially symptomatic. An individual having a skin or pulmonary sensitization reaction to this material should be removed immediately from exposure to any isocyanate.

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#### 5. FIRE - FIGHTING MEASURES

**Flash Point .....** -4°C

**Autoignition.....** 460°C

**Flash Point Method :** Closed Cup

**Flammable Limits in air (%) :** Lower : 1.3% Upper : 11.5%

**EXTINGUISHING MEDIA :** Use DRY chemicals. CO<sub>2</sub>. Alcohol, foam, or water spray. This material may produce a floating fire hazard in extreme fire conditions.

**SPECIAL EXPOSURE HAZARDS :** Flammable Liquid. Isolate and restrict area access. Stop leak only if safe to do so. Move containers from fire area if you can do so without risk. Fight fire from a safe distance and from a protected location. Use fine water spray or fog to control fire spread and cool adjacent structures or containers. This material may produce a floating fire hazard in extreme fire conditions. Vapours are heavier than air and may accumulate in low areas. Vapours may travel along the ground to be ignited at distant locations. Do not allow runoff to enter waterways or sewer.

**HAZARDOUS DECOMPOSITION / COMBUSTION MATERIALS :** A complex mixture of airborne solids, liquids, gases including carbon monoxide, carbon dioxide, oxides of nitrogen, phosphorous, sulphur, HCL, isocyanates, and traces of phosgene, chlorine, and hydrogen cyanide will be evolved when this material undergoes combustion.

**SPECIAL PROTECTIVE EQUIPMENT :** Wear protective clothing and self contained breathing apparatus.

**NFPA RATINGS :** HEALTH 2; FLAMMABILITY 3; INSTABILITY 0

**HMIS RATINGS :** HEALTH 2; FLAMMABILITY 3; INSTABILITY 0

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## 6. ACCIDENTAL RELEASE MEASURES

**PERSONAL PRECAUTIONARY MEASURES:** Wear appropriate protective equipment.

**ENVIRONMENTAL PRECAUTIONARY MEASURES :** Prevent entry into sewers or streams, dike if needed. Consult local authorities.

**PROCEDURE FOR CLEAN UP :** Flammable liquid. Isolate hazard area and restrict access. Stop leak only if it is safe to do so. Eliminate all sources of ignition and work only with non-sparking tools. Small spills: soak up with non-combustible absorbent material and scoop into containers. Large spills : prevent contamination of waterways. Dike and pump into suitable containers.

Clean up residual with absorbent material. Place in appropriate container. Confirm suitability of any material before using. Notify applicable government authority if release is reportable or could adversely affect the environment. Ventilate the area thoroughly.

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## 7. HANDLING AND STORAGE

**HANDLING :** Flammable. For industrial use only. Handle and open containers with care. Avoid contact with eyes, skin and clothing. Do not ingest. Avoid inhalation of chemical. DO NOT handle or store near an open flame, heat, or other sources of ignition. Fixed equipment as well as transfer containers and equipment must be grounded to prevent accumulation of static charge. DO NOT pressurize, cut, heat or weld containers. Empty containers may contain hazardous product residues. Keep the containers closed when not in use. Protect against physical damage. Use appropriate personal protective equipment. Electrostatic discharge may cause fire. Ensure electrical continuity by bonding and grounding (earthing) all equipment. Restrict line velocity during pumping in order to avoid generation of electrostatic discharge ( $\geq 10$  m/sec). Avoid splash filling. Do NOT use compressed air for filling, discharging, or handling operations. Extinguish any naked flames.

**STORAGE :** Store in a cool, dry, well ventilated area, away from heat and ignition sources. Keep containers tightly closed. Store out of direct sunlight and on an impermeable floor.

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**ENGINEERING CONTROLS :** Local exhaust ventilation as required to maintain exposure to within applicable limits. Use explosion proof equipment. Make up air should be supplied to balance air that is removed by local or general exhaust ventilation. Ventilate low lying areas such as sumps or pits where dense vapours may collect.

**RESPIRATORY PROTECTION :** If exposure exceeds occupational exposure limits, use an appropriate NIOSH approved respirator. In case of spill or leak resulting in unknown concentration, use a NIOSH approved supplied air respirator.

**GLOVES :** Impervious chemical resistant gloves. Butyl or nitrile rubber gloves.

**SKIN PROTECTION :** Skin contact should be prevented through the use of suitable protective clothing, gloves and footwear, selected for conditions of use and exposure potential. Consideration must be given both to durability as well as permeation resistance.

**EYES:** Chemical goggles; also wear a face shield if splashing hazard exists.

**OTHER PERSONAL PROTECTIVE DATA :** Ensure that eyewash stations and safety showers are proximal to the work station location.

<b>INGREDIENTS :</b>	<b>EXPOSURE LIMIT ACGIH</b>	<b>EXPOSURE LIMIT OSHA</b>	<b>IMMEDIATELY DANGEROUS TO LIFE OR HEALTH (IDLH)</b>
Ethyl Acetate	=400 ppm TWA	400 ppm TWA	2,000 ppm

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance:</b>	Clear to amber	<b>Odor.....:</b>	solvent odor	<b>Physical State.....:</b>	liquid
<b>Specific Gravity:</b>	1.0 (water =1)	<b>Boiling Point :</b>	77°C	<b>Melting/Freezing Point:</b>	Not available
<b>% Volatility:</b>	Not available	<b>Vapor Pressure :</b>	73 mm Hg) @ 20%	<b>Vapor Density:</b>	Not available
<b>Viscosity :</b>	Not available	<b>Odor Threshold:</b>	Not available	<b>Evaporation Rate :</b>	Not available
<b>Solubility :</b>	Partially soluble in water. Isocyanate: not soluble, reacts slowly with water to liberate CO2 gas.				

**Note:** The physical data presented above are typical values and should not be construed as a specification.

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## 10. STABILITY AND REACTIVITY

**CHEMICAL STABILITY:** Stable under normal conditions of use.

**HAZARDOUS POLYMERIZATION:** May occur with contact with moisture or other materials which react with isocyanates.

**CONDITIONS TO AVOID:** High temperatures, sparks, open flames and all sources of ignition

**MATERIALS TO AVOID:** Water, oxidizing agents, strong bases, strong alkalis, alcohols and strong acids.

**HAZARDOUS DECOMPOSITION PRODUCTS:** By fire: Oxides of carbon, nitrogen, phosphorous, sulphur, and hydrochloric acid, isocyanates, traces of phosgene, chlorine and hydrogen cyanide.

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## 11. TOXICOLOGY INFORMATION

### PRINCIPLE ROUTES OF EXPOSURE:

**Eye Contact :** High vapor concentration will cause eye irritation, tearing, reddening, and swelling. Left untreated, corneal damage may result.

**Skin Contact :** Repeated or prolonged contact may cause defatting and drying of the skin which may result in skin irritation and dermatitis.

**Inhalation :** Isocyanate vapour/mists at concentrations above the exposure limits can irritate (burning sensation) the mucous membranes in the respiratory tract causing runny nose, sore throat, coughing, chest discomfort, difficult breathing and reduced pulmonary functioning. Persons with pre-existing non specific bronchial hyperreactivity can respond to concentrations below the TLV with similar symptoms as well as asthma attack. Exposure well above the TLV may lead to bronchitis, bronchial spasm and pulmonary edema. Effects are usually reversible. Chemical or hypersensitive pneumonitis, with flu-like symptoms have also been reported. These symptoms can be delayed up to several hours after exposure. Solvent vapours may be irritating to the eyes, nose and throat. May cause headache, dizziness and nausea. May result in narcosis. May cause fatigue and loss of appetite.

**Ingestion :** Harmful if swallowed. Causes irritation of the mouth, throat and esophagus. May result in abdominal pain, nausea, vomiting and diarrhea.

<b>ACUTE TEST OF PRODUCT:</b>	<b>ETHYL ACETATE</b>	<b>ANALAGOUS PRODUCTS</b>
<b>Acute Oral LD50:</b>	5,600 mg/kg (Rat)	>2,0000 mg/kg (Rat)
<b>Acute Dermal LD50:</b>	>20 mL/kg. (Rabbit)	Not available
<b>Acute Inhalation LC50:</b>	16,000 ppm (Rat-6hr.)	Not available

**Carcinogenicity:** IARC – Not listed  
ACGIH – Not listed

**Carcinogenicity Comment:** No additional information available.

**Reproductive Toxicity/Terratogenicity/Embryotoxicity/Mutagenicity :** Not available

## 12. ECOLOGICAL INFORMATION :

<b>ECOTOXICOLOGICAL INFORMATION:</b>	<b>ECOTOXICITY FISH SPECIES DATA</b>	<b>ECOTOXICITY FRESH WATER ALGAE</b>
<b>Ethyl Acetate:</b>	LC50 (Pimephales promelas) 230 mg/L LC50 (Oncorhynchus mykiss) 484 mg/L	EC50 (Scenedesmus subspicatus) 3,300 mg/L

**Other Information :** Not available

## 13. DISPOSAL CONSIDERATIONS

**DISPOSAL OF WASTE METHOD :** Disposal of all wastes must be done in accordance with local, state/provincial and federal regulations.

**CONTAMINATED PACKAGING :** Empty containers should be recycled or disposed of through an approved waste management facility.

## 14. TRANSPORT INFORMATION

**Weight (lb) Shipping Name:** Flammable Liquid, N.O.S. (Ethyl Acetate Solution)

**DOT Label :** FLAMMABLE **TDG (IATA AND IMO):** Cl. 3 UN 1993 PG. II

## 15. REGULATORY INFORMATION

**U.S. TSCA Inventory Status :** All compounds of this product are either on the Toxic Substances Control Act (TSCA) Inventory List or exempt.

**Canadian DSL Inventory Status :** All compounds of this product are either on the Domestic Substances List (DSL); the Non-Domestic Substances List (NDSL) or exempt.

<b>US REGULATORY RULES</b>	<b>CECLA/SARA Section 302:</b>	<b>SARA (311, 312) Hazard Class:</b>	<b>CERCLA/SARA Section 313:</b>
<b>RE Hardener Components</b>	Not Listed	Listed	Listed
<b>California Proposition 65</b>	Listed		
<b>MA Right to Know List</b>	Listed		
<b>New Jersey Right to Know List</b>	Listed		
<b>Pennsylvania Right to Know List</b>	Listed		

**WHMIS Hazardous Class:** B2 FLAMMABLE LIQUIDS  
D2A TOXIC MATERIALS  
D2B TOXIC MATERIALS causing other effects

**NFPA RATINGS:** HEALTH 2; FLAMMABILITY 3; INSTABILITY 0  
**HMIS RATINGS:** HEALTH 2; FLAMMABILITY 3; INSTABILITY 0

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## 16. OTHER INFORMATION/ADDITIONAL COMMENTS

**USERS RESPONSIBILITY:** A bulletin such as this cannot be expected to cover all possible individual situations. As the user 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 hazard and safety information herein should be passed on to your customers or employees, as the case may be.

**DISCLAIMER OF LIABILITY:** The information contained herein is, to the best of our knowledge and belief, accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by use of this material. All chemicals may present unknown health hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards which exist. Final determination of suitability of the chemical is the sole responsibility of the user. No representations or warranties, either expressed or implied, of merchantability, fitness for a particular purpose or any other nature are made hereunder with respect to the information contained herein or the chemical to which the information refers. It is the responsibility of the user to comply with all applicable federal, state and local laws and regulations.

The ingredients listed Composition/Information on the Components Section are embedded in the product and are provided for information.

**Blair Rubber Company provides the information herein compliance with Federal hazard communication standard, 29 CFR 1910.1200, to give warning of actual and assumed hazards, and to inform of generally applicable precautions and control measures which are known to Blair Rubber Company. Hazard information is based on available scientific evidence, but is not always obtained from sources under the direction or control of Blair Rubber Company. Blair Rubber Company makes no warranty or representation that the information is accurate, reliable, complete or representative and Buyer may rely thereon only at Buyer's own risk. Blair Rubber Company warrants only that it has made no effort to censor other than trade secret information or to conceal hazards of its products. The data shown on these pages in no way modifies, amends or enlarges any specification or warranty.**