MATERIAL SAFETY DATA SHEET

MSDS No. 4000
Product: PC-04 Polyurethane Activator
Date Prepared: October 1, 1999
Manufacturer's Name: Precision Coatings Inc.
Emergency Telephone
Address: 1940 E. Trafficway, Springfield, Missouri, 65802
Number:800-424-9300 Chemtrec
Other Information
Calls: (417) 862-5738

SECTION-1 IDENTITY

Common Name (Used on Label): PC-04 Polyurethane Activator
Chemical Name: Mixture
CAS No: None
Chemical Family: Aliphatic Polyisocyanate
Formula: PC-04

SECTION-2 HAZARDOUS INGREDIENTS/IDENTITY

Hazardous Components	CAS No.	Vapor Pressure	ACGIH TLV TWA	ACGIH TLV STEL	OSHA PEL	OSHA CEILING	OSHA PEAK
Homopolymer of HDI	28182-81-2	*	NE	NE	NE	NE	NE
The recommended Manufacturer Guideline Level (MGL) for HDI based Polyisocyanates is: 0.5 mg/m3 (TWA - averaged over 8 hours) and 1.0 mg/m3 Short Term Exposure (STEL - averaged over 15 minutes).							
Hexamethylene Diisocyanate (HDI)	822-06-0	*	.005ppm	NE	NE	.02ppm-MGL	NE
The vapor pressure of HDI Polyisocyanate is 9.3 x 10 -6 mmHg @ 20 C (68 F).							
Benzene, 1-chloro-4 (Trifluoromethyl)-PCBTF	98-56-6	5.3mmHg	NE	NE	NE	20ppm	NE

SECTION-3 PHYSICAL & CHEMICAL CHARACTERISTICS

Boiling Point: 139 C (282 F)
Specific Gravity: 1.2077
Vapor Pressure (mm Hg): NE
Percent Volatile by Volume: 60
Vapor Density (Air =1): Heavier
Evaporation Rate (Ether=1):Slower
Solubility in Water: Slight
Reactivity in Water: Reacts slowly to liberate CO2
Appearance: Pale yellow liquid
Odor: Naphthalenic odor

VOC Reportable as packaged: zero VOC
VOC Regulatory as packaged: zero VOC (less water & exempt compounds)

SECTION-4 FIRE & EXPLOSION DATA

Flash Point:109F42C Method Used: Pensky Martins Closed Cup Auto-Ignition Temperature: NE
Flammability Classification: OSHA: Combustible Liquid DOT: Not Regulated
Extinguisher Media: NFPA Class B (CO2, Dry Chemical, Foam)
Flammable Limits in Air % by volume: LEL Lower: NE UEL Upper: NE
Special Fire Fighting Procedures: Water spray may be ineffective on fire but can protect fire fighters and cool containers to prevent pressure buildup. Use fog nozzles if water is used. Full protective equipment, including self-contained breathing apparatus and full protective clothing should be worn by firefighters. During a fire, HDI vapors and other irritating, highly toxic gases may be generated by thremal decomposition or combustion. Closed containers may explode when exposed to extreme heat or burst when contaminated with water (CO2 evolved).
Unusual Fire and Explosion Hazards: Heavy vapors can travel to source of ignition and flash back.

SECTION-5 PHYSICAL HAZARDS (REACTIVITY DATA)

Stability: Stable
Conditions to Avoid: Keep away from heat, sparks, electrical equipment and open flame.
Incompatibility (materials to avoid): Strong oxidizers, water, amines, strong bases, alcohols, metal compounds, and surface active materials.
Hazardous Decomposition Products: By high heat and fire: carbon dioxide, carbon monoxide,

oxides of nitrogen, HCN, HDI, chlorine containing gases, fluorine containing gases.
Hazardous Polymerization: May occur; contact with moisture or other materials which react with isocyanates or temperatures above 400 F (204 C) may cause polymerization.

SECTION-6 HEALTH HAZARDS

Acute Overexposure:

Acute Inhalation: HDI vapors or mist at concentrations above the TLV or MGL can irritate (burning sensation) the mucous membranes in the respiratory tract (nose, throat, lungs) causing runny nose, sore throat, coughing, chest discomfort, shortness of breath and reduced lung function (breathing obstruction). Persons with a preexisting, nonspecific bronchial hyperactivity can respond to concentrations below the TLV or MGL with similar symptoms as well as an asthma attack. Exposure well above the TLV or MGL may lead to bronchitis, bronchial spasm and pulmonary edema (fluid in lungs). These effects are usually reversible. Chemical or hypersensitive pneumonitis, with flu-like symptoms (e.g., fever, chills) has also been reported. May produce symptoms of central nervous system depression including headache, dizziness, nausea, loss of balance and drowsiness.
Acute Skin Contact: Isocyanates react with skin protein and moisture and can cause irritation. Symptoms of skin irritation may be reddening, swelling, rash, scaling or blistering. Some persons may develop skin sensitization from skin contact. Cured material is difficult to remove.
Acute Eye Contact: Liquid, aerosols and vapors of this product are irritating and can cause pain, tearing, reddening and swelling accompanied by a stinging sensation and/or a feeling like that of fine dust in the eyes.
Acute Ingestion: Can result in irritation and possible corrosive action in the mouth, stomach tissue and digestive tract.

Notice: Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal. Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage.

Chronic Overexposure:

Chronic Inhalation: As a result of previous repeated overexposures or a single large dose, certain individuals will develop isocyanate sensitization (chemical asthma) which will cause them to react to a later exposure to isocyanate at levels well below the TLV or MGL. These symptoms, which include: Chest tightness, wheezing, cough, shortness of breath or asthmatic attack, could be immediate or delayed up to several hours after exposure. Similar to many non-specific asthmatic responses, 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 sever cases, for several years. Chronic overexposure to isocyanates has also been reported to cause lung damage, including decrease in lung function, which may be permanent. Sensitization may be either temporary or permanent. May cause liver and kidney damage.
Chronic Skin Contact: Prolonged contact with the isocyanate can cause reddening, swelling, rash, scaling or blistering. In those who have developed a skin sensitization, these symptoms can develop as a result of contact with very small amounts of liquid material or even as a result of vapor only exposure.
Chronic Eye Contact: May result in corneal opacity (clouding of the eye surface).
Chronic Ingestion: Prolonged or repeated swallowing of large amounts may cause liver and kidney damage based on animal studies.

Carcinogenicity: NTP: Not listed, IRAC: Not listed, OSHA: Not regulated.

Medical Conditions Aggravated By Exposure: Asthma and other respiratory disorders

(bronchitis, emphysema, hyperreactivity), skin allergies, eczema.

SECTION-7 FIRST AID

Inhalation: Remove to fresh air. Give artificial respiration if necessary. Asthmatic-type symptoms may develop and may be immediate or delayed up to several hours. Treatment is essentially symptomatic. Consult a physician.
Eye Contact: Flush with water for at least 15 minutes. Consult a physician.
Skin Contact: Wash with soap and water. If irritation persists, consult a physician. Wash contaminated clothing thoroughly before reuse.
Ingestion: DO NOT induce vomiting. Call a physician immediately. Have the names of ingredients available.
Note to Physician: Eyes: Stain for evidence of corneal injury. If cornea is burned, instill antibiotic/ steroid preparation frequently. Workplace vapors could produce reversible corneal epithelial edema impairing vision. **Skin:** This product is a known skin sensitizer. Treat symptomatically as for contact dermatitis or thermal burn. **Ingestion:** Treat symptomatically. There is no specific antidote. Inducing vomiting is contraindicated because of the irritating nature of the product. **Inhalation:** This product is a known pulmonary sensitizer. Treatment is essentially symptomatic. An individual having a dermal or pulmonary sensitization reaction to this material must be removed from any further exposure to any isocyanate.

SECTION-8 SPECIAL PRECAUTIONS

Observe label precautions. Keep away form heat, sparks and flame. Close container after each use. Ground containers when pouring. Wash thoroughly after handling and before eating or smoking. Do not store above 120 degrees F. Do not flame cut, saw, braze or weld containers. Store in tightly closed containers to prevent moisture contamination. Do not reseal if contamination is suspected. HDI reacts slowly with water to form CO2 gas. This gas can cause sealed containers to expand and possibly rupture explosively. If container is exposed to high heat, it can be pressurized and possibly rupture explosively.

SECTION-9 SPILL OR LEAK PROCEDURES

Evacuate nonessential personnel. Remove all sources of ignition and ventilate the area. Notify appropriate authorities if necessary. Put on personal protective equipment (see Section 10). Dike or impound spilled material and control further spillage if feasible. Cover the spilled material with sawdust, cermiculite, Fuller's earth or other absorbent material. Pour decontamination solution over spill area and allow to react for at least 10 minutes. Collect material in open containers and add further amounts of decontamination solution. Remove containers to a safe place, cover loosely, and allow to stand for 24 to 48 hours. Wash down spill area with decontamination solutions. Decontamination solutions: nonionic surfactant Union Carbide's Tergitol TMN-10 (20%) and water (80%); concentrated ammonia (3-8%), detergent (2%) and water (90-95%).

SECTION-10 SPECIAL PROTECTION INFORMATION/CONTROL MEASURES

Do not breathe vapors or mists. Wear a positive pressure supplied air respirator (NIOSH/MSHA TC-19C) while mixing activator with paint or clear, during application and until all vapors and spray mists are exhausted. Individuals with a history of lung or breathing problems or prior reaction to isocyanates should not use or be exposed to this product. Do not permit anyone without protection in the painting area. Follow respirator manufacturer's directions for respirator use.
Ventilation: Provide sufficient ventilation to keep vapor concentration below the given TLV and/or PEL.
Protective clothing: Solvent resistant gloves are required for to prevent contact. Refer to safety equipment supplier for effective glove recommendations.
Use safety goggles or safety glasses with splash guards or side shields to protect against splash

of liquids.
Other protective equipment such as eye bath and shower should be available. Use chemical resistant apron, boots or other clothing if needed to avoid contact. Liquid may penetrate shoes and leather causing delayed irritation.

SECTION-11 REGULATORY INFORMATION

OSHA: This product is considered hazardous under the Federal OSHA Hazard Communication Standard.
SARA Title III Section 302 Extremely Hazardous Substances: None
SARA Title III Section 311/312 Hazard Categories: Immediate health, delayed health, fire hazard. reactive hazard.
Section 313 Supplier Notification: The chemicals listed below with percentages are subject to the reporting requirements of Section 313 of the Emergency Planning and Right-To-Know Act of 1986 and of 40 CFR 372:

CAS Number	Chemical Name	% by Weight
822-06-0	Hexamethylene Diisocyanate	less than 1

Hazardous Air Pollutants: none
Hazardous Waste: When discarded in its supplied form, this product meets the hazard criteria of "ignitability" and must be considered as hazardous waste D001.
TSCA status: All ingredients are TSCA registered.
CEPA status: All ingredients are listed on the DSL or NDSL.
Proposition 65 Warning: This product does not contain chemicals known to the State of California to cause cancer or birth defects or other reproductive harm.

SECTION-12 OTHER INFORMATION

While Precision Coatings, Inc. believes that the data contained herein are accurate and derived from qualified sources, the data are not to be taken as a warranty or representation for which Precision Coatings, Inc. assumes legal responsibility. They are offered solely for your consideration, investigation, and verification. Any use of these data and information must be determined by the user to be in accordance with applicable federal, state and local laws and regulations.