

*******MATERIAL SAFETY DATA SHEET*******

Manufacturer's Name: PRECISION CONVERTING
Street Address: 6650 CONCORD PARK DR
City, State, Zip: HOUSTON, TX 77040
Phone: (713) 934-1650 Fax: (713) 934-1655
Emergency Response Phone: 1-800-424-9300

*******SECTION 1 – PRODUCT IDENTIFICATION*******

PRODUCT NAME: PC- 9016,9028,9030,9035,9040 Component A
SYNONYMS: H12 PC- 9016,9028,9030,9035,9040 Component A
CHEMICAL FAMILY: Aliphatic Isocyanate Mixture
FORMULA: C15 H22 N2 O2

*******SECTION II – HAZARDOUS INGREDIENTS*******

<u>INGREDIENT</u>	<u>EXPOSURE LIMIT</u>	<u>CONCENTRATION</u>
Dicyclohexylmethane-4,4 Diisocyanate CAS # 5124-30-1	OSHA (.01) PPM ceiling ACGIH (.005) PPM TWA	40%

These limits are based those promulgated by the 1989 OSHA Air Contaminates Standard 29, CFR 1910.1000.

*******SECTION III – PHYSICAL DATA*******

APPEARANCE: Thin Liquid
ODOR: Aromatic
COLOR: Clear
BOILING POINT (F) (C): Greater than 300 F
SPECIFIC GRAVITY: 1.074
PERCENT VOLATILE BY VOLUME: 0
EVAPORATION RATE (ether = 1): N/A
VAPOR DENSITY (air = 1): N/A
SOLUBILITY IN WATER (percent): Reacts slowly

*******SECTION IV – FIRE AND EXPLOSION HAZARD DATA*******

FLASH POINT: Greater than 241 C / 270 F
EXTINGUISHING MEDIA: Water spray (fog), foam, dry chemical, carbon dioxide.
SPECIAL FIRE FIGHTING PROCEDURES: Full protective equipment with self-contained breathing apparatus should be worn.
UNUSUAL FIRE AND EXPLOSION HAZARDS: Keep containers tightly closed. Isolate

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from heat, electrical equipment, sparks and open flame. Water spray may be used to cool closed containers and prevent pressure build up. Empty containers may contain liquid or vapor which is flammable or explosive. DO NOT weld, burn or cut empty containers.

*****SECTION V – HEALTH HAZARD DATA*****

HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

- May cause eye, skin, and respiratory tract irritation; ; May cause allergic respiratory reaction; May cause allergic skin reaction;
- Toxic gases/fumes age given off during burning or thermal decomposition.

POTENTIAL HEALTH EFFECTS:

ROUTE(S) OF ENTRY: Skin contact from liquid . Inhalation: Although PC- 9016,9028,9030,9035,9040 Component A is low in volatility, an inhalation hazard can exist from PC- 9016,9028,9030,9035,9040 Component A aerosols or vapors formed during heating.

HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE:

ACUTE INHALATION: PC- 9016,9028,9030,9035,9040 Component A vapors or mist at concentrations above the TLV 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 with similar symptoms as well as asthma attack. Exposure well above the TLV 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. These symptoms can be delayed up to several hours after exposure.

CHRONIC INHALATION: As a result of previous repeated over exposures or a single large dose, certain individuals develop isocyanate at levels well below the TLV. These symptoms, which can include chest tightness, wheezing, cough, shortness of breath of asthma 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 severe cases for several years. Overexposure to isocyanates has also been reported to cause lung damage (including decrease in lung function) which may be permanent. Sensitization can either be temporary or permanent.

ACUTE SKIN CONTACT: Isocyanates react with skin protein and moisture and can cause irritation, which may include the following symptoms: reddening, swelling, rash, scaling or blistering. Cured material is difficult to remove.

CHRONIC SKIN CONTACT: Prolonged contact can cause reddening, swelling, rash, scaling, blistering, and in some cases, skin sensitization. Individuals who have skin sensitization can develop these symptoms from contact with liquid or vapors. Animal tests have indicated that respiratory sensitization can result from skin contact with PC- 9016,9028,9030,9035,9040 Component A. This data reinforces the need to prevent skin contact with PC- 9016,9028,9030,9035,9040 Component A. (See Toxicological Information, SENSITIZATION).

ACUTE EYE CONTACT: Liquid, aerosols or vapors are irritating and can cause tearing, reddening and swelling. If left untreated, corneal damage can occur and injury is slow to heal. However, damage is usually reversible. See First Aid Measures for treatment.

ACUTE INGESTION: Can result in irritation and corrosive action in the mouth, stomach tissue and digestive tract. Symptoms can include sore throat, abdominal pain, nausea, vomiting and diarrhea.

CHRONIC INGESTION: None found.

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NTP, IARC or regulated by OSHA as carcinogens.
NTP Not listed
IARC Not listed
OSHA Not regulated
OTHER See results of two-year inhalation study in Toxicological Information,

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Asthma, other respiratory disorders (bronchitis, emphysema, bronchial hyperactivity), skin allergies, eczema.

*******SECTION VI - FIRST AID MEASURES*******

FIRST AID FOR EYES: Flush with copious amounts of water, preferably, lukewarm water for at least 15 minutes, holding eyelids open all the time. Refer individual to physician or ophthalmologist for immediate follow-up.

FIRST AID FOR SKIN: Remove contaminated clothing. Wash affected skin thoroughly with soap and water. Wash contaminated clothing thoroughly before reuse. For severe exposures, get under safety shower after removing clothing, then get medical attention. For lesser exposures, seek medical attention if irritation develops or persists after the area is washed.

FIRST AID FOR INHALATION: Move to an area free from risk of further exposure. Administer oxygen or artificial respiration if needed. Obtain medical attention. Asthmatic-type symptoms may develop and may be immediate or delayed up to several hours. Consult physician should this occur.

FIRST AID FOR INGESTION: DO NOT INDUCE VOMITING. Give 1 to 2 cups of milk or water to drink. DO NOT GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. Consult physician.

NOTE TO PHYSICIAN:

EYES: Stain for evidence of corneal injury. If cornea is burned, instill antibiotic steroid preparation frequently. Work place vapors 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 irritating 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 from exposure to any isocyanate.

*******SECTION VII - FIRE FIGHTING MEASURES*******

FLASH POINT: 390.0 F (198.8 C) Pensky-Martens Closed cup (ASTM-D-93).

EXTINGUISHING MEDIA: Dry Chemical; carbon dioxide; foam, water spray for large fires.

SPECIAL FIRE FIGHTING PROCEDURES: Full emergency equipment with self contained breathing apparatus and full protective clothing should be worn by firefighters. At temperatures greater than 400 F (204 C) PC- 9016,9028,9030,9035,9040 Component A can polymerize and decompose which can cause pressure built up in closed containers. Explosive rupture is possible. Therefore, use cold water to cool fire-exposed containers.

*******SECTION VIII - HANDLING AND STORAGE*******

STORAGE TEMPERATURE (MIN/MAX): 64 F (18 C)/86 F (30 C)

SHELF LIFE: 1 year

SPECIAL SENSITIVITY: If container is exposed to high heat, 400 F (204 C) it can be pressurized and possible rupture. PC- 9016,9028,9030,9035,9040 Component A reacts slowly with water to form CO2 gas. This gas can cause sealed containers to expand and possibly rupture.

HANDLING/STORAGE PRECAUTIONS: Store in tightly closed containers to prevent moisture contamination. Do not reseal if contamination is suspected. Avoid contact with skin and eyes. Do not breathe aerosols or vapors. Warning properties (irritation of the eyes, nose and throat or odor) are not adequate to prevent chronic overexposure from inhalation. This material can produce asthmatic sensitization upon either single inhalation exposure to a relatively high concentration or upon repeated inhalation exposure to lower concentrations. Exposure to vapors of heated PC- 9016,9028,9030,9035,9040 Component A can be extremely dangerous. Employee education and training in the safe use and handling of this compound are required under the OSHA Hazard Communication Standard.

*******SECTION IX - PERSONAL PROTECTION*******

EYE PROTECTION REQUIREMENTS: Liquid chemical goggles. Vapor resistant goggles should be worn when contact lenses are in use. In a splash hazard environment chemical goggles should be used in combination with a full-face shield.

SKIN PROTECTION REQUIREMENTS: Permeation resistant gloves (butyl rubber, nitrile rubber, polyvinyl alcohol). However, please note that PVA degrades in water. Cover as much of the exposed skin area as possible with appropriate clothing. If skin creams are used, keep the area covered by the cream to a minimum.

VENTILATION REQUIREMENTS: Local exhaust should be used to maintain levels below the TLV whenever PC- 9016,9028,9030,9035,9040 Component A is processed, . Standard reference sources regarding industrial ventilation (i.e., ACGIH Industrial Ventilation) should be consulted for guidance about adequate ventilation.

RESPIRATOR REQUIREMENTS: Concentrations greater than the TLV can occur when PC- 9016,9028,9030,9035,9040 Component A is sprayed, heated or used in a poorly ventilated area. In such cases, or whenever concentrations of PC- 9016,9028,9030,9035,9040 Component A exceed the TLV or are not known, respiratory protection must be worn. A supplied air respirator (either positive pressure or continuous flow type) is required. In an emergency situation, a self-contained breathing apparatus may be used. Observe OSHA regulations for respirator use (29 CFR 1910.134).

MEDICAL SURVEILLANCE: Medical supervision of all employees who handle or come in contact with isocyanates is recommended. These should include pre-employment and periodic medical examinations with pulmonary function tests (FEC, FVC as a minimum). Persons with asthmatic-type conditions, chronic bronchitis, other chronic respiratory diseases or recurrent skin eczema or sensitization should be excluded from working with isocyanates. Once a person is diagnosed as sensitized to an isocyanate, no further exposure should be permitted.

ADDITIONAL PROTECTIVE MEASURES: Safety showers and eyewash stations should be available. Educate and train employees in safe use of product. Follow all label instructions. For additional information, contact PRECISION CONVERTING.

*******SECTION X - STABILITY AND REACTIVITY*******

STABILITY: This is a stable material.

HAZARDOUS POLYMERIZATION: May occur; contact with moisture, other materials, which react with isocyanates, or temperatures about 400 F (204 C), may cause polymerization.

INCOMPATIBILITIES: Water, amines, strong bases, alcohols, will cause some corrosion to copper alloys and aluminum.

INSTABILITY CONDITIONS: Contamination with water and high temperatures above 400 F (204 C)

DECOMPOSITION PRODUCTS: By high heat and fire; carbon monoxide, oxides of nitrogen, traces of HCN, PC- 9016,9028,9030,9035,9040 Component A vapors or aerosols.

*****SECTION XI - TOXICOLOGICAL INFORMATION*****

TOXICITY DATA FOR: Dicyclohexylmethane-4,4 ' – Diisocyanate

ACUTE TOXICITY:

ORAL LD50: 1065 mg/kg (Rat)

DERMAL LD50: Greater than 10000 mg/kg (Rabbit)

INHALATION LC50: The 4 hour LC50 for Dicyclohexylmethane-4,4 ' – Diisocyanate in rats 430 mg/m3 / 295 mg/m3 (28PPM) 4 hour male rat

EYE EFFECTS: Slight to moderate irritation.

SKIN EFFECTS: Slight to moderate irritation.

SENSITIZATION: Dicyclohexylmethane-4,4 ' – Diisocyanate has been shown to produce dermal sensitization in laboratory animals. Evidence of respiratory sensitization has also been observed in guinea pigs. In addition, there is some evidence suggestive of cross-sensitization between different types of diisocyanates.

CHRONIC TOXICITY: In a combined chronic inhalation toxicity/oncogenicity study, rats were exposed to an aerosol of Dicyclohexylmethane-4,4 ' – Diisocyanate for 6 hours per day, 5 days per week for one or two years. The exposure concentrations were 0, 0.2, 1.0 and 6.0 mg/m3. Microscopic examination of tissues revealed the effects of irritation to the nasal cavity and lungs in animals exposed to 1.0 and 6.0 mg/m3. The No Observable Effect Level (NOEL) was 0.2 mg/m3.

MUTAGENICITY: Ames Test, negative for mutagenicity with and without liver enzyme activation.

*****SECTION XII - DISPOSAL CONSIDERATIONS*****

WASTE DISPOSAL METHOD: Waste must be disposed of in accordance with federal, state, and local environmental control regulations. Incineration is the preferred method.

EMPTY CONTAINER PRECAUTIONS: Empty containers must be handled with care due to product residue. Decontaminate containers prior to disposal. Empty decontaminated containers should be crushed to prevent reuse. DO NOT HEAT OR CUT EMPTY CONTAINER WITH ELECTRIC OR GAS TORCH. (See Fire Fighting Measures and Stability & Reactivity). Gases may be highly toxic.

TRANSPORTATION EMERGENCIES: Bayer requires that CHEMTREC be immediately notified (800-424-9300) when this product is unintentionally released from its container during its course of distribution, regardless of the amount released. Distribution includes transportation, storage incidental to transportation, loading and unloading. Such notification must be immediate and made by the person having knowledge of the release.

*****SECTION XIII - TRANSPORTATION INFORMATION*****

D.O.T. SHIPPING NAME: Chemical N.O.I. (Isocyanate NMFC60,000) Nonregulated

FLASH POINT:more than 392 degrees F,(200 Degrees C)

BOILING POINT: less than 300 degrees C.

TECHNICAL SHIPPING NAME:Dicyclohexylmethane Diisocyanate Solution

UN Number: None

D.O.T. HAZARD CLASSIFICATION:None

D.O.T. LABELS REQUIRED: None

D.O.T. PLACARDS REQUIRED: None

FREIGHT CLASS: Chemicals N.O.I. (isocyanate) NMFC 60,000

PACKAGING GROUP: None

AIR FREIGHT: N/A