

**INNOVATIVE POLYMER SYSTEMS, INC.**

8530 Milliken Avenue
Rancho Cucamonga, CA 91730
TEL 909-941-4999 FAX 909-941-4944
www.ipspolymer.com

Material Safety Data SheetCode: **EC "A"- Dk**

Issue date: 3-1-96

Updated: 4/10/06

I. Product Identification - "A" Component - Polymeric Isocyanate (TAP Quik-Cast)

Product Name: Two-Component Casting Urethane
Product Code: EC1000, EC1001, EC1200, EC2100, EC2300, EC3100, EC3150, EC3400, EC3410, EC3434, EC3450, EC3460, EC3500, EC3900, EC4400, EC4401, EC4600 (Including all designations such as -60, -150, -160, -180- (M,) etc. following product code)

Chemical Family: Polymeric Isocyanate
Chemical Name: Polymeric Diphenylmethane 4,4 Diisocyanate
Synonyms: MDI, ISO, "A" Component
CAS Number: See Below
TSCA Status: On Inventory

II. Hazardous Ingredients*

Components:	Approx. %	Current TLV/PEL
4,4- Diphenylmethane Diisocyanate Cas# 101-68-8	30 - 50	.02 PPM, ceiling
Higher Oligomers of MDI CAS #9016-87-9	30 - 50	Not Listed
Chlorinated Paraffin Hydrocarbon	20 - 40	N.E.

* Ingredients not precisely identified are proprietary or not hazardous. Values are not product specifications.

III. Physical Data

Appearance: Viscous Liquid
Color: Light to Dark Brown
Odor: Slightly Aromatic Or Musty
Molecular WT: N/A
Melt Point / Freeze Point: Below 60°F.
Boiling Point: Decomposes At 646°F (341°C)
Vapor Pressure: (mm Hg at 20°C: below 0.0001)
Vapor Density (Air = 1): 8.6
Specific Gravity: 1.2
Solubility In Water: Reacts
VOC %: 0

IV. Fire & Explosion Data

Flash Point: 425°F. (218°C.) COC

Flammable Limits In Air By Volume:

Lower: N.E (Nonvolatile Fluid)

Upper: N.E (Nonvolatile Fluid)

Extinguishing Media: Dry chemical extinguishers such as Monoammonium Phosphate, Potassium Sulphate, Potassium Chloride. Additionally, Carbon Dioxide, high expansion (Protenic) chemical foam, water spray for large fires.

Special Fire Fighting Procedure: If water is used, use large amounts as the reaction between hot Isocyanates and water can be vigorous. Use self- contained breathing apparatus and body covering protective clothing.

Unusual Fire and Explosion Hazards: Water contamination will produce Carbon Dioxide. Do not re-seal contaminated containers as pressure buildup may rupture them.

V. Health Hazard Information

Animal Toxicity

- Oral, LD50 (ingestion): >20 G/KG (Rats)
Dermal, LDS50 (skin contact): >15.8 G/KG (Rabbits)
Inhalation, LC50 (4 HR): Approx. 370 MG/L (Dapnea, Limnea Invertebrates and Zebra Fish)
- Eyes: Liquids, aerosols, or vapors are irritating and can cause tearing, reddening, and swelling following contact.
Skin: Can cause skin irritation, which may include the following: reddening, swelling, rash, scaling, and blistering. Sensitization to isocyanates may result with prolonged contact.
Other: No conclusive evidence has been developed to indicate that MDI is carcinogenic, teratogenic, or that it causes reproductive effects in animals and humans.

Human Effects of Overexposure

- Inhalation: May cause respiratory sensitization in susceptible individuals. At room temperature, vapors are minimal due to low vapor pressure. If heated or sprayed as an aerosol, excessive concentrations are attainable that could be hazardous on single exposure. Excessive exposure may cause irritation of the eyes, upper respiratory tract and lungs. Effects may be delayed. Decreased ventilatory capacity has been associated with exposure to similar Isocyanates; it is possible that exposure to MDI may cause impairment of lung function.
- Skin: May cause allergic skin reaction in susceptible individuals. Prolonged or repeated contact may cause skin irritation and may stain the skin.
- Ingestion: This is not considered a common occupation route of exposure, and single dose toxicity is low.
- Threshold Limit Value (ACGIH): TLV is .005 PPM TWA
Permissible Exposure Limit (OSHA): PEL is .02 PPM

VI. Emergency & First Aid Procedures

- Eye contact: Flush with clean, lukewarm water at low pressure for at least 15 minutes, occasionally lifting eyelids. Consult a physician immediately.
- Skin Contact: Remove contaminated clothing. Wash exposed area with warm soapy water thoroughly. Contaminated clothing should be properly laundered before reusing.
- Inhalation: Remove victim from area of exposure to safe area. If not breathing, give mouth to mouth resuscitation. If breathing is difficult, give oxygen. Consult a physician immediately.
- Ingestion: No adverse effects anticipated by this route of exposure incidental to proper industrial handling.

- Note to Physician:** No specific antidote. Supportive care. Treatment based on judgement of physician in response to reaction of the patient. The manifestation of respiratory symptoms, including pulmonary edema, resulting from acute exposure, may be delayed. May cause respiratory sensitization.
- Carcinogenicity:** Neither MDI nor Polymeric MDI are listed by the NTP, IARC, or regulated by Federal OSHA or Cal OSHA as carcinogens.
- Medical conditions aggravated by exposure:** Asthma, other respiratory disorders (bronchitis, emphysema, bronchial hyperreactivity), skin allergies, eczema.

VII. Employee Protection Recommendations

- Eye Protection: Liquid chemical goggles or full face shield. No contact lenses should be worn.
- Skin Protection: Chemical resistant gloves such as natural rubber, or polyvinyl alcohol. Cover as much as possible with appropriate clothing. If skin creams are used, keep the area covered by the cream to a minimum.
- Respiratory Protection: This product has demonstrated no observable effects at room temperature, however, atmospheric levels should be maintained. In addition, in any spray application or situation where airborne particulates or aerosol are generated, a supplied air source must be provided.
- Ventilation: Natural or mechanical. Local exhaust will keep the TLV below minimum in most cases. Spills or other emergencies may require more forceful ventilation means.
- Other: Safety showers and eye wash stations should be provided in all work areas. All employees should be properly trained.

VIII. Reactivity Data

Stability: Stable under recommended storage conditions.

Polymerization: May occur with incompatible reactants, especially strong bases, water or temperature over 347°F (175°C).
Temperatures over 120°F (49°C) accelerate the reaction with water.

Incompatibility (materials to avoid): Water, acid, bases, metal compounds and surface active materials. Avoid water as it reacts to form heat, CO₂ and insoluble urea. The combined effect of the CO₂ and heat can produce enough presence of the above mentioned materials.

Hazardous Decomposition Products: Isocyanate vapor and mist, carbon dioxide, carbon monoxide, nitrogen oxides and traces of hydrogen cyanide.

IX. Spill Or Leak Procedure

Steps to be taken in case material is spilled or released:

Minor Spills: Contain the spilled material and then cover with a loose, absorbent material such as oildry, vermiculite, sawdust, or fuller's earth. Shovel waste material into proper waste containers. Do not make pressure tight. Transport to a well-ventilated area and treat with a neutralizing solution consisting of a mixture of water and concentrated ammonium Hydroxide or 5-10% sodium carbonate. Add about 10 parts of neutralizer per part of Isocyanate with mixing. Allow to stand 48 hours letting evolved CO₂ escape.

Major Spills: Call Innovative Polymer Systems Inc. immediately at (909) 937-3320. If it is a transportation spill, transportation spill notify Chem.Tel at (800) 255-3924. Evacuate and ventilate spill area. Dike spills to prevent entry into the environment. Wear full protective equipment including respiratory protection during clean up.

If temporary control of Isocyanate vapor is required, a blanket of protein foam may be placed over the spill. Large quantities may be pumped into closed but not sealed containers for disposal.

Clean Up: Decontaminate area using water/ammonia solution with 1-2% added detergent, letting it stand over affected area for at least 10 minutes. Cover mops, brooms, etc used for this with plastic and dispose of properly (often by incineration).

Waste Disposal Methods: Waste material may be incinerated at proper facilities or disposed of under Local, State, and Federal regulations controlling environmental protection.

X. Special Precautions & Storage Data

Storage Temperature (Min/ Max): 65°F. (18°C.) to 75°F. (24°C.)

Average Shelf Life: 6 months from date of mfg.

Special Sensitivity (heat, light, moisture): This product is reactive with water. Containers should be tightly sealed to prevent moisture contamination. A nitrogen blanket should be used for bulk storage at a temperature of 65°F to 75°F. Protect from freezing.

Precautions in Handling and Storage: If contamination of the MDI is suspected, do not re-seal container because of possible rupture due to pressure buildup. Always slowly vent container when opening to relieve any pressure buildup.

XI. Shipping Data

Technical Shipping Name: 4,4 - Diphenylmethane Diisocyanate

Freight Class Bulk: 4,4 - Diphenylmethane Diisocyanate

Freight Class Package: Chemicals, NOI (Isocyanate), NMFC 60000

Product Label: Product Label Established

DOT (HM-181) (Domestic Surface) Hazard Class or Division: Non-regulated

IMO/IMDG Code (OCEAN) Hazard Class or Division: Non-regulated

HMS: F-2, H-3, R-0

For further information, contact Innovative Polymer Systems, Inc. at (909) 937-3320

This information is furnished without warranty, expressed or implied, except that it is accurate to the best knowledge of Innovative Polymer Systems, Inc. The data on these sheets relates only to the specific material designated herein. Innovative Polymer Systems, Inc. assumes no legal responsibility for use or reliance upon this data.