

MATERIAL SAFETY DATA SHEET

Hi-Tech HT120LV

Revised July 17, 2014

MSDS #040.16

Emergency Contacts

Emergency Telephone Number: Call CHEMTREC Day or Night, Within USA or Canada 1-800-424-9300

Outside USA or Canada: Call 1-703-527-3887 (collect calls accepted)

Use only for hazardous materials (or dangerous goods) incident - spill, leak, fire, exposure, or accident.

Section 1. Chemical Product Information

Product Name **Hi-Tech HT120LV**
Chemical Family Polymeric Diphenylmethane Diisocyanate
Synonyms..... Polymeric Diphenylmethane Diisocyanate
CAS Number..... Mixture

Progressive Fastening Systems
1190 N. Del Rio Pl.
Ontario, CA. 91764
U.S.A.
Tel: 1909-945-5530
Fax: 1909-945-3009

Section 2. Composition / Information on Ingredients

INGREDIENTS		
Ingredient Name	CAS Number	Concentration
Diisobutyl Phthalate	84-69-5	< 50%
4,4' Diphenylmethane Diisocyanate		
OSHA: .02 ppm Ceiling		
.20 mg/m3 Ceiling	101-68-8	< 21%
ACGIH: .005 ppm TWA		
.051 mg/m3		
Higher Oligomers of MDI	9016-87-9	< 25%
Diphenylmethane Diisocyanate	26447-40-5	< 5%

Section 3. Hazards Identification

EMERGENCY OVERVIEW

Brown liquid. Musty odor. May cause lung damage. May cause eye, skin, and respiratory tract irritation. May cause allergic respiratory reaction. Harmful if inhaled. May cause skin reaction. Toxic gases/fumes given off during burning or thermal decomposition.

Potential Health Effects- Skin contact from liquid and aerosols (spray application). INHALATION. Although MDI is low in volatility, an inhalation hazard can exist from MDI aerosols or vapors formed during heating, foaming or spraying.

Human Effects And Symptoms Of Exposure

Acute Inhalation- Diisocyanate vapors or mist at concentrations above the TLV or PEL 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 hyperreactivity can respond to concentrations below the TLV or PEL with similar symptoms as well as asthma attack. Exposure well above the TLV or PEL 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 overexposures or a single large dose, certain individuals develop isocyanate sensitization (chemical asthma) which will cause them to react to a later exposure to isocyanate at levels well below the TLV or PEL. These symptoms, which can include chest tightness, wheezing, cough, shortness of breath or 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 be either temporary or permanent.

Acute Skin Contact- Isocyanates react with skin protein and moisture and 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.

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Animal tests have indicated that respiratory sensitization can result from skin contact with MDI. This data reinforces the need to prevent direct skin contact with MDI. (See Toxicological Information, SENSITIZATION).

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Section 3. Hazards Identification (Continued)

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.

Chronic Eye Contact- None Found.

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.

Carcinogenicity- Neither MDI nor polymeric MDI are listed by the 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, CARCINOGENICITY.

Medical Conditions Aggravated By Exposure- Asthma, other respiratory disorders (bronchitis, emphysema, bronchial hyperreactivity), skin allergies, eczema

Section 4. First Aid Measures

First Aid For Eyes- Flush with copious amount of water, preferably lukewarm 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 as 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 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. Workplace 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 5. Fire Fighting Measures

Flash Point- 365°F (185°C) Cleveland Open Cup.

Extinguishing Media- Dry Chemical; Carbon Dioxide; Foam; Water spray for large fires.

Special Fire Fighting Instructions- Full emergency equipment with self-contained breathing apparatus and full protective clothing should be worn by firefighters. During a fire, MDI vapors and other irritating, highly toxic gases may be generated by thermal decomposition or combustion. (See Stability and Reactivity). At temperatures greater than 400°F (204°C), polymeric MDI can polymerize and decompose which can cause pressure build-up in closed containers. Explosive rupture is possible. Therefore, use cold water to cool fire-exposed containers.

Section 6. Accidental Release Measures

Spills Or Leaks Measures- Evacuate and ventilate spill area; dike spill to prevent entry into water system; wear full protective equipment, including respiratory equipment during clean-up. If transportation spill call CHEMTREC 800-424-9300. If temporary control of isocyanate vapor is required, a blanket of protein foam (available at most fire departments) may be placed over the spill. Large quantities may be pumped into closed, but not sealed, containers for disposal. Minor Spill: Absorb isocyanates with sawdust or other absorbent, shovel into suitable unsealed containers, transport to well-ventilated area (outside) and treat with neutralizing solution: mixture of water (80%) with non-ionic surfactant Tergitol TMN-10 (20%), or; water (90%), concentrated ammonia (3-8%) and detergent (2%). Add about 10 parts of neutralizer per part of isocyanate, with mixing. Allow to stand uncovered for 48 hours to let CO₂ escape. Clean-up: Decontaminate floor with decontamination solution letting stand for at least 15 minutes

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Section 7. Handling and Storage

Storage Temperature- 64°F (18°C) / 86°F (30°C)

Special Sensitivity- If container is exposed to high heat, 400°F (204°C) it can be pressurized and possibly rupture. MDI 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 containers 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 exposures to lower concentrations. Exposure to vapors of heated MDI 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 8. 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 Requirement- 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 or PEL whenever MDI is processed, heated or spray applied. 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 or PEL can occur when MDI is sprayed, heated or used in a poorly ventilated area. In such cases, or whenever concentrations of MDI exceed the TLV or PEL, 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. MDI has poor warning properties, since the concentration at which MDI can be smelled is substantially higher than the maximum exposure limit. Observe OSHA regulations for respirator use (29 CFR 1910.134).

Monitoring- Isocyanate exposure levels must be monitored. Monitoring of airborne isocyanates in the breathing zone of individuals should become part of the overall employee exposure characterization program. Monitoring techniques have been developed by NIOSH, and OSHA.

Medical Surveillance- Medical supervision of all employees who handle or come in contact with isocyanates is recommended. These should include preemployment and periodic medical examinations with pulmonary function tests. (FEV₁, 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 can be permitted.

Additional Protective Measures- Safety showers and eyewash stations should be available. Educated train employees in safe use of product. Follow all labels instructions.

Section 9. Physical and Chemical Properties

PHYSICAL FORM.....	Liquid
COLOR.....	Brown
ODOR.....	Musty
BOILING POINT	620.6°F (327°C)
MELTING/FREEZING POINT.....	Below 32°F (0°C)
SOLUBILITY IN WATER	Not soluble. Reacts slowly with water to liberate CO ₂ gas.
SPECIFIC GRAVITY	1.14-1.18 77°F (25°C)
BULK DENSITY.....	9.46-9.80 lbs/gal
% VOLATILES BY VOLUME.....	Negligible
VAPOR PRESSURE.....	Less than 1 x 10 ⁻⁵ mm/Hg at 77°F (25°C) for MDI
VAPOR DENSITY.....	8.5 (MDI) (Air = 1)

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Section 10. Stability and Reactivity

Stability- This is a stable material.

Hazardous Polymerization- May occur; Contact with moisture, other materials which react with isocyanates, or temperatures above 400°F (204°C), may cause polymerization.

Incompatibilities- Water, amines, strong bases, alcohols. Will cause some corrosion to copper alloys.

Instability Conditions- Contamination with water

Decomposition Product- By high heat and fire: carbon monoxide, oxides of nitrogen, traces of HCN, MDI vapors or aerosols.

Section 11. Toxicological Information

Acute Toxicity

Oral LD50- The acute oral LD50 (rat) for this material is greater than 10,000 mg/kg.

Dermal LD50- The acute dermal LD50 (rabbit) is greater than 5,000 mg/kg. This product may be a skin irritant.

Inhalation LC50- An acute LC50 for this product is not available.

Eye Effects- This product should be considered a moderate eye irritant. Eye contact may cause corneal opacity.

Skin Effects- Chronic dermal exposure may cause sensitization to diisocyanates.

Sensitization- Chronic inhalation of this product may cause sensitization.

Chronic Toxicity- Not Known

Carcinogenicity/Mutagenicity- This product is not expected to be carcinogenic or mutagenic.

Section 12. Ecological Information

Aquatic Toxicity- 48 hours LC50 for Daphnia magna 112-150 mg/L

Section 13. 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 CONTAINERS WITH ELECTRIC OR GAS TORCH. (See Fire Fighting Measures and Stability & Reactivity). Gases may be highly toxic.

Transportation Emergencies- Notify CHEMTREC immediately (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 notifications must be immediate and made by the person having knowledge of the release.

Section 14. Transportation Information

DOT (Domestic Surface)

This material is not regulated by the DOT

IMO/IMDG Code (Ocean)

Hazard Class Division Number: Non-Regulated.

ICAO/IATA (Air)

Hazard Class Division Number: Non-Regulated.

Section 15. Regulatory Information

OSHA Status- This product is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.

TSCA Status- On TSCA Inventory.

CERCLA Reportable Quantity- 5000 lbs. for 4,4' Diphenylmethane Diisocyanate, CAS # 101-68-8.

SARA Title III:

Section 302 Extremely Hazardous Substance- None.

Section 311/312 Hazard Categories- Immediate Health Hazard, Delayed Health Hazard, Reactive Hazard.

Section 313 Toxic Chemicals- 4,4' Diphenylmethane Diisocyanate, CAS # 101-68-8, Upper Bound 55%.

RCRA Status- MDI is not listed as a hazardous waste. To the best of our knowledge, MDI does not meet the criteria of a hazardous waste if discarded in its purchased form. However, under RCRA, it is the responsibility of the user of products to determine, at the time of disposal, whether a product meets any of the criteria for a hazardous waste. This is because

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product uses, transformations, mixtures, processes, etc., may render the resulting material hazardous, under the criteria of ignitability, corrosivity, reactivity, and toxicity characteristics under the new Toxicity Characteristics Leaching Procedure (TCLP) 40 CFR 261.20-24.

Section 15. Regulatory Information (Cont.)

The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the MSDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

Component name	CAS number	Concentration	State code
4,4' Diphenyl methane diisocyanate	101-68-8	21%	PA1, PA4, FL, IL, MA, RI, NJ1, NJ4, CN2
Diphenylmethane diisocyanate (2,2; 2,4)	26447-40-5	5%	NJ4

FL = Florida Substance List

IL = Illinois Toxic Substances List

MA = Massachusetts Hazardous Substance List

NJ1 = New Jersey Hazardous Substances List

NJ4 = New Jersey Other - included in 5 predominant ingredients >1%

NY = New York Hazardous Substance List

PA1 = Pennsylvania Hazardous Substance List

PA3 = Pennsylvania Non-hazardous present at 3% or greater.

PA4 = Pennsylvania Environmental Hazardous Substance List.

RI = Rhode Island List of Designated Substances.

CN2 = Canada WHMIS Ingredient Disclosure List over 0.1

CALIFORNIA PROPOSITION 65: To the best of our knowledge, this product contains no levels of listed substances, which the state of California has found to cause cancer, birth defects or other reproductive effects.

Section 16. Other Information

NFPA 704M ratings:	HEALTH	FLAMMABILITY	REACTIVITY	OTHER
4 – Extreme	3	1	1	
3 – High				
2 – Moderate				
1 – Slight				
0 – Insignificant				

For additional health and safety information contact the Progressive Fastening Systems Product Safety Division at 1-909-945-5530.

WARRANTY The information contained in this document is to assist customers in determining whether our products are suitable for their applications. Our products are intended for sale to industrial and commercial customers. The customer must inspect and test our products before use, and satisfy themselves as to the contents and suitability. Nothing herein shall constitute a warranty, expressed or implied, including any warranty of merchantability or fitness, nor is protection from any law or patent to be inferred. All patent rights are reserved. The exclusive remedy for all proven claims is replacement of our materials, and in no event shall we be liable for special, incidental, or consequential damages.