

SAFETY DATA SHEET

Hi-Tech ProMender Flex "A"

Revised February 27, 2015

1. PRODUCT & COMPANY IDENTIFICATION

Recommended use of the chemical and restriction on use

Recommended use: Polyurethane component industrial chemicals
Suitable for use in industrial sector: Polymers industry; chemical industry

Company

Progressive Fastening Systems
1190 N. Del Rio Pl.
Ontario, CA 91764

Phone: (909) 945-5530
Fax: (909) 945-3009
www.hitechpolyurea.com

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.

Chemical Family: Aromatic Isocyanates
Synonyms: Diphenylmethane Diisocyanate

2. HAZARDS IDENTIFICATION

According to Regulation 2012 OSHA Hazard Communication Standard: 29 CFR Part 1910.1200

Classification of the product

Acute Tox.	4 (Inhalation - mist)	Acute toxicity
Eye Dam./Irrit.	2B	Serious eye damage/eye irritation
Skin Corr./Irrit.	2	Skin corrosion/irritation
Skin Sens.	1B	Skin sensitization
Resp. Sens.	1	Respiratory sensitization
Carc.	2	Carcinogenicity
STOT SE	3 (irritating to Respiratory system)	Specific target organ toxicity — single exposure
STOT RE	2 (by inhalation)	Specific target organ toxicity — repeated exposure
Aquatic Chronic	3	Hazardous to the aquatic environment - chronic
Aquatic Acute	3	Hazardous to the aquatic environment - acute

Label elements

Pictogram:



Signal Word:
Danger

Hazard Statement:

H320 Causes eye irritation.
H315 Causes skin irritation.
H332 Harmful if inhaled.

H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H317	May cause an allergic skin reaction.
H335	May cause respiratory irritation.
H351	Suspected of causing cancer.
H373	May cause damage to organs (Olfactory organs) through prolonged or repeated exposure (inhalation).
H402	Harmful to aquatic life.
H412	Harmful to aquatic life with long lasting effects.

Precautionary Statements (Prevention):

P280	Wear protective gloves/protective clothing/eye protection/face protection.
P271	Use only outdoors or in a well-ventilated area.
P260	Do not breathe dust/gas/mist/vapours.
P201	Obtain special instructions before use.
P261	Avoid breathing mist.
P202	Do not handle until all safety precautions have been read and understood.
P284	[In case of inadequate ventilation] wear respiratory protection.
P272	Contaminated work clothing should not be allowed out of the workplace.
P264	Wash with plenty of water and soap thoroughly after handling.
P273	Avoid release to the environment.

Precautionary Statements (Response):

P312	Call a POISON CENTER or doctor/physician if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P308 + P311	IF exposed or concerned: Call a POISON CENTER or doctor/physician.
P314	Get medical advice/attention if you feel unwell.
P303 + P352	IF ON SKIN (or hair): Wash with plenty of soap and water.
P333 + P311	If skin irritation or rash occurs: Call a POISON CENTER or doctor/physician.
P362 + P364	Take off contaminated clothing and wash before reuse.
P332 + P313	If skin irritation occurs: Get medical advice/attention.
P337 + P311	If eye irritation persists: Call a POISON CENTER or doctor/physician.

Precautionary Statements (Storage):

P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.

Precautionary Statements (Disposal):

P501	Dispose of contents/container to hazardous or special waste collection point.
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Hazards not otherwise classified

No specific dangers known, if the regulations/notes for storage and handling are considered.

Labeling of special preparations (GHS):

CONTAINS ISOCYANATES. INHALATION OF ISOCYANATE MISTS OR VAPORS MAY CAUSE RESPIRATORY IRRITATION, BREATHLESSNESS, CHEST DISCOMFORT AND REDUCED PULMONARY FUNCTION. OVEREXPOSURE WELL ABOVE THE PEL MAY RESULT IN BRONCHITIS, BRONCHIAL SPASMS AND PULMONARY EDEMA. LONG-TERM EXPOSURE TO ISOCYANATES HAS BEEN REPORTED TO CAUSE LUNG DAMAGE, INCLUDING REDUCED LUNG FUNCTION WHICH MAY BE PERMANENT. ACUTE OR CHRONIC OVEREXPOSURE TO ISOCYANATES MAY CAUSE SENSITIZATION IN SOME INDIVIDUALS, RESULTING IN ALLERGIC RESPIRATORY REACTIONS INCLUDING WHEEZING, SHORTNESS OF BREATH AND DIFFICULTY BREATHING. ANIMAL TESTS INDICATE THAT SKIN CONTACT MAY PLAY A ROLE IN CAUSING RESPIRATORY SENSITIZATION.

According to Regulation 1994 OSHA Hazard Communication Standard: 29 CFR Part 1910.1200

Emergency overview

DANGER:

CONTAINS ISOCYANATES. INHALATION OF ISOCYANATE MISTS OR VAPORS MAY CAUSE RESPIRATORY IRRITATION, BREATHLESSNESS, CHEST DISCOMFORT AND REDUCED PULMONARY FUNCTION. OVEREXPOSURE WELL ABOVE THE PEL MAY RESULT IN BRONCHITIS, BRONCHIAL SPASMS AND PULMONARY EDEMA. LONG-TERM EXPOSURE TO ISOCYANATES HAS BEEN REPORTED TO CAUSE LUNG DAMAGE, INCLUDING REDUCED LUNG FUNCTION WHICH MAY BE PERMANENT. ACUTE OR CHRONIC OVEREXPOSURE TO ISOCYANATES MAY CAUSE SENSITIZATION IN SOME INDIVIDUALS, RESULTING IN ALLERGIC RESPIRATORY REACTIONS INCLUDING WHEEZING, SHORTNESS OF BREATH AND DIFFICULTY BREATHING. ANIMAL TESTS INDICATE THAT SKIN CONTACT MAY PLAY A ROLE IN CAUSING RESPIRATORY SENSITIZATION. AVOID CONTACT WITH SKIN AND EYES. SKIN OR EYE CONTACT MAY CAUSE IRRITATION.

Harmful to aquatic organisms.

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

3. COMPOSITION / INFORMATION ON INGREDIENTS

According to Regulation 2012 OSHA Hazard Communication Standard: 29 CFR Part 1910.1200

<u>CAS Number</u>	<u>Content (W/W)</u>	<u>Chemical name</u>
9016-87-9	>= 25.0 - < 50.0 %	P-MDI
101-68-8	>= 20.0 - < 25.0 %	Diphenylmethane-4,4'-diisocyanate (MDI)
6846-50-0	>= 15.0 - < 20.0 %	Propanoic acid, 2-methyl-, 2,2-dimethyl-1-(1-methylethyl)-1,3- propanediyl ester
26447-40-5	>= 1.0 - < 5.0 %	Methylenediphenyl diisocyanate
57636-09-6	>= 1.0 - < 3.0 %	Isocyanic acid, polymethylenepolyphenylene ester, polymer with.alpha.-hydro.-omega.-hydroxypoly(oxy-1,2- ethanediyl)-
17589-24-1	>= 0.3 - < 1.0 %	1,3-Diazetidone-2,4-dione, 1,3-bis[4-[(4-isocyanatophenyl)methyl]phenyl]-

According to Regulation 1994 OSHA Hazard Communication Standard: 29 CFR Part 1910.1200

<u>CAS Number</u>	<u>Content (W/W)</u>	<u>Chemical name</u>
9016-87-9	< 30.0 %	P-MDI
	< 30.0 %	Isocyanate Prepolymer
101-68-8	< 25.0 %	Diphenylmethane-4,4'-diisocyanate (MDI)
6846-50-0	< 15.0 %	Propanoic acid, 2-methyl-, 2,2-dimethyl-1-(1-methylethyl)-1,3- propanediyl ester
26447-40-5	< 5.0 %	Methylenediphenyl diisocyanate

57636-09-6	< 3.0 %	Isocyanic acid, polymethylenepolyphenylene ester, polymer with.alpha.-hydro-.omega.-hydroxypoly(oxy-1,2- ethanediyl)
17589-24-1	< 1.0 %	1,3-Diazetidone-2,4-dione, 1,3-bis[4-[(4-isocyanatophenyl)methyl]phenyl]-

4. FIRST AID MEASURES

Description of first aid measures

General advice:

Remove contaminated clothing.

If inhaled:

Remove the affected individual into fresh air and keep the person calm. Assist in breathing if necessary. Immediate medical attention required.

If on skin:

Wash affected areas thoroughly with soap and water. If irritation develops, seek medical attention.

If in eyes:

In case of contact with the eyes, rinse immediately for at least 15 minutes with plenty of water. Immediate medical attention required.

If swallowed:

Rinse mouth and then drink plenty of water. Do not induce vomiting. Never induce vomiting or give anything by mouth if the victim is unconscious or having convulsions. Immediate medical attention required.

Most important symptoms and effects, both acute and delayed

Symptoms: The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11., Eye irritation, skin irritation, allergic symptoms

Hazards: Symptoms can appear later.

Information on: Diphenylmethane-4,4'-diisocyanate (MDI)

Hazards: Respiratory sensitization may result in allergic (asthma-like) signs in the lower respiratory tract including wheezing, shortness of breath and difficulty breathing, the onset of which may be delayed. Repeated inhalation of high concentrations may cause lung damage, including reduced lung function, which may be permanent. Substances eliciting lower respiratory tract irritation may worsen the asthma-like reactions that may be produced by product exposures.

Indication of any immediate medical attention and special treatment needed

Note to physician

Antidote: Specific antidotes or neutralizers to isocyanates do not exist.

Treatment: Treatment should be supportive and based on the judgement of the physician in response to the reaction of the patient.

5. FIRE-FIGHTING MEASURES

Extinguishing media

Suitable extinguishing media:

water spray, dry powder, carbon dioxide, foam

Special hazards arising from the substance or mixture

Hazards during fire-fighting:
nitrous gases, fumes/smoke, isocyanate, vapor

Advice for fire-fighters

Protective equipment for fire-fighting:
Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

Further information:

Keep containers cool by spraying with water if exposed to fire. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

6. ACCIDENTAL RELEASE MEASURES**Personal precautions, protective equipment and emergency procedures**

Clear area. Ensure adequate ventilation. Wear suitable personal protective clothing and equipment.

Environmental precautions

Do not discharge into drains/surface waters/groundwater.

Methods and material for containment and cleaning up

For small amounts: Absorb isocyanate with suitable absorbent material (see § 40 CFR, sections 260, 264 and 265 for further information). Shovel into open container. Do not make container pressure tight. Move container to a well-ventilated area (outside). Spill area can be decontaminated with the following recommended decontamination solution: Mixture of 90 % water, 8 % concentrated ammonia, 2 % detergent. Add at a 10 to 1 ratio. Allow to stand for at least 48 hours to allow escape of evolved carbon dioxide.

For large amounts: If temporary control of isocyanate vapor is required, a blanket of protein foam or other suitable foam (available from most fire departments) may be placed over the spill. Transfer as much liquid as possible via pump or vacuum device into closed but not sealed containers for disposal.

For residues: The following measures should be taken for final cleanup: Wash down spill area with decontamination solution. Allow solution to stand for at least 10 minutes.

Dike spillage.

7. HANDLING & STORAGE**Precautions for safe handling**

Provide suitable exhaust ventilation at the processing machines. Ensure thorough ventilation of stores and work areas. Avoid aerosol formation. When handling heated product, vapors of the product should be ventilated, and respiratory protection used. Wear respiratory protection when spraying. Danger of bursting when sealed gastight. Protect against moisture. If bulging of drum occurs, transfer to well ventilated area, puncture to relieve pressure, open vent and let stand for 48 hours before resealing.

Protection against fire and explosion: No explosion proofing necessary.

Conditions for safe storage, including any incompatibilities

Keep away from water. Segregate from foods and animal feeds. Segregate from acids and bases. Segregate from bases.

Suitable materials for containers: Carbon steel (Iron), High density polyethylene (HDPE), Low density polyethylene (LDPE), Stainless steel 1.4301 (V2)

Further information on storage conditions: Formation of CO₂ and build up of pressure possible. Keep container tightly closed and in a well-ventilated place. Outage of containers should be filled with dry

inert gas at atmospheric pressure to avoid reaction with moisture.

Storage stability:

Storage temperature: 80 - 95°F (27 - 35 °C)

Protect against moisture.

8. EXPOSURE CONTROLS & PERSONAL PROTECTION

Components with occupational exposure limits

Diphenylmethane-4,4'- diisocyanate (MDI)	OSHA PEL	CLV 0.02 ppm 0.2 mg/m ³ ; CLV 0.02 ppm 0.2 mg/m ³ ;
	ACGIH TLV	TWA value 0.005 ppm ;
P-MDI	OSHA PEL	CLV 0.02 ppm 0.2 mg/m ³ ; CLV 0.02 ppm 0.2 mg/m ³ ;
	ACGIH TLV	TWA value 0.005 ppm ;

Advice on system design:

Provide local exhaust ventilation to maintain recommended P.E.L.

Personal protective equipment

Respiratory protection:

When workers are facing concentrations above the occupational exposure limits they must use appropriate certified respirators. When atmospheric levels may exceed the occupational exposure limit (PEL or TLV) NIOSH-certified air-purifying respirators equipped with an organic vapor sorbent and particulate filter can be used as long as appropriate precautions and change out schedules are in place. For emergency or non-routine, high exposure situations, including confined space entry, use a NIOSH-certified full facepiece pressure demand self-contained breathing apparatus (SCBA) or a full facepiece pressure demand supplied-air respirator (SAR) with escape provisions.

Hand protection:

Chemical resistant protective gloves should be worn to prevent all skin contact., Suitable materials may include, chloroprene rubber (Neoprene), nitrile rubber (Buna N), chlorinated polyethylene, polyvinylchloride (Pylox), butyl rubber, depending upon conditions of use.

Eye protection:

Tightly fitting safety goggles (chemical goggles). Wear face shield if splashing hazard exists.

Body protection:

Cover as much of the exposed skin as possible to prevent all skin contact. Suitable materials may include, saran-coated material, depending upon conditions of use.

General safety and hygiene measures:

Wear protective clothing as necessary to prevent contact. Eye wash fountains and safety showers must be easily accessible. Observe the appropriate PEL or TLV value. Wash soiled clothing immediately. Contaminated equipment or clothing should be cleaned after each use or disposed of.

9. PHYSICAL / CHEMICAL PROPERTIES

Form:	liquid	
Odor:	Musty, slight odor	
Odor threshold:		not applicable
Color:	Dark brown	
pH value:		not applicable
Freezing point:	<- 66°F (<-19.00 °C)	
Boiling point:	392°F (200.00 °C)	(5.000000 mm/Hg)

Sublimation point:		No applicable information available.
Flash Point	390°F (198.90°C)	(closed cup)
Flammability:	Not flammable	
Lower explosion limit:		For liquids not relevant for classification and labelling. The lower explosion point may be 41 - 59°F (5 - 15 °C) below the flash point.
Upper explosion limit:		For liquids not relevant for classification and labelling.
Autoignition:	>482°F (> 250 °C)	
Vapor pressure:	0.01 mmHg	77°F (25.00 °C)
Density:	8.7100 lb/USg	77°F (25.00 °C)
Relative density:		No applicable information available.
Vapour density:		not applicable
Partitioning coefficient n-octanol/water (log Pow):		not applicable
Self-ignition temperature:		not self-igniting.
Thermal decomposition:	No decomposition if stored and handled as prescribed/indicated.	
Viscosity, dynamic:	100.000 mPa.s	77°F (25.00 °C)
Viscosity, kinematic:		No applicable information available.
Solubility in water:		Reacts with water.
Miscibility with water:		Reacts with water.
Solubility (quantitative):		No applicable information available.
Solubility (qualitative):	No applicable information available.	
Evaporation rate:		Value can be approximated from Henry's Law Constant or vapor pressure.
Other Information:	If necessary, information on other physical and chemical parameters is indicated in this section.	

10. STABILITY & REACTIVITY

Reactivity

Corrosion to metals:
No corrosive effect on metal.

Oxidizing
properties: Not an
oxidizer.

Chemical stability

The product is stable if stored and handled as prescribed/indicated.

Possibility of hazardous reactions

Reacts with water, with formation of carbon dioxide. Risk of bursting. Reacts with alcohols. Reacts with acids. Reacts with alkalies. Reacts with amines. Risk of exothermic reaction. Risk of polymerization. Contact with certain rubbers and plastics can cause brittleness of the substance/product with subsequent loss in strength.

Conditions to avoid

Avoid moisture.

Incompatible materials

acids, amines, alcohols, water, Alkalines, strong bases, Substances/products that react with isocyanates.

Hazardous decomposition products

Decomposition products:

Hazardous decomposition products: carbon monoxide, carbon dioxide, nitrogen oxide, hydrogen cyanide, nitrogen oxides, aromatic isocyanates, gases/vapors

Thermal decomposition:

No decomposition if stored and handled as prescribed/indicated.

11. TOXICOLOGICAL INFORMATION

Primary routes of exposure

Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

Acute Toxicity/Effects

Acute toxicity

Assessment of acute toxicity: Inhalation of vapors may cause irritation of the mucous membranes of the nose, throat or trachea, breathlessness, chest discomfort, difficult breathing and reduced pulmonary function. Inhalation exposure well above the PEL may result additionally in eye irritation, headache, chemical bronchitis, asthma-like findings or pulmonary edema. Isocyanates have also been reported to cause hypersensitivity pneumonitis, which is characterized by flu-like symptoms, the onset of which may be delayed.

Oral

Information on: Diphenylmethane-4,4'-diisocyanate (MDI)

Type of value: LD50

Species: rat (male/female)

Value: > 2,000 mg/kg (Directive 84/449/EEC, B.1)

Inhalation

Type of value: LC50

Species: rat (male/female)

Value: 2.0 mg/l (OECD Guideline 403)

An aerosol was tested.

Dermal

Information on: Diphenylmethane-4,4'-diisocyanate (MDI)

Type of value: LD50

Species: rabbit (male/female)

Value: > 9,400 mg/kg

Assessment other acute effects

Assessment of STOT single:

Causes temporary irritation of the respiratory tract.

Irritation / corrosion

Assessment of irritating effects: Irritating to eyes, respiratory system and skin. Skin contact may result in dermatitis, either irritative or allergic.

Skin

Information on: Diphenylmethane-4,4'-diisocyanate (MDI)

Species: rabbit

Result: Irritating.

Method: Draize test

Eye

Information on: Diphenylmethane-4,4'-diisocyanate (MDI)

Species: rabbit

Result: Irritating.

Method: Draize test

Sensitization

Assessment of sensitization: Sensitization after skin contact possible. The substance may cause sensitization of the respiratory tract. 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 PEL/TLV. 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 severe cases for several years. Chronic overexposure to isocyanates has also been reported to cause lung damage, including a decrease in lung function, which may be permanent. Prolonged contact 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 vapour-only exposure. Animal tests indicate that skin contact may play a role in causing respiratory sensitization.

Information on: Diphenylmethane-4,4'-diisocyanate (MDI)

Buehler test

Species: guinea pig

Result: sensitizing

Mouse Local Lymph Node Assay (LLNA)

Species: mouse

Result: sensitizing

Can cause skin sensitization

other

Species: guinea pig

Result: sensitizing

Studies in animals suggest that dermal exposure may lead to pulmonary sensitization. However, the relevance of this result for humans is unclear.

Chronic Toxicity/Effects

Repeated dose toxicity

Assessment of repeated dose toxicity: The substance may cause damage to the olfactory epithelium after repeated inhalation. The substance may cause damage to the lung after repeated inhalation. These effects are not relevant to humans at occupational levels of exposure.

Information on: Diphenylmethane-4,4'-diisocyanate (MDI)

Experimental/calculated data: rat (Wistar) (male/female) Inhalation 2 yrs, 6 hr/day 0, 0.2, 1, 6 mg/m³, olfactory epithelium

NOAEL: 0.2 mg/m³

LOAEL: 1 mg/m³

The substance may cause damage to the olfactory epithelium after repeated inhalation. These effects are not relevant to humans at occupational levels of exposure. Repeated inhalative uptake of the substance did not cause damage to the reproductive organs.

Genetic toxicity

Assessment of mutagenicity: The substance was mutagenic in various bacterial test systems; however, these results could not be confirmed in tests with mammals.

Information on: Diphenylmethane-4,4'-diisocyanate (MDI)

Genetic toxicity in vitro: OECD Guideline 471 Ames-test Salmonella typhimurium: with and without metabolic activation ambiguous

Information on: Diphenylmethane-4,4'-diisocyanate (MDI)

Genetic toxicity in vivo: OECD Guideline 474 Micronucleus assay rat (male) Inhalation negative No clastogenic effect reported.

Carcinogenicity

Assessment of carcinogenicity: A carcinogenic potential cannot be excluded after prolonged exposure to severely irritating concentrations. These effects are not relevant to humans at occupational levels of exposure.

Experimental/calculated data: OECD Guideline 453 rat Inhalation 0, 0.2, 1, 6 mg/m³

Result: Lung tumors

Reproductive toxicity

Assessment of reproduction toxicity: Repeated inhalative uptake of the substance did not cause damage to the reproductive organs.

Teratogenicity

Assessment of teratogenicity: The substance did not cause malformations in animal studies; however, toxicity to development was observed at high doses that were toxic to the parental animals.

Development

OECD Guideline 414 rat Inhalation 0, 1, 4, 12 mg/m³

NOAEL Mat.: 4 mg/m³

NOAEL Teratog.: 4 mg/m³

The substance did not cause malformations in animal studies; however, toxicity to development was observed at high doses that were toxic to the parental animals.

Symptoms of Exposure

The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11., Eye irritation, skin irritation, allergic symptoms

Medical conditions aggravated by overexposure

The isocyanate component is a respiratory sensitizer. It may cause allergic reaction leading to asthma-like spasms of the bronchial tubes and difficulty in breathing. Medical supervision of all employees who handle or come into contact with isocyanates is recommended. Contact may aggravate pulmonary disorders. Persons with history of respiratory disease or hypersensitivity should not be exposed to this product. Preemployment and periodic medical examinations with respiratory function tests (FEV₁, FVC as a minimum) are suggested. Persons with asthmatic conditions, chronic bronchitis, other chronic respiratory diseases, recurrent eczema or pulmonary sensitization should be excluded from working with isocyanates. Once a person is diagnosed as having pulmonary sensitization (allergic asthma) to

isocyanates, further exposure is not recommended.

12. ECOLOGICAL INFORMATION

Toxicity

Aquatic toxicity

Assessment of aquatic toxicity:

Acutely harmful for aquatic organisms. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product has not been tested. The statement has been derived from the properties of the individual components.

Toxicity to fish

Information on: Propanoic acid, 2-methyl-, 2,2-dimethyl-1-(1-methylethyl)-1,3- propanediyl ester
LC50 (96 h) > 1.55 mg/l, Pimephales promelas

Aquatic invertebrates

Information on: Propanoic acid, 2-methyl-, 2,2-dimethyl-1-(1-methylethyl)-1,3- propanediyl ester
EC50 (48 h) > 1.46 mg/l, daphnia

Persistence and degradability

Assessment biodegradation and elimination (H₂O)

Poorly biodegradable. The product is unstable in water. The elimination data also refer to products of hydrolysis.

Elimination information

0 % BOD of the ThOD (28 d) (OECD Guideline 302 C) (aerobic, activated sludge) Poorly biodegradable.

Assessment of stability in water

In contact with water the substance will hydrolyse slowly.

Information on Stability in Water

(Hydrolysis) t_{1/2} 20 h (25 °C)

Bioaccumulative potential

Assessment bioaccumulation potential

Significant accumulation in organisms is not to be expected.

Bioaccumulation potential

Bioconcentration factor: 200 (28 d), Cyprinus carpio (OECD Guideline 305 E)

Mobility in soil

Assessment transport between environmental compartments

The substance will not evaporate into the atmosphere from the water surface. Adsorption to solid soil phase is not expected.

13. DISPOSAL CONSIDERATIONS**Waste disposal of substance:**

Incinerate or dispose of in a licensed facility. Do not discharge substance/product into sewer system.

Container disposal:**DRUMS:**

Steel drums must be emptied and can be sent to a licensed drum reconditioner for reuse, a scrap metal dealer or an approved landfill. Do not attempt to refill or clean containers since residue is difficult to remove. Under no circumstances should empty drums be burned or cut open with gas or electric torch as toxic decomposition products may be liberated. Do not reuse empty containers.

14. TRANSPORTATION INFORMATION**Land Transport:**

USDOT Not classified as dangerous good under transport regulations

Sea Transport:

IMDG Not classified as a dangerous good under transport regulations

Air Transport:

IATA/ICAO Not classified as a dangerous good under transport regulations

Further information

DOT: This product is regulated if the amount in a single receptacle exceeds the Reportable Quantity (RQ). Please refer to Section 15 of this MSDS for the RQ for this product.

15. REGULATORY INFORMATION**Federal Regulations****Registration status:**

Chemical TSCA, US released / listed

EPCRA 311/312 (Hazard categories):

Acute; Chronic; Fire

EPCRA 313:**CAS Number****Chemical name**

101-68-8 Diphenylmethane-4,4'-diisocyanate (MDI)
9016-87-9 P-MDI

CERCLA RQ**CAS Number****Chemical name**

5000 LBS 101-68-8; 9016-87-9 Diphenylmethane-4,4'-diisocyanate (MDI); P-MDI

State regulations**State RTK****CAS Number****Chemical name**

MA, NJ, PA	9016-87-9	P-MDI
MA, NJ, PA	101-68-8	Diphenylmethane-4,4'-diisocyanate (MDI)
NJ	26447-40-5	Methylenediphenyl diisocyanate

NFPA Hazard codes:

Health : 2 Fire: 1 Reactivity: 1 Special:

HMIS III rating:

16. OTHER INFORMATION

SDS Prepared by: Technical Services

IMPORTANT: WHILE THE DESCRIPTIONS, DESIGNS, DATA AND INFORMATION CONTAINED HEREIN ARE PRESENTED IN GOOD FAITH AND BELIEVED TO BE ACCURATE , IT IS PROVIDED FOR YOUR GUIDANCE ONLY. BECAUSE MANY FACTORS MAY AFFECT PROCESSING OR APPLICATION/USE, WE RECOMMEND THAT YOU MAKE TESTS TO DETERMINE THE SUITABILITY OF A PRODUCT FOR YOUR PARTICULAR PURPOSE PRIOR TO USE. NO WARRANTIES OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE MADE REGARDING PRODUCTS DESCRIBED OR DESIGNS, DATA OR INFORMATION SET FORTH, OR THAT THE PRODUCTS, DESIGNS, DATA OR INFORMATION MAY BE USED WITHOUT INFRINGING THE INTELLECTUAL PROPERTY RIGHTS OF OTHERS. IN NO CASE SHALL THE DESCRIPTIONS, INFORMATION, DATA OR DESIGNS PROVIDED BE CONSIDERED A PART OF OUR TERMS AND CONDITIONS OF SALE. FURTHER, YOU EXPRESSLY UNDERSTAND AND AGREE THAT THE DESCRIPTIONS, DESIGNS, DATA, AND INFORMATION FURNISHED BY OUR COMPANY HEREUNDER ARE GIVEN GRATIS AND WE ASSUME NO OBLIGATION OR LIABILITY FOR THE DESCRIPTION, DESIGNS, DATA AND INFORMATION GIVEN OR RESULTS OBTAINED, ALL SUCH BEING GIVEN AND ACCEPTED AT YOUR RISK.
END OF DATA SHEET

SAFETY DATA SHEET

Hi-Tech ProMender Flex "B"

Revised February 23, 2015

1. PRODUCT & COMPANY IDENTIFICATION

Recommended use of the chemical and restriction on use

Recommended use: Polyurea component industrial chemicals
Suitable for use in industrial sector: Polymers industry; chemical industry

Company

Progressive Fastening Systems
1190 N. Del Rio Pl.
Ontario, CA 91764

Phone: (909) 945-5530

Fax: (909) 945-3009

www.hitechpolyurea.com

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.

Chemical Family: Resin
Synonyms: Urethane System Resin Component

2. HAZARD IDENTIFICATION

According to Regulation 2012 OSHA Hazard Communication Standard: 29 CFR Part 1910.1200

Classification of the product

Asp. Tox.	1	Aspiration hazard
Flam. Liq.	4	Flammable liquids
Eye Dam./Irrit.	2A	Serious eye damage/eye irritation
Aquatic Acute	3	Hazardous to the aquatic environment - acute
Aquatic Chronic	3	Hazardous to the aquatic environment - chronic

Label elements

Pictogram:



Signal Word:
Danger

Hazard Statement:

H227	Combustible liquid.
H319	Causes serious eye irritation.
H304	May be fatal if swallowed and enters airways.
H402	Harmful to aquatic life.
H412	Harmful to aquatic life with long lasting effects.

Precautionary Statements (Prevention):

P280	Wear protective gloves and eye/face protection.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P273	Avoid release to the environment.
P264	Wash with plenty of water and soap thoroughly after handling.

Precautionary Statements (Response):

P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P331	Do NOT induce vomiting.
P337 + P311	If eye irritation persists: Call a POISON CENTER or doctor/physician.
P370 + P378	In case of fire: Use water spray, dry powder, carbon dioxide, foam to extinguish.

Precautionary Statements (Storage):

P405	Store locked up.
P403 + P235	Store in a well-ventilated place. Keep cool.

Precautionary Statements (Disposal):

P501	Dispose of contents/container to hazardous or special waste collection point.
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Hazards not otherwise classified

No specific dangers known, if the regulations/notes for storage and handling are considered.

According to Regulation 1994 OSHA Hazard Communication Standard: 29 CFR Part 1910.1200

Emergency overview

WARNING: COMBUSTIBLE LIQUID.

Toxic to aquatic organisms.

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Causes skin irritation.

Causes serious eye damage. May cause allergic skin reaction.

Repeated oral exposure may affect certain organs.

3. COMPOSITION / INFORMATION ON INGREDIENTS

According to Regulation 2012 OSHA Hazard Communication Standard: 29 CFR Part 1910.1200

<u>CAS Number</u>	<u>Content (W/W)</u>	<u>Chemical name</u>
102-60-3	>= 20.0 - < 25.0 %	Tetrahydroxypropylethylenediamine
6846-50-0	>= 10.0 - < 15.0 %	Propanoic acid, 2-methyl-, 2,2-dimethyl-1-(1-methylethyl)-1,3- propanediyl ester
64742-47-8	>= 5.0 - < 15.0 %	Distillates (petroleum), hydrotreated light
64742-96-7	>= 5.0 - < 15.0 %	Solvent naphtha (petroleum), heavy aliph.
1305-78-8	>= 0.0 - < 0.2 %	calcium oxide

According to Regulation 1994 OSHA Hazard Communication Standard: 29 CFR Part 1910.1200

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4. FIRST AID MEASURES

Description of first aid measures

General advice:

First aid personnel should pay attention to their own safety. If the patient is likely to become unconscious, place and transport in stable sideways positions (recover position). Immediately remove contaminated clothing.

If inhaled:

Keep patient calm, remove to fresh air, seek medical attention.

If on skin:

Immediately wash thoroughly with soap and water, see medical attention.

If in eyes:

Wash affected areas for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

If swallowed:

Rinse mouth and then drink 200 – 300 ml of water, seek medical attention.

Most important symptoms and effects, both acute and delayed

Symptoms: The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11.

Hazards: No hazards anticipated.

Indication of any immediate medical attention and special treatment needed

Note to physician

Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

5. FIRE FIGHTING MEASURES

Extinguishing media

Suitable extinguishing media:
water spray, dry powder, carbon dioxide, foam

Special hazards arising from the substance or mixture:

Hazards during fire-fighting:
No particular hazards known.

Advice for fire-fighters

Protective equipment for fire-fighting:
Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

Further information

Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

6. ACCIDENTAL RELEASE MEASURES

Further accidental release measures:

High risk of slipping due to leakage/spillage of product.

Personal precautions, protective equipment and emergency procedures

Use personal protective clothing.

Environmental precautions

Do not empty into drains. Do not discharge into the subsoil/soil.

Methods and material for containment and cleaning up

Spills should be contained, solidified, and placed in suitable containers for disposal.

7. HANDLING & STORAGE

Precautions for safe handling

Ensure thorough ventilation of stores and work areas. Protect against moisture.

Protection against fire and explosion:

No explosion proofing necessary.

Conditions for safe storage, including any incompatibilities

Segregate from foods and animal feeds. Segregate from acids. Segregate from oxidants.

Suitable materials for containers: carbon steel (iron), High density polyethylene (HDPE), Low density polyethylene (LDPE),
Stainless steel 1.4301 (V2)

Further information on storage conditions: No special precautions necessary. Avoid extreme heat. Store protected against freezing.

Storage stability:

Storage temperature: 60 - 80°F (16 - 27 °C)

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Components with occupational exposure limits

calcium oxide	OSHA PEL ACGIH TLV	PEL 5 mg/m ³ ; TWA value 5 mg/m ³ ; TWA value 2 mg/m ³ ;
Distillates (petroleum), hydrotreated light	ACGIH TLV	TWA value 200 mg/m ³ Non-aerosol (total hydrocarbon vapor); Application restricted to conditions in which there are negligible aerosol exposures. Skin Designation Non-aerosol (total hydrocarbon vapor); The substance can be absorbed through the skin. TWA value 200 mg/m ³ Non-aerosol (total hydrocarbon vapor); Application restricted to conditions in which there are negligible aerosol exposures. Skin Designation Non-aerosol (total hydrocarbon vapor); The substance can be absorbed through the skin.

Advice on system design:

Provide local exhaust ventilation to control vapors/mists.

Personal protective equipment

Respiratory protection:

Wear a NIOSH-certified (or equivalent) organic vapor/particulate respirator as needed.

Hand protection:

Chemical resistant protective gloves

Eye protection:

Wear face shield or tightly fitting safety goggles (chemical goggles) if splashing hazard exists.

Body protection:

Standard work clothes and shoes.

General safety and hygiene measures:

Avoid contact with skin. Handle in accordance with good industrial hygiene and safety practice. Wear protective clothing as necessary to prevent contact. Avoid inhalation of vapors/mists. Wash soiled clothing immediately.

9. PHYSICAL & CHEMICAL PROPERTIES

Form:	liquid	
Odor:	slight odor	
Odor threshold:		not applicable
Color:	colorless, cloudy	
pH value:	7.0	
Freezing point:	0.00 °C (32°F)	
Boiling point:	200.00 °C (392°F)	
Sublimation point:		No applicable information provided
Flash point:	>61.00°C (>141.8°F)	(closed cup)
Flammability	not flammable	
Lower explosion limit:		For liquids not relevant for classification and labeling. The lower explosion point may be 5 - 15°C (41 - 59°F) below the flash point.
Upper explosion limit:		For liquids not relevant for classification and labeling.
Autoignition:	>250.00° C (482°F)	
Vapor pressure:	0.45 mmHg	(20.00 °C) 68°F
Density:	8.3100 lb/USg	(25.00 °C) 77°F
Relative density:		no applicable information available.
Vapor density:		not applicable
Partitioning coefficient n-octanol/water (log Pow):		not applicable
Self-ignition temperature:		Not self-igniting.
Thermal decomposition:	No decomposition if stored and handled as prescribed/indicated.	
Viscosity, dynamic:	400.000 mPa.s (cps)	(25.00 °C) 77°F
Viscosity, kinematic:		no applicable information available
Solubility in water:		Slightly soluble.
Solubility (quantitative):		no applicable information available
Solubility (qualitative):		no applicable information available
Evaporation rate:		Value can be approximated from Henry's Law Constant or vapor pressure.
Other Information:	If necessary, information on other physical and chemical parameters is indicated in this section.	

10. STABILITY & REACTIVITY

Reactivity

No hazardous reactions if stored and handled as prescribed/indicated.

Corrosion to metals:

No corrosive effect on metal.

Oxidizing properties:

Not an oxidizer.

Chemical stability

The product is stable if stored and handled as prescribed/indicated.

Possibility of hazardous reactions

No hazardous reactions if stored and handled as prescribed/indicated

Conditions to avoid

Conditions to avoid:

Temperature: <0 degrees Celsius (<32 degrees Fahrenheit)

Incompatible materials

Substances to avoid:

Acids, oxidizing agents, isocyanates

Hazardous decomposition products

Decomposition products:

Hazardous decomposition products: carbon monoxide, carbon dioxide, nitrogen oxide, hydrogen cyanide

Thermal decomposition:

No decomposition if stored and handled as prescribed/indicated.

11. TOXICOLOGICAL INFORMATION

Primary routes of exposure

Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

Acute Toxicity/Effects

Acute toxicity

Assessment of acute toxicity: No known acute effects.

Oral

No applicable information available.

Inhalation

No applicable information available.

Dermal

No applicable information available.

Assessment other acute effects Assessment of

STOT single:

Based on the available information there is no specific target organ toxicity to be expected after a single exposure.

Origin of data: expert judgement

Irritation / corrosion

Assessment of irritating effects: Eye contact causes irritation.

Sensitization

Assessment of sensitization: The chemical structure does not suggest a specific alert for such an effect. No applicable information available.

Aspiration Hazard

May also damage the lung at swallowing (aspiration hazard).

Chronic Toxicity/Effects

Repeated dose toxicity

Assessment of repeated dose toxicity: Repeated oral uptake of the substance did not cause substance-related effects. Repeated inhalative uptake of the substance did not cause substance-related effects. Repeated dermal uptake of the substance did not cause substance-related effects.

Genetic toxicity

Assessment of mutagenicity: The chemical structure does not suggest a specific alert for such an effect. No applicable information available.

Carcinogenicity

Assessment of carcinogenicity: The chemical structure does not suggest a specific alert for such an effect. No applicable information available.

Reproductive toxicity

Assessment of reproduction toxicity: The chemical structure does not suggest a specific alert for such an effect. No applicable information available.

Teratogenicity

Assessment of teratogenicity: The chemical structure does not suggest a specific alert for such an effect. No applicable information available.

Other Information

The product has not been tested. The statement has been derived from the properties of the individual components.

Symptoms of Exposure

The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11.

Medical conditions aggravated by overexposure

Data available do not indicate that there are medical conditions that are generally recognized as being aggravated by exposure to this substance/product.

12. ECOLOGICAL INFORMATION

Toxicity

Aquatic toxicity

Assessment of aquatic toxicity:

Acutely harmful for aquatic organisms. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product has not been tested. The statement has been derived from the properties of the individual components.

Persistence and degradability

Assessment biodegradation and elimination (H₂O)

Poorly biodegradable.

Elimination information

Poorly biodegradable.

Bioaccumulative potential

Assessment bioaccumulation potential

Does not significantly accumulate in organisms.

Mobility in soil

Assessment transport between environmental compartments

Adsorption to solid soil phase is not expected.

Additional information

Adsorbable organically-bound halogen (AOX):

This product contains no organically-bound halogen.

Other ecotoxicological advice:

The product has not been tested. Do not discharge product into the environment without control.

13. DISPOSAL CONSIDERATIONS

Waste disposal of substance:

Incinerate or dispose of in a licensed facility. Do not discharge substance/product into sewer system.

Container disposal:

Steel drums must be emptied and can be sent to a licensed drum reconditioner for reuse, a scrap metal dealer or an approved landfill. Do not attempt to refill or clean containers since residue is difficult to remove. Under no circumstances should empty drums be burned or cut open with gas or electric torch as toxic decomposition products may be liberated. Do not reuse empty containers.

14. TRANSPORTATION INFORMATION

Land Transport:

USDOT Classified as combustible liquid in containers greater than 119 gallons.

Sea Transport:

IMDG Not classified as a dangerous good under transport regulations

Air Transport:

IATA/ICAO Not classified as a dangerous good under transport regulations

15. REGULATORY INFORMATION

Federal Regulations

Registration status:

Chemical TSCA, US released / listed

EPCRA 311/312 (Hazard categories):

Acute; Fire

State regulations

State RTK

MA, NJ, PA
MA, NJ, PA

CAS Number

64742-47-8
1305-78-8

Chemical name

Distillates (petroleum), hydrotreated light
calcium oxide

CA Prop. 65:

THIS PRODUCT CONTAINS A CHEMICAL(S) KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER AND BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.

NFPA Hazard codes:

Health : 2 Fire: 2 Reactivity: 1 Special:

HMIS III rating

Health: 2 Flammability: 2 Physical hazard: 1

16. OTHER INFORMATION

SDS Prepared by:
Technical Services

IMPORTANT: WHILE THE DESCRIPTIONS, DESIGNS, DATA AND INFORMATION CONTAINED HEREIN ARE PRESENTED IN GOOD FAITH AND BELIEVED TO BE ACCURATE, IT IS PROVIDED FOR YOUR GUIDANCE ONLY. BECAUSE MANY FACTORS MAY AFFECT PROCESSING OR

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