

SECTION 1: Identification

1.1. Identification

Product form	: Mixture
Product name	: JF-POLYUREA-A
Product code	: JF-POLYUREA-A
Other means of identification	: JF-Polyurea-A/5 R

1.2. Recommended use and restrictions on use

No additional information available

1.3. Supplier

Protective Industrial Polymers
7875 Bliss Parkway
North Ridgeville, Ohio 44039 - USA-Ohio
T 440-327-0015
www.protectpoly.com

1.4. Emergency telephone number

Emergency number : Chemtrec: 800-424-9300 (Outside USA) 703-527-3887

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS-US classification

Acute toxicity (inhalation:dust,mist) Category 4	H332	Harmful if inhaled
Skin corrosion/irritation Category 2	H315	Causes skin irritation
Respiratory sensitisation Category 1	H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled
Skin sensitization Category 1	H317	May cause an allergic skin reaction
Carcinogenicity Category 2 Specific target organ toxicity (repeated exposure) Category 2	H351 H373	Suspected of causing cancer May cause damage to organs through prolonged or repeated exposure

Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements

GHS-US labeling

Hazard pictograms (GHS-US) :



Signal word (GHS-US) :

Danger

Hazard statements (GHS-US) :

H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H332 - Harmful if inhaled
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled
H351 - Suspected of causing cancer
H373 - May cause damage to organs through prolonged or repeated exposure

Precautionary statements (GHS-US) :

P201 - Obtain special instructions before use
P202 - Do not handle until all safety precautions have been read and understood
P260 - Do not breathe vapors
P261 - Avoid breathing vapors
P264 - Wash hands, forearms and face thoroughly after handling
P271 - Use only outdoors or in a well-ventilated area
P272 - Contaminated work clothing must not be allowed out of the workplace
P280 - Wear protective clothing
P284 - In case of poor ventilation

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P302+P352 - If on skin: Wash with plenty of soap
P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing
P308+P313 - If exposed or concerned: Get medical advice/attention
P312 - Call a doctor if symptoms persist. if you feel unwell
P314 - Get medical advice/attention if you feel unwell
P321 - Specific treatment (see a doctor if symptoms do not go away. on this label)
P332+P313 - If skin irritation occurs: Get medical advice/attention
P333+P313 - If skin irritation or rash occurs: Get medical advice/attention
P342+P311 - If experiencing respiratory symptoms: Call a doctor
P362+P364 - Take off contaminated clothing and wash it before reuse
P363 - Wash contaminated clothing before reuse
P405 - Store locked up
P501 - Dispose of contents/container to in accordance with local regulations

2.3. Other hazards which do not result in classification

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	GHS-US classification
Isocyanates, reaction product of polyol with methylenediphenyl diisocyanate	(CAS No) 9048-57-1	60 - 70	Acute Tox. 4 (Inhalation), H332 Skin Irrit. 2, H315
(R,S)-4-Methyl-1,3-dioxolan-2-one	(CAS No) 108-32-7	5 - 10	Not classified
2,4'-Methylenebis(phenyl isocyanate)	(CAS No) 5873-54-1	1 - 5	Not classified
Methylenediphenyl diisocyanate	(CAS No) 9016-87-9	1 - 5	Not classified
Methylenediphenyl diisocyanate	(CAS No) 26447-40-5	1 - 5	Acute Tox. 4 (Inhalation:dust,mist), H332 Skin Irrit. 2, H315 Resp. Sens. 1, H334 Skin Sens. 1, H317 Carc. 2, H351 STOT SE 3, H335 STOT RE 2, H373
2,2'-methylenediphenyl diisocyanate	(CAS No) 2536-05-2	0.1 - 1	Acute Tox. 4 (Inhalation:dust,mist), H332 Skin Irrit. 2, H315 Resp. Sens. 1, H334 Skin Sens. 1, H317 Carc. 2, H351 STOT SE 3, H335 STOT RE 2, H373

Full text of hazard classes and H-statements : see section 16

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures general : IF exposed or concerned: Get medical advice/attention. Call a poison center/doctor/physician if you feel unwell.
First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor/physician if you feel unwell.
First-aid measures after skin contact : Wash skin with plenty of water. Take off contaminated clothing. If skin irritation or rash occurs: Get medical advice/attention.
First-aid measures after eye contact : Rinse eyes with water as a precaution.
First-aid measures after ingestion : Call a poison center/doctor/physician if you feel unwell.

4.2. Most important symptoms and effects (acute and delayed)

Symptoms/injuries after inhalation : May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Symptoms/injuries after skin contact : Irritation. May cause an allergic skin reaction.

4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

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SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Water spray. Dry powder. Foam. Carbon dioxide.

5.2. Specific hazards arising from the chemical

Reactivity : The product is non-reactive under normal conditions of use, storage and transport.

5.3. Special protective equipment and precautions for fire-fighters

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Ventilate spillage area. Do not breathe vapors. Avoid contact with skin and eyes.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Take up liquid spill into absorbent material. Notify authorities if product enters sewers or public waters.

Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear personal protective equipment. Do not breathe vapors. Use only outdoors or in a well-ventilated area. Avoid contact with skin and eyes.

Hygiene measures : Wash contaminated clothing before reuse. Contaminated work clothing should not be allowed out of the workplace. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store locked up. Store in a well-ventilated place. Keep cool.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

(R,S)-4-Methyl-1,3-dioxolan-2-one (108-32-7)

Not applicable

2,4'-Methylenebis(phenyl isocyanate) (5873-54-1)

Not applicable

Methylenediphenyl diisocyanate (9016-87-9)

Not applicable

Isocyanates, reaction product of polyol with methylenediphenyl diisocyanate (9048-57-1)

Not applicable

Methylenediphenyl diisocyanate (26447-40-5)

Not applicable

2,2'-methylenediphenyl diisocyanate (2536-05-2)

Not applicable

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8.2. Appropriate engineering controls

Appropriate engineering controls : Ensure good ventilation of the work station.
Environmental exposure controls : Avoid release to the environment.

8.3. Individual protection measures/Personal protective equipment

Hand protection:

Protective gloves

Eye protection:

Safety glasses

Skin and body protection:

Wear suitable protective clothing

Respiratory protection:

Wear respiratory protection

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Liquid
Color : Mixture contains one or more component(s) which have the following colour(s):
White to light yellow Colourless to light yellow Off-white
Odor : Faint Odor
Odor threshold : No data available
pH : No data available
Melting point : Not applicable
Freezing point : No data available
Boiling point : No data available
Flash point : 226 °F
Relative evaporation rate (butyl acetate=1) : No data available
Flammability (solid, gas) : Not applicable.
Vapor pressure : No data available
Relative vapor density at 20 °C : No data available
Relative density : No data available
Solubility : No data available
Log Pow : No data available
Auto-ignition temperature : No data available
Decomposition temperature : No data available
Viscosity, kinematic : No data available
Viscosity, dynamic : No data available
Explosion limits : No data available
Explosive properties : No data available
Oxidizing properties : No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

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10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Inhalation:dust,mist: Harmful if inhaled.

JF-POLYUREA-A	
ATE US (dust, mist)	1.974 mg/l/4h
(R,S)-4-Methyl-1,3-dioxolan-2-one (108-32-7)	
LD50 oral rat	> 5000 mg/kg body weight (OECD 401: Acute Oral Toxicity, Rat, Male / female, Experimental value, Oral)
LD50 dermal rabbit	> 2000 mg/kg body weight (OECD 402: Acute Dermal Toxicity, 24 h, Rabbit, Male / female, Experimental value, Dermal)
2,4'-Methylenebis(phenyl isocyanate) (5873-54-1)	
LD50 oral rat	> 2000 mg/kg body weight (Other, Rat, Male / female, Read-across, Oral)
LD50 dermal rabbit	> 9400 mg/kg body weight (Equivalent or similar to OECD 402, 24 h, Rabbit, Male / female, Read-across, Dermal)
LC50 inhalation rat (mg/l)	387 mg/m ³ air (OECD 403: Acute Inhalation Toxicity, 4 h, Rat, Male, Experimental value, Inhalation (aerosol))
Methylenediphenyl diisocyanate (9016-87-9)	
LD50 oral rat	> 10000 mg/kg (Rat, Oral)
Isocyanates, reaction product of polyol with methylenediphenyl diisocyanate (9048-57-1)	
ATE US (gases)	4500 ppmV/4h
ATE US (vapors)	11 mg/l/4h
ATE US (dust, mist)	1.5 mg/l/4h
Methylenediphenyl diisocyanate (26447-40-5)	
ATE US (dust, mist)	1.5 mg/l/4h
2,2'-methylenediphenyl diisocyanate (2536-05-2)	
ATE US (dust, mist)	1.5 mg/l/4h

Skin corrosion/irritation : Causes skin irritation.

Serious eye damage/irritation : Not classified

Respiratory or skin sensitization : May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction.

Germ cell mutagenicity : Not classified

Carcinogenicity : Suspected of causing cancer.

Reproductive toxicity : Not classified

Specific target organ toxicity – single exposure : Not classified

Specific target organ toxicity – repeated exposure : May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard : Not classified

Symptoms/injuries after inhalation : May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Symptoms/injuries after skin contact : Irritation. May cause an allergic skin reaction.

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SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.

(R,S)-4-Methyl-1,3-dioxolan-2-one (108-32-7)	
LC50 fish 1	5300 mg/l (96 h, Leuciscus idus, Static system)
EC50 Daphnia 1	> 1000 mg/l (48 h, Daphnia magna, GLP)
2 4'-Methylenebis(phenyl isocyanate) (5873-54-1)	
LC50 fish 1	> 1000 mg/l (OECD 203: Fish, Acute Toxicity Test, 96 h, Brachydanio rerio, Static system, Fresh water, Read-across, Nominal concentration)
EC50 Daphnia 1	> 1000 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 24 h, Daphnia magna, Static system, Fresh water, Read-across, Nominal concentration)

12.2. Persistence and degradability

(R,S)-4-Methyl-1,3-dioxolan-2-one (108-32-7)	
Persistence and degradability	Readily biodegradable in water.
Biochemical oxygen demand (BOD)	0.046 g O ₂ /g substance
Chemical oxygen demand (COD)	1.29 g O ₂ /g substance
2 4'-Methylenebis(phenyl isocyanate) (5873-54-1)	
Persistence and degradability	Not readily biodegradable in water.
Methylenediphenyl diisocyanate (9016-87-9)	
Persistence and degradability	Biodegradability in soil: no data available.

12.3. Bioaccumulative potential

(R,S)-4-Methyl-1,3-dioxolan-2-one (108-32-7)	
Log Pow	-0.48 - -0.41 (Experimental value)
Bioaccumulative potential	Not bioaccumulative.
2 4'-Methylenebis(phenyl isocyanate) (5873-54-1)	
BCF fish 1	92 - 200 (OECD 305: Bioconcentration: Flow-Through Fish Test, 28 day(s), Cyprinus carpio, Flow-through system, Fresh water, Read-across, GLP)
Log Pow	4.51 (Conclusion by analogy, OECD 117: Partition Coefficient (n-octanol/water), HPLC method, 22 °C)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).
Methylenediphenyl diisocyanate (9016-87-9)	
Bioaccumulative potential	No test data of component(s) available.

12.4. Mobility in soil

(R,S)-4-Methyl-1,3-dioxolan-2-one (108-32-7)	
Ecology - soil	No (test)data on mobility of the substance available.
2 4'-Methylenebis(phenyl isocyanate) (5873-54-1)	
Ecology - soil	No (test)data on mobility of the substance available.
Methylenediphenyl diisocyanate (9016-87-9)	
Ecology - soil	No (test)data on mobility of the components available.

12.5. Other adverse effects

No additional information available

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SECTION 13: Disposal considerations

13.1. Disposal methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Proper Shipping Name (DOT) : Not Regulated

Other information : No supplementary information available.

TDG

Transport by sea

Not applicable

Air transport

Not applicable

SECTION 15: Regulatory information

15.1. US Federal regulations

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Listed on the United States TSCA (Toxic Substances Control Act) inventory

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory

Chemical(s) subject to the reporting requirements of Section 313 or Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR Part 372.

Methylenediphenyl diisocyanate	CAS No 9016-87-9	1 - 5%
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15.2. International regulations

CANADA

No additional information available

EU-Regulations

No additional information available

National regulations

No additional information available

15.3. US State regulations

Methylenediphenyl diisocyanate (9016-87-9)

U.S. - New Jersey - Right to Know Hazardous Substance List

SECTION 16: Other information

Other information : Disclaimer: This SDS to the best of our knowledge conforms to the requirements of OSHA 20 CFR 1910.1200 and summarizes the health and safety hazard information and general guidance on how to safely handle the material at the date of issue. Each user must review the SDS in the context of how the product will be handled and used in the workplace.

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Full text of H-phrases:

H315	Causes skin irritation
H317	May cause an allergic skin reaction
H332	Harmful if inhaled
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled
H335	May cause respiratory irritation
H351	Suspected of causing cancer
H373	May cause damage to organs through prolonged or repeated exposure

NFPA health hazard

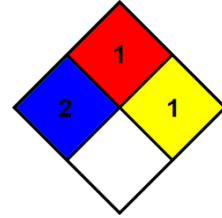
: 2 - Intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical attention is given.

NFPA fire hazard

: 1 - Must be preheated before ignition can occur.

NFPA reactivity

: 1 - Normally stable, but can become unstable at elevated temperatures and pressures or may react with water with some release of energy, but not violently.



HMIS III Rating

Health

: 2 Moderate Hazard - Temporary or minor injury may occur

Flammability

: 1 Slight Hazard - Materials that must be preheated before ignition will occur. Includes liquids, solids and semi solids having a flash point above 200 F. (Class IIIB)

Physical

: 1 Slight Hazard - Materials that are normally stable but can become unstable (self-react) at high temperatures and pressures. Materials may react non-violently with water or undergo hazardous polymerization in the absence of inhibitors.

SDS US (GHS HazCom 2012)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product