

## Safety Data Sheet

according to 29 CFR 1910.1200(g)

Revision No: 2,24  
Revision date: 05/05/2021  
Print date: 07/01/2021

### US Formliner Stop off paste PUR | Base A

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#### 1. Identification

##### Product identifier

US Formliner Stop off paste PUR | Base A

##### Recommended use of the chemical and restrictions on use

###### Use of the substance/mixture

Manufacture of plastics products, including compounding and conversion

##### Details of the supplier of the safety data sheet

|                 |                                |                           |
|-----------------|--------------------------------|---------------------------|
| Company name:   | US Formliner, Inc.             |                           |
| Street:         | 380 Commerce Blvd.             |                           |
| Place:          | USA Athens, GA 30606           |                           |
| Telephone:      | (706) 549-6787                 | Telefax: (706) 355-9199   |
| e-mail:         | info@USFormliner.com           |                           |
| Contact person: | Brian Drummond                 | Telephone: (706) 549-6787 |
| e-mail:         | brian.drummond@usformliner.com |                           |

**Emergency phone number:** INFOTRAC - (800) 535-5053 (Continental US); (352) 323-3500 (Outside US)

#### 2. Hazard(s) identification

##### Classification of the chemical

###### 29 CFR Part 1910.1200

Respiratory or skin sensitization: Skin Sens. 1

OSHA information: This mixture is classified as hazardous according to 29CFR 1910.1200.

##### Label elements

###### 29 CFR Part 1910.1200

**Signal word:** Warning

**Pictograms:**



###### Hazard statements

May cause an allergic skin reaction

###### Precautionary statements

Wear protective gloves and eye/face protection.  
If on skin: Wash with plenty of soap and water.  
If skin irritation or rash occurs: Get medical advice/attention.  
Wash contaminated clothing before reuse.  
Avoid release to the environment.

##### Hazards not otherwise classified

Further information:  
SECTION 12: Ecological information

#### 3. Composition/information on ingredients

##### Mixtures

###### Chemical characterization

Mixture of polyols.

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#### Hazardous components

| CAS No      | Components                                        | Quantity  |
|-------------|---------------------------------------------------|-----------|
| 106264-79-3 | 6-methyl-2,4-bis(methylthio)phenylene-1,3-diamine | 1 - 2.5 % |

#### Further Information

The hazardous components' concentrations are given in ranges due to the variability of the product's constitution. 1 - 2 percent of the mixture consists of ingredient(s) of unknown acute toxicity (inhalative).

### 4. First-aid measures

#### Description of first aid measures

##### General information

Change contaminated, saturated clothing.

##### After inhalation

Provide fresh air.

When in doubt or if symptoms are observed, get medical advice.

##### After contact with skin

After contact with skin, wash immediately with plenty of water and soap.

In case of skin reactions, consult a physician.

##### After contact with eyes

Rinse immediately carefully and thoroughly with eye-bath or water.

In case of troubles or persistent symptoms, consult an ophthalmologist.

##### After ingestion

Rinse mouth immediately and drink plenty of water. Do NOT induce vomiting.

Seek medical advice.

#### Most important symptoms and effects, both acute and delayed

No known symptoms to date.

#### Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

### 5. Fire-fighting measures

#### Extinguishing media

##### Suitable extinguishing media

Carbon dioxide (CO<sub>2</sub>), Water mist, Foam, Extinguishing powder.

Co-ordinate fire-fighting measures to the fire surroundings.

##### Unsuitable extinguishing media

Full water jet.

#### Specific hazards arising from the chemical

In case of fire may be liberated: Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>).

#### Special protective equipment and precautions for fire-fighters

Wear a self-contained breathing apparatus and chemical protective clothing. Full protection suit.

Suppress gases/vapors/mists with water spray jet. Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

#### Additional information

Flammability classification (NFPA 704): IIIB

### 6. Accidental release measures

#### Personal precautions, protective equipment and emergency procedures

##### General measures

Provide adequate ventilation. Avoid contact with skin, eyes and clothes. Use personal protection equipment.

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**Environmental precautions**

Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil.

**Methods and material for containment and cleaning up**

**For cleaning up**

Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents).

**Other information**

Treat the recovered material as prescribed in the section on waste disposal.

**Reference to other sections**

Safe handling: see section 7

Personal protection equipment (PPE): see section 8

Disposal: see section 13

**7. Handling and storage**

**Precautions for safe handling**

**Advice on safe handling**

Provide adequate ventilation. Avoid contact with skin, eyes and clothes. Use personal protection equipment.

**Advice on protection against fire and explosion**

No special fire protection measures are necessary.

**Advice on general occupational hygiene**

Change contaminated, saturated clothing. Wash hands before breaks and after work. When using do not eat or drink.

**Further information on handling**

Additional information: See section 8.

**Conditions for safe storage, including any incompatibilities**

**Requirements for storage rooms and vessels**

Keep container tightly closed in a cool, well-ventilated place. Protect from moisture. The floor should be leak tight, jointless and not absorbent.

Recommended storage temperature: 10 - 50 °C

**Hints on joint storage**

Keep away from food, drink and animal feedingstuffs.

**8. Exposure controls/personal protection**

**Control parameters**

**Additional advice on limit values**

To date, no national critical limit values exist.

**Exposure controls**



**Appropriate engineering controls**

Provide adequate ventilation. If handled uncovered, arrangements with local exhaust ventilation should be used if possible.

**Individual protection measures, such as personal protective equipment**

**Eye/face protection**

Tightly sealed safety glasses.

**Hand protection**

Suitable gloves type Gloves with long cuffs.

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By short-term hand contact: Disposable gloves.

Suitable material:

- NBR (Nitrile rubber)

The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances.

### Skin protection

Only wear fitting, comfortable and clean protective clothing.

### Respiratory protection

If technical exhaust or ventilation measures are not possible or insufficient, respiratory protection must be worn. Usually no personal respirative protection necessary.

### Environmental exposure controls

Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil.

## 9. Physical and chemical properties

### Information on basic physical and chemical properties

|                  |                           |
|------------------|---------------------------|
| Physical state:  | Liquid                    |
| Color:           | gray                      |
| Odor:            | characteristic            |
| Odour threshold: | No information available. |

### Test method

### Changes in the physical state

|                                                           |                |
|-----------------------------------------------------------|----------------|
| Melting point/freezing point:                             | not determined |
| Boiling point or initial boiling point and boiling range: | > 150 °C       |
| Flash point:                                              | > 150 °C       |

### Flammability

|               |                |
|---------------|----------------|
| Solid/liquid: | not applicable |
| Gas:          | not applicable |

### Explosive properties

not hazard of explosion according to EU A.14

|                            |                |
|----------------------------|----------------|
| Lower explosion limits:    | not determined |
| Upper explosion limits:    | not determined |
| Auto-ignition temperature: | > 350 °C       |

### Self-ignition temperature

|        |                |
|--------|----------------|
| Solid: | not applicable |
| Gas:   | not applicable |

|                            |                |
|----------------------------|----------------|
| Decomposition temperature: | not determined |
|----------------------------|----------------|

### Oxidizing properties

Not oxidising.

|                                 |                |
|---------------------------------|----------------|
| pH-Value:                       | not applicable |
| Viscosity / dynamic:            | not determined |
| Water solubility:<br>(at 21 °C) | Immiscible     |

### Solubility in other solvents

not determined

|                                        |                |
|----------------------------------------|----------------|
| Partition coefficient n-octanol/water: | not determined |
| Vapor pressure:                        | not determined |

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Density (at 21 °C):

1,40 g/cm<sup>3</sup> ISO 2811

Relative vapour density:

not applicable

#### Other information

##### **Other safety characteristics**

Solvent content:

< 0,2 %

##### **Further Information**

No further relevant information available.

### 10. Stability and reactivity

#### Reactivity

No hazardous reaction when handled and stored according to provisions.

#### Chemical stability

Stability:

Stable

The product is stable under storage at normal ambient temperatures.

#### Possibility of hazardous reactions

Hazardous reactions:

Will not occur

No known hazardous reactions.

#### Conditions to avoid

none/none

#### Incompatible materials

Acid, Alkali (lye), Oxidising agent.

#### Hazardous decomposition products

No known hazardous decomposition products.

### 11. Toxicological information

#### Information on toxicological effects

##### **Route(s) of Entry**

Inhalation: Yes. Skin contact: Yes. Eye contact: Yes. Ingestion: Yes.

##### **Acute toxicity**

Based on available data, the classification criteria are not met.

| CAS No      | Components                                        |                   |         |        |        |
|-------------|---------------------------------------------------|-------------------|---------|--------|--------|
|             | Exposure route                                    | Dose              | Species | Source | Method |
| 106264-79-3 | 6-methyl-2,4-bis(methylthio)phenylene-1,3-diamine |                   |         |        |        |
|             | oral                                              | LD50 1515 mg/kg   | Rat     | MSDS   |        |
|             | dermal                                            | LD50 > 2000 mg/kg | Rabbit  | MSDS   |        |

##### **Irritation and corrosivity**

Based on available data, the classification criteria are not met.

##### **Sensitizing effects**

May cause an allergic skin reaction (6-methyl-2,4-bis(methylthio)phenylene-1,3-diamine)

##### **Carcinogenic/mutagenic/toxic effects for reproduction**

Based on available data, the classification criteria are not met.

##### **Specific target organ toxicity (STOT) - single exposure**

Based on available data, the classification criteria are not met.

##### **Specific target organ toxicity (STOT) - repeated exposure**

Based on available data, the classification criteria are not met.

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Carcinogenicity (OSHA): No ingredient of this mixture is listed.  
Carcinogenicity (IARC): No ingredient of this mixture is listed.  
Carcinogenicity (NTP): No ingredient of this mixture is listed.

#### Aspiration hazard

Based on available data, the classification criteria are not met.

#### Information on other hazards

##### Other information

No further relevant information available.

##### Further information

Classification for mixtures and used evaluation method according to regulation 29 CFR 1910.1200. There are no data available on the preparation/mixture itself.

## 12. Ecological information

#### Ecotoxicity

Harmful to aquatic life with long lasting effects.

| CAS No                   | Components                                        |             |           |                                     |        |        |
|--------------------------|---------------------------------------------------|-------------|-----------|-------------------------------------|--------|--------|
| Aquatic toxicity         | Dose                                              |             | [h]   [d] | Species                             | Source | Method |
| 106264-79-3              | 6-methyl-2,4-bis(methylthio)phenylene-1,3-diamine |             |           |                                     |        |        |
| Acute fish toxicity      | LC50                                              | 7,3 mg/l    | 96 h      | Oncorhynchus mykiss (Rainbow trout) | MSDS   |        |
| Acute algae toxicity     | ErC50                                             | 7,6 mg/l    | 72 h      | Selenastrum capricornutum           | MSDS   |        |
| Acute crustacea toxicity | EC50                                              | 0,9 mg/l    | 48 h      | Daphnia magna                       | MSDS   |        |
| Acute bacteria toxicity  |                                                   | (1000 mg/l) | 3 h       | Activated sludge                    | MSDS   |        |

#### Persistence and degradability

Some of the components are poorly biodegradable. (OECD F )

#### Bioaccumulative potential

No information available.

#### Mobility in soil

No information available.

#### Endocrine disrupting properties

No information available.

#### Other adverse effects

No further relevant information available.

##### Further information

Classification for mixtures and used evaluation method according to regulation 29 CFR 1910.1200.

There are no data available on the mixture itself. The ecotoxicological properties of this mixture are determined by the ecotoxicological properties of the single components (see section 3).

## 13. Disposal considerations

#### Waste treatment methods

##### Disposal recommendations

Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil.

Dispose of waste according to applicable legislation.

##### Contaminated packaging

Handle contaminated packages in the same way as the substance itself. Non-contaminated packages may be recycled.

## 14. Transport information

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#### US DOT 49 CFR 172.101

**Proper shipping name:** Not a hazardous material with respect to these transport regulations.

#### Marine transport (IMDG)

**UN number:** --

**UN proper shipping name:** No dangerous good in sense of these transport regulations.

**Transport hazard class(es):** --

**Packing group:** --

#### Air transport (ICAO-TI/IATA-DGR)

**UN number:** --

**UN proper shipping name:** No dangerous good in sense of these transport regulations.

**Transport hazard class(es):** --

**Packing group:** --

#### Environmental hazards

ENVIRONMENTALLY HAZARDOUS: No

#### Special precautions for user

Protect from moisture. Do not store at temperatures over: 50°C

Keep away from food, drink and animal feedingstuffs.

#### Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

not applicable

### 15. Regulatory information

#### U.S. Regulations

##### National Inventory TSCA

All components are listed or are exempt from listing on the Toxic Substances Control Act Inventory.

##### National regulatory information

SARA Section 311/312 Hazards:

6-methyl-2,4-bis(methylthio)phenylene-1,3-diamine (106264-79-3): Immediate (acute) health hazard

#### State Regulations

##### Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65, State of California)

This product can not expose you to chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

##### Additional information

Entries in the "State Right to Know" Lists: none/none

##### EU regulatory information

2004/42/EC (VOC): VOC-value: 6 g/L (0,4 %)

### 16. Other information

#### Hazardous Materials Information Label (HMIS)

Health: \*1

Flammability: 1

Physical Hazard: 0

Personal Protection: B

#### NFPA Hazard Ratings

Health: 1

Flammability: 1

Reactivity: 0

Unique Hazard:



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#### Changes

Revision date: 05/05/2021

Revision No: 2,24

This data sheet contains changes from the previous version in section(s): 1,3,5,8,9,12,14,15,16.

#### Abbreviations and acronyms

ADR: Accord européen sur le transport des marchandises dangereuses par Route  
(European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service

LC50: Lethal concentration, 50%

LD50: Lethal dose, 50%

ATE: acute toxicity estimates

ECHA: european chemicals agency  
(<http://echa.europa.eu/information-on-chemicals>)

GESTIS: Gefahrstoffinformationssystem der Deutschen Gesetzlichen Unfallversicherung  
(<http://dguv.de/ifa/GESTIS/GESTIS-Stoffdatenbank/index.jsp>)

#### MSDS:

The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.

#### Other data

The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet. The information is based on the present level of our knowledge. It does not, however, give assurance of product properties and establishes no contract legal rights.



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#### 1. Identification

##### Product identifier

Hardener for US Formliner Stop Off Paste PUR

##### Recommended use of the chemical and restrictions on use

###### Use of the substance/mixture

Manufacture of plastics products, including compounding and conversion

##### Details of the supplier of the safety data sheet

|                 |                                |                           |
|-----------------|--------------------------------|---------------------------|
| Company name:   | US Formliner, Inc.             |                           |
| Street:         | 380 Commerce Blvd.             |                           |
| Place:          | USA Athens, GA 30606           |                           |
| Telephone:      | (706) 549-6787                 | Telefax: (706) 355-9199   |
| e-mail:         | info@USFormliner.com           |                           |
| Contact person: | Brian Drummond                 | Telephone: (706) 549-6787 |
| e-mail:         | brian.drummond@usformliner.com |                           |

**Emergency phone number:** INFOTRAC - (800) 535-5053 (Continental US); (352) 323-3500 (Outside US)

#### 2. Hazard(s) identification

##### Classification of the chemical

###### 29 CFR Part 1910.1200

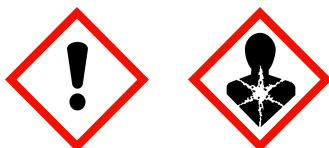
Acute toxicity: Acute Tox. 4 (inhalation)  
Skin corrosion/irritation: Skin Irrit. 2  
Serious eye damage/eye irritation: Eye Irrit. 2B  
Respiratory or skin sensitization: Resp. Sens. 1  
Respiratory or skin sensitization: Skin Sens. 1  
Specific target organ toxicity single exposure: STOT SE 3 (respiratory tract irritation)  
Specific target organ toxicity repeated or prolonged exposure: STOT RE 1  
OSHA information: This mixture is classified as hazardous according to 29CFR 1910.1200.

##### Label elements

###### 29 CFR Part 1910.1200

**Signal word:** Danger

**Pictograms:**



##### **Hazard statements**

Causes skin and eye irritation  
May cause an allergic skin reaction  
Harmful if inhaled  
May cause allergy or asthma symptoms or breathing difficulties if inhaled  
May cause respiratory irritation  
Causes damage to organs through prolonged or repeated exposure

##### **Precautionary statements**

Avoid breathing gas/mist/vapors.  
Wear protective gloves and eye/face protection.  
In case of inadequate ventilation wear respiratory protection.  
If on skin: Wash with plenty of soap and water.  
If inhaled: Remove person to fresh air and keep comfortable for breathing.  
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.  
Continue rinsing.

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If exposed or concerned: Get medical advice/attention.

#### **Hazards not otherwise classified**

Further information:

SECTION 12: Ecological information

### 3. Composition/information on ingredients

#### **Mixtures**

##### **Chemical characterization**

Mixture of isocyanates. (MDI)

#### **Hazardous components**

| CAS No    | Components                                                                 | Quantity  |
|-----------|----------------------------------------------------------------------------|-----------|
| 9016-87-9 | diphenylmethanediisocyanate, isomers and homologues                        | 40 - 50 % |
| 101-68-8  | 4,4'-methylenediphenyl diisocyanate; diphenylmethane-4,4'-diisocyanate     | 10 - 20 % |
| 5873-54-1 | o-(p-isocyanatobenzyl)phenyl isocyanate; diphenylmethane-2,4'-diisocyanate | 5 - 10 %  |
| 2536-05-2 | 2,2'-methylenediphenyl diisocyanate; diphenylmethane-2,2'-diisocyanate     | 1 - 5 %   |

#### **Further Information**

The hazardous components' concentrations are given in ranges due to the variability of the product's constitution.

### 4. First-aid measures

#### **Description of first aid measures**

##### **General information**

Change contaminated, saturated clothing.

##### **After inhalation**

Remove casualty to fresh air and keep warm and at rest. Where appropriate artificial ventilation.

Medical treatment necessary.

##### **After contact with skin**

After contact with skin, wash immediately with plenty of water and soap.

In case of skin reactions, consult a physician.

##### **After contact with eyes**

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist.

##### **After ingestion**

If swallowed, rinse mouth with water (only if the person is conscious). Do NOT induce vomiting.

Call a physician immediately.

#### **Most important symptoms and effects, both acute and delayed**

Irritation to respiratory tract. Allergic reactions.

#### **Indication of any immediate medical attention and special treatment needed**

Treat symptomatically.

### 5. Fire-fighting measures

#### **Extinguishing media**

##### **Suitable extinguishing media**

Carbon dioxide (CO<sub>2</sub>), Water mist, Foam, Extinguishing powder.

Co-ordinate fire-fighting measures to the fire surroundings.

##### **Unsuitable extinguishing media**

Full water jet.

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**Specific hazards arising from the chemical**

In case of fire may be liberated: Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>), Nitrogen oxides (NO<sub>x</sub>), Isocyanates, Hydrogen cyanide (hydrocyanic acid).

**Special protective equipment and precautions for fire-fighters**

Wear a self-contained breathing apparatus and chemical protective clothing. Full protection suit. Do not inhale explosion and combustion gases. Suppress gases/vapors/mists with water spray jet. Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

**Additional information**

Flammability classification (NFPA 704): IIIB

**6. Accidental release measures**

**Personal precautions, protective equipment and emergency procedures**

**General measures**

Provide adequate ventilation. Do not breathe mist/vapors/spray. Avoid contact with skin, eyes and clothes. Use personal protection equipment.

**Environmental precautions**

Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil.

**Methods and material for containment and cleaning up**

**For cleaning up**

Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents).

**Other information**

Treat the recovered material as prescribed in the section on waste disposal.

**Reference to other sections**

Safe handling: see section 7  
Personal protection equipment (PPE): see section 8  
Disposal: see section 13

**7. Handling and storage**

**Precautions for safe handling**

**Advice on safe handling**

Provide adequate ventilation. Do not breathe mist/vapors/spray. Avoid contact with skin, eyes and clothes. Use personal protection equipment.

**Advice on protection against fire and explosion**

No special fire protection measures are necessary.

**Advice on general occupational hygiene**

Change contaminated, saturated clothing. Wash hands before breaks and after work. When using do not eat or drink.

**Further information on handling**

Additional information: See section 8.

**Conditions for safe storage, including any incompatibilities**

**Requirements for storage rooms and vessels**

Keep container tightly closed in a cool, well-ventilated place. Protect from moisture. The floor should be leak tight, jointless and not absorbent.

Recommended storage temperature: 10 - 50°C

**Hints on joint storage**

Do not store together with: Amines, Acid, Alkali (lye).  
Keep away from food, drink and animal feedingstuffs.

**8. Exposure controls/personal protection**

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#### Control parameters

#### Exposure limits

| CAS No.  | Substance                            | ppm    | mg/m <sup>3</sup> | f/cc | Category  | Origin |
|----------|--------------------------------------|--------|-------------------|------|-----------|--------|
| 101-68-8 | Methylene bisphenyl isocyanate (MDI) | C 0.02 | C 0.2             |      | Ceiling   | PEL    |
| 101-68-8 | Methylene bisphenyl isocyanate       | 0.005  | 0.05              |      | TWA (8 h) | REL    |
|          |                                      | C 0.02 | C 0.2             |      | Ceiling   | REL    |

#### Exposure controls



#### Appropriate engineering controls

Provide adequate ventilation. If handled uncovered, arrangements with local exhaust ventilation should be used if possible.

#### Individual protection measures, such as personal protective equipment

##### Eye/face protection

Tightly sealed safety glasses.

##### Hand protection

Suitable gloves type Gloves with long cuffs.

By short-term hand contact: Disposable gloves.

Suitable material:

- NBR (Nitrile rubber)

The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances.

##### Skin protection

Only wear fitting, comfortable and clean protective clothing.

##### Respiratory protection

If technical exhaust or ventilation measures are not possible or insufficient, respiratory protection must be worn.

##### Environmental exposure controls

Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil.

### 9. Physical and chemical properties

#### Information on basic physical and chemical properties

|                  |                           |
|------------------|---------------------------|
| Physical state:  | Liquid                    |
| Color:           | brown                     |
| Odor:            | earthy                    |
| Odour threshold: | No information available. |

#### Test method

##### Changes in the physical state

|                                                           |                |
|-----------------------------------------------------------|----------------|
| Melting point/freezing point:                             | not determined |
| Boiling point or initial boiling point and boiling range: | > 200 °C       |
| Flash point:                                              | > 150 °C       |

##### Flammability

|               |                |
|---------------|----------------|
| Solid/liquid: | not applicable |
|---------------|----------------|

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Gas: not applicable

#### Explosive properties

not hazard of explosion according to EU A.14

Lower explosion limits: not determined

Upper explosion limits: not determined

Auto-ignition temperature: 340 °C

#### Self-ignition temperature

Solid: not applicable

Gas: not applicable

Decomposition temperature: not determined

#### Oxidizing properties

Not oxidising.

pH-Value: not applicable

Viscosity / dynamic: 100 mPa·s ISO 2555  
(at 21 °C)

Water solubility: Immiscible  
(at 21 °C)

#### Solubility in other solvents

not determined

Partition coefficient n-octanol/water: not determined

Vapor pressure: 12 hPa calculated  
(at 21 °C)

Density (at 21 °C): 1,16 g/cm<sup>3</sup> ISO 2811

Relative vapour density: not applicable

#### Other information

##### Other safety characteristics

Solvent content: 0 %

Solid content: 0 %

##### Further Information

No further relevant information available.

### 10. Stability and reactivity

#### Reactivity

Contains: Isocyanates.

#### Chemical stability

Stability: Stable

The product is stable under storage at normal ambient temperatures.

Reaction takes place at temperatures above: 200 °C: Polymerization. Formation of: CO<sub>2</sub>

#### Possibility of hazardous reactions

Hazardous reactions: Will not occur

Exothermic reactions with: Amines, Alcohols, Water, Acid, Alkali (lye).

#### Conditions to avoid

Keep away from heat.

Protect from moisture.: Due to gaseous decomposition products, overpressure can occur in tightly sealed containers. Danger of bursting container.

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#### Incompatible materials

Amines, Alcohols, Water, Acid, Alkali (Iye), Oxidising agent.

#### Hazardous decomposition products

Does not decompose when used for intended uses.

### 11. Toxicological information

#### Information on toxicological effects

##### Route(s) of Entry

Inhalation: Yes. Skin contact: Yes. Eye contact: Yes. Ingestion: Yes.

##### Acute toxicity

Harmful if inhaled

##### ATEmix calculated

ATE (inhalation vapour) 17,05 mg/l; ATE (inhalation aerosol) 2,054 mg/l

| CAS No    | Components                                                                 |                    |         |        |          |
|-----------|----------------------------------------------------------------------------|--------------------|---------|--------|----------|
|           | Exposure route                                                             | Dose               | Species | Source | Method   |
| 9016-87-9 | diphenylmethanediisocyanate, isomers and homologues                        |                    |         |        |          |
|           | oral                                                                       | LD50 > 10000 mg/kg | Rat     | MSDS   | OECD 401 |
|           | dermal                                                                     | LD50 > 9400 mg/kg  | Rabbit  | MSDS   | OECD 402 |
|           | inhalation vapour                                                          | ATE 11 mg/l        |         |        |          |
|           | inhalation (4 h) aerosol                                                   | LC50 1,5 mg/l      |         | MSDS   |          |
| 101-68-8  | 4,4'-methylenediphenyl diisocyanate; diphenylmethane-4,4'-diisocyanate     |                    |         |        |          |
|           | oral                                                                       | LD50 > 2000 mg/kg  | Rat     | MSDS   |          |
|           | dermal                                                                     | LD50 > 9400 mg/kg  | Rabbit  | MSDS   | OECD 402 |
|           | inhalation vapour                                                          | ATE 11 mg/l        |         |        |          |
|           | inhalation (4 h) aerosol                                                   | LC50 1,5 mg/l      |         | MSDS   |          |
| 5873-54-1 | o-(p-isocyanatobenzyl)phenyl isocyanate; diphenylmethane-2,4'-diisocyanate |                    |         |        |          |
|           | oral                                                                       | LD50 > 2000 mg/kg  | Rat     | MSDS   |          |
|           | dermal                                                                     | LD50 > 9400 mg/kg  | Rabbit  | MSDS   | OECD 402 |
|           | inhalation vapour                                                          | ATE 11 mg/l        |         |        |          |
|           | inhalation (4 h) aerosol                                                   | LC50 1,5 mg/l      |         | MSDS   |          |
| 2536-05-2 | 2,2'-methylenediphenyl diisocyanate; diphenylmethane-2,2'-diisocyanate     |                    |         |        |          |
|           | oral                                                                       | LD50 > 2000 mg/kg  | Rat     | MSDS   |          |
|           | dermal                                                                     | LD50 > 9400 mg/kg  | Rabbit  | MSDS   | OECD 402 |
|           | inhalation vapour                                                          | ATE 11 mg/l        |         |        |          |
|           | inhalation (4 h) aerosol                                                   | LC50 1,5 mg/l      |         | MSDS   |          |

#### Irritation and corrosivity

Causes skin irritation

Causes eye irritation

#### Sensitizing effects

May cause allergy or asthma symptoms or breathing difficulties if inhaled (diphenylmethanediisocyanate, isomers and homologues; 4,4'-methylenediphenyl diisocyanate; diphenylmethane-4,4'-diisocyanate; o-(p-isocyanatobenzyl)phenyl isocyanate; diphenylmethane-2,4'-diisocyanate; 2,2'-methylenediphenyl diisocyanate; diphenylmethane-2,2'-diisocyanate)

May cause an allergic skin reaction (diphenylmethanediisocyanate, isomers and homologues; 4,4'-methylenediphenyl diisocyanate; diphenylmethane-4,4'-diisocyanate; o-(p-isocyanatobenzyl)phenyl isocyanate; diphenylmethane-2,4'-diisocyanate; 2,2'-methylenediphenyl diisocyanate; diphenylmethane-2,2'-diisocyanate)

#### Carcinogenic/mutagenic/toxic effects for reproduction

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Based on available data, the classification criteria are not met.

### **Specific target organ toxicity (STOT) - single exposure**

May cause respiratory irritation (diphenylmethanediisocyanate, isomers and homologues)

### **Specific target organ toxicity (STOT) - repeated exposure**

Causes damage to organs through prolonged or repeated exposure (diphenylmethanediisocyanate, isomers and homologues; 4,4'-methylenediphenyl diisocyanate; diphenylmethane-4,4'-diisocyanate; o-(p-isocyanatobenzyl)phenyl isocyanate; diphenylmethane-2,4'-diisocyanate; 2,2'-methylenediphenyl diisocyanate; diphenylmethane-2,2'-diisocyanate)

Carcinogenicity (OSHA): No ingredient of this mixture is listed.

Carcinogenicity (IARC): Polymethylene polyphenyl isocyanate (CAS 9016-87-9) is listed in group 3.  
4,4'-Methylenediphenyl diisocyanate (CAS 101-68-8) is listed in group 3.

Carcinogenicity (NTP): No ingredient of this mixture is listed.

### **Aspiration hazard**

Based on available data, the classification criteria are not met.

### **Information on other hazards**

#### **Other information**

No further relevant information available.

#### **Further information**

Classification for mixtures and used evaluation method according to regulation 29 CFR 1910.1200. There are no data available on the preparation/mixture itself.

## **12. Ecological information**

### **Ecotoxicity**

Based on available data, the classification criteria are not met.

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| CAS No                   | Components                                                                 |             |         |                         |        |          |
|--------------------------|----------------------------------------------------------------------------|-------------|---------|-------------------------|--------|----------|
| Aquatic toxicity         | Dose                                                                       | [h]   [d]   | Species | Source                  | Method |          |
| 9016-87-9                | diphenylmethanediisocyanate, isomers and homologues                        |             |         |                         |        |          |
| Acute fish toxicity      | LC50                                                                       | > 1000 mg/l | 96 h    | Danio rerio (zebrafish) | MSDS   | OECD 203 |
| Acute algae toxicity     | ErC50                                                                      | > 1640 mg/l | 72 h    | Scenedesmus subspicatus | MSDS   | OECD 201 |
| Acute crustacea toxicity | EC50                                                                       | > 1000 mg/l | 48 h    | Daphnia magna           | MSDS   | OECD 202 |
| Crustacea toxicity       | NOEC                                                                       | > 10 mg/l   | 21 d    | Daphnia magna           | MSDS   | OECD 202 |
| Acute bacteria toxicity  | (> 100 mg/l)                                                               |             | 3 h     | Activated sludge        | MSDS   | OECD 209 |
| 101-68-8                 | 4,4'-methylenediphenyl diisocyanate; diphenylmethane-4,4'-diisocyanate     |             |         |                         |        |          |
| Acute fish toxicity      | LC50                                                                       | > 1000 mg/l | 96 h    | Danio rerio (zebrafish) | MSDS   | OECD 203 |
| Acute algae toxicity     | ErC50                                                                      | > 1640 mg/l | 72 h    | Scenedesmus subspicatus | MSDS   | OECD 201 |
| Acute crustacea toxicity | EC50                                                                       | > 1000 mg/l | 48 h    | Daphnia magna           | MSDS   | OECD 202 |
| Crustacea toxicity       | NOEC                                                                       | > 10 mg/l   | 21 d    | Daphnia magna           | MSDS   | OECD 202 |
| Acute bacteria toxicity  | (> 100 mg/l)                                                               |             | 3 h     | Activated sludge        | MSDS   | OECD 209 |
| 5873-54-1                | o-(p-isocyanatobenzyl)phenyl isocyanate; diphenylmethane-2,4'-diisocyanate |             |         |                         |        |          |
| Acute fish toxicity      | LC50                                                                       | > 1000 mg/l | 96 h    | Danio rerio (zebrafish) | MSDS   | OECD 203 |
| Acute algae toxicity     | ErC50                                                                      | > 1640 mg/l | 72 h    | Scenedesmus subspicatus | MSDS   | OECD 201 |
| Acute crustacea toxicity | EC50                                                                       | > 1000 mg/l | 48 h    | Daphnia magna           | MSDS   | OECD 202 |
| Crustacea toxicity       | NOEC                                                                       | > 10 mg/l   | 21 d    | Daphnia magna           | MSDS   | OECD 202 |
| Acute bacteria toxicity  | (> 100 mg/l)                                                               |             | 3 h     | Activated sludge        | MSDS   | OECD 209 |
| 2536-05-2                | 2,2'-methylenediphenyl diisocyanate; diphenylmethane-2,2'-diisocyanate     |             |         |                         |        |          |
| Acute fish toxicity      | LC50                                                                       | > 1000 mg/l | 96 h    | Danio rerio (zebrafish) | MSDS   | OECD 203 |
| Acute algae toxicity     | ErC50                                                                      | > 1640 mg/l | 72 h    | Scenedesmus subspicatus | MSDS   | OECD 201 |
| Acute crustacea toxicity | EC50                                                                       | > 1000 mg/l | 48 h    | Daphnia magna           | MSDS   | OECD 202 |
| Crustacea toxicity       | NOEC                                                                       | > 10 mg/l   | 21 d    | Daphnia magna           | MSDS   | OECD 202 |
| Acute bacteria toxicity  | (> 100 mg/l)                                                               |             | 3 h     | Activated sludge        | MSDS   | OECD 209 |

#### Persistence and degradability

Product is not easily biodegradable. (OECD 302C)

#### Bioaccumulative potential

No indication of bioaccumulation potential. (OECD 305)

#### Mobility in soil

No information available.

#### Endocrine disrupting properties

No information available.

#### Other adverse effects

No further relevant information available.

#### Further information

Classification for mixtures and used evaluation method according to regulation 29 CFR 1910.1200.

There are no data available on the mixture itself. The ecotoxicological properties of this mixture are determined by the ecotoxicological properties of the single components (see section 3).

### 13. Disposal considerations

#### Waste treatment methods

##### **Disposal recommendations**

Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil.

Dispose of waste according to applicable legislation.



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#### Contaminated packaging

Handle contaminated packages in the same way as the substance itself. Non-contaminated packages may be recycled.

### 14. Transport information

#### US DOT 49 CFR 172.101

**UN/ID number:** NA3082  
**Proper shipping name:** Other regulated substances, liquid, n.o.s. (contains Diphenylmethane Diisocyanate (MDI))  
**Transport hazard class(es):** 9  
**Packing group:** III  
**Hazard label:** 9



#### Marine transport (IMDG)

**UN number:** --  
**UN proper shipping name:** No dangerous good in sense of these transport regulations.  
**Transport hazard class(es):** --  
**Packing group:** --

#### Air transport (ICAO-TI/IATA-DGR)

**UN number:** --  
**UN proper shipping name:** No dangerous good in sense of these transport regulations.  
**Transport hazard class(es):** --  
**Packing group:** --

#### Environmental hazards

ENVIRONMENTALLY HAZARDOUS: No

#### Special precautions for user

Protect from moisture. Do not store at temperatures over: 50°C  
Keep away from food, drink and animal feedingstuffs.

#### Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

not applicable

### 15. Regulatory information

#### U.S. Regulations

##### National Inventory TSCA

All components are listed or are exempt from listing on the Toxic Substances Control Act Inventory.

##### National regulatory information

SARA Section 304 CERCLA:

Methylenebis(phenylisocyanate)(MDI) (101-68-8): Reportable quantity = 5,000 (2270) lbs. (kg)

SARA Section 311/312 Hazards:

Polymeric diphenylmethane diisocyanate (9016-87-9): Immediate (acute) health hazard, Delayed (chronic) health hazard

Methylenebis(phenylisocyanate)(MDI) (101-68-8): Immediate (acute) health hazard, Delayed (chronic) health hazard

o-(p-isocyanatobenzyl)phenyl isocyanate; diphenylmethane-2,4'-diisocyanate (5873-54-1): Immediate (acute) health hazard, Delayed (chronic) health hazard

2,2'-methylenediphenyl diisocyanate; diphenylmethane-2,2'-diisocyanate (2536-05-2): Immediate (acute)

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health hazard, Delayed (chronic) health hazard  
SARA Section 313 Toxic release inventory:  
Polymeric diphenylmethane diisocyanate (9016-87-9): De minimis limit = 1.0 %, Reportable threshold = Standard  
Methylenebis(phenylisocyanate)(MDI) (101-68-8): De minimis limit = 1.0 %, Reportable threshold = Standard  
Clean Air Act Section 112(b):  
Methylenebis(phenylisocyanate)(MDI) (101-68-8)

#### State Regulations

##### Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65, State of California)

This product can not expose you to chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

##### Additional information

Entries in the "State Right to Know" Lists:

- Methylenebis(phenylisocyanate) (CAS 101-68-8): CA, FL, MA, MN, NJ, PA, RI.
- Diphenylmethane-2,4'-diisocyanate (CAS 5873-54-1): MN, NJ.
- Diphenylmethane-2,2'-diisocyanate (CAS 2536-05-2): MN, NJ.
- Polymeric diphenylmethane diisocyanate (CAS 9016-87-9): MN, NJ.

##### EU regulatory information

2004/42/EC (VOC): VOC-value: 0,0 g/L (0 %)

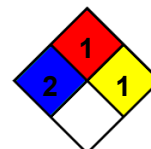
#### 16. Other information

##### Hazardous Materials Information Label (HMIS)

Health: \*2  
Flammability: 1  
Physical Hazard: 1  
Personal Protection: B

##### NFPA Hazard Ratings

Health: 2  
Flammability: 1  
Reactivity: 1  
Unique Hazard:



##### Changes

Revision date: 05/03/2021  
Revision No: 2,24  
This data sheet contains changes from the previous version in section(s): 3,5,9,11,14,16.

##### Abbreviations and acronyms

ADR: Accord européen sur le transport des marchandises dangereuses par Route  
(European Agreement concerning the International Carriage of Dangerous Goods by Road)  
IMDG: International Maritime Code for Dangerous Goods  
IATA: International Air Transport Association  
GHS: Globally Harmonized System of Classification and Labelling of Chemicals  
EINECS: European Inventory of Existing Commercial Chemical Substances  
ELINCS: European List of Notified Chemical Substances  
CAS: Chemical Abstracts Service  
LC50: Lethal concentration, 50%  
LD50: Lethal dose, 50%  
ATE: acute toxicity estimates  
ECHA: european chemicals agency  
(<http://echa.europa.eu/information-on-chemicals>)  
GESTIS: Gefahrstoffinformationssystem der Deutschen Gesetzlichen Unfallversicherung

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(<http://dguv.de/ifa/GESTIS/GESTIS-Stoffdatenbank/index.jsp>)

#### MSDS:

The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.

#### Other data

The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet. The information is based on the present level of our knowledge. It does not, however, give assurance of product properties and establishes no contract legal rights.