



## **MATERIAL SAFETY DATA SHEET**

Revised: March 29, 2012  
Issued: April 23, 2003

### ***I. IDENTIFICATION***

**Product:** 203-\*\* White Tyvek brand BOPP Sheathing Tape

### ***II. PHYSICAL DATA***

**Solubility in water:** Negligible  
**Volatility at 100°C:** Less than 0.1%

### ***III. HAZARDOUS INGREDIENTS***

None

### ***IV. FIRE AND EXPLOSION HAZARD DATA***

**Flashpoint:** Not applicable  
**Flammable limits:** Not applicable  
**Extinguishing media:** Water, dry chemicals, foam, CO<sub>2</sub>  
**Unusual fire hazards:** Produces dense black smoke if burned

### ***V. HEALTH HAZARD DATA***

**Skin Contact:** May cause skin irritation after prolonged exposure with adhesive side to skin

No other effect on health is known.

### ***VI. REACTIVITY DATA***

Not Reactive  
Exposure to temperatures in excess of 200°C (392°F) cause decompositions

### ***VII. SPILL OR LEAK PROCEDURES***

Not Applicable

### ***VII. SPECIAL PROTECTION INFORMATION***

Not Applicable

*Date of Issue: August 2, 2012*

*Prepared by: Ronald M. Jacobs  
Ronald M. Jacobs, Director Marketing & Sales*

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**DuPont™ Tyvek® Spunbond Polyethylene**

Version 2.2

Revision Date 04/21/2009

Ref. 150000002811

This SDS adheres to the standards and regulatory requirements of the United States and may not meet the regulatory requirements in other countries.

**SECTION 1. PRODUCT AND COMPANY IDENTIFICATION**

Product name : DuPont™ Tyvek® Spunbond Polyethylene  
Tradename/Synonym : formerly MSDS SP6013

MSDS Number : 150000002811  
Manufacturer : DuPont  
1007 Market Street  
Wilmington, DE 19898

Product Information : 1-800-441-7515 (outside the U.S. 1-302-774-1000)  
Medical Emergency : 1-800-441-3637 (outside the U.S. 1-302-774-1139)  
Transport Emergency : CHEMTREC: 1-800-424-9300 (outside the U.S. 1-703-527-3887)

Other information : OSHA Hazard Communication Standard (29 CFR 1910.1200) requirements for Material Safety Data Sheets do not apply to this product. This product is excluded as an article. Information on potential hazards associated with product fabrication and/or installation are discussed in this datasheet.

**SECTION 2. HAZARDS IDENTIFICATION**

## Emergency Overview

This product has no known adverse effect on human health. Additives in this product do not present a respiration hazard unless the product is ground to a powder of respirable size and the dust is inhaled. All dusts are potentially injurious to the respiratory tract if respirable particles are generated and inhaled. Dust may form explosive mixture in air.

## Potential Health Effects

## Carcinogenicity

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, or OSHA, as a carcinogen.

**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

Component	CAS-No.	Concentration
Nonwoven Fabric		100 %

Includes percentages of the following:

Polyethylene	9002-88-4	
Additives		

**SECTION 4. FIRST AID MEASURES**

General advice : No hazards which require special first aid measures.

**DuPont™ Tyvek® Spunbond Polyethylene**

Version 2.2

Revision Date 04/21/2009

Ref. 150000002811

**SECTION 5. FIRE-FIGHTING MEASURES**

## Flammable Properties

Flash point : not applicable

Autoignition temperature : 330 - 350 °C (626 - 662 °F)

Thermal decomposition : &gt; 200 °C (&gt; 392 °F)

Fire and Explosion Hazard : Burning is accompanied by melting and dripping which may cause the fire to spread.

Fire and Explosion Hazard : Hazardous combustion products Carbon monoxide Carbon dioxide (CO<sub>2</sub>)

Firefighting Instructions : Wear self-contained breathing apparatus and protective suit. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

**SECTION 6. ACCIDENTAL RELEASE MEASURES**

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Spill Cleanup : not applicable

**SECTION 7. HANDLING AND STORAGE**

Handling (Personnel) : Material can create slippery conditions. Take precautionary measures against static discharges. Minimize the generation and accumulation of dust.

Storage : No special storage conditions required.

**SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

## Personal protective equipment

Respiratory protection : Respiratory protection should not be required for normal use and handling. When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

## Exposure Guidelines

## Exposure Limit Values

## Polyethylene

PEL	(OSHA)	5 mg/m <sup>3</sup>	8 hr. TWA	Respirable fraction.
PEL	(OSHA)	15 mg/m <sup>3</sup>	8 hr. TWA	Total dust.
TLV	(ACGIH)	3 mg/m <sup>3</sup>	8 hr. TWA	Respirable particles.
TLV	(ACGIH)	10 mg/m <sup>3</sup>	8 hr. TWA	Inhalable particles.

**DuPont™ Tyvek® Spunbond Polyethylene**

Version 2.2

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AEL *	(DUPONT)	5 mg/m3	8 & 12 hr. TWA	Respirable dust.
AEL *	(DUPONT)	10 mg/m3	8 & 12 hr. TWA	Total dust

\* AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

Form	:	sheets
Color	:	white
Odor	:	none
Melting point/range	:	135 °C (275 °F)

**SECTION 10. STABILITY AND REACTIVITY**

Hazardous decomposition products : , Carbon monoxide , Carbon dioxide

**SECTION 11. TOXICOLOGICAL INFORMATION**

Polyethylene	
Oral LD50	: 7,950 mg/kg, rat
Skin irritation	: non-irritant
Eye irritation	: non-irritant
Skin sensitization	: Not a skin sensitizer.
Further information	: The substance is a polymer and is not expected to produce toxic effects.

**SECTION 12. ECOLOGICAL INFORMATION**

Aquatic Toxicity Polyethylene	:	The substance is a polymer and is not expected to produce toxic effects.
Additional ecological information	:	This product has no known eco-toxicological effects.

**SECTION 13. DISPOSAL CONSIDERATIONS**

Waste Disposal : Where possible recycling is preferred to disposal or incineration.

**DuPont™ Tyvek® Spunbond Polyethylene**

Version 2.2

Revision Date 04/21/2009

Ref. 150000002811

**SECTION 14. TRANSPORT INFORMATION**

Not classified as dangerous in the meaning of transport regulations.

**SECTION 15. REGULATORY INFORMATION**

SARA 313 Regulated Chemical(s)	: SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.
California Prop. 65	: Chemicals known to State of California to cause cancer, birth defects or any other harm: none known

**SECTION 16. OTHER INFORMATION**

Restrictions for use	: Do not use DuPont materials in medical applications involving implantation in the human body or contact with internal body fluids or tissues unless the material has been provided from DuPont under a written contract that is consistent with DuPont policy regarding medical applications and expressly acknowledges the contemplated use. For further information, please contact your DuPont representative. You may also request a copy of the DuPont POLICY Regarding Medical Applications H-50103-3 and DuPont CAUTION Regarding Medical Applications H-50102-3.
Contact person	: MSDS Coordinator, 1007 Market St. Wilmington, DE 19898, Phone: 302-773-0904 (for MSDS information)/302-999-2778 (for technical information)

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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**DuPont™ Flexwrap™ NF**

Ref. 130000121391

Version 2.1 (replaces: Version 2.0)

Revision Date 26.03.2020

Issue Date 03.11.2021

The composition information contained in this document is provided to satisfy the requirements of Regulation (EC) No 1907/2006 (REACH), Article 33. Other information is provided voluntarily and is not subject to regulatory requirement.

**Identification of the article and of the company/undertaking****Product identifier**

Product name : DuPont™ Flexwrap™ NF

**Relevant identified uses of the article and uses advised against**

Not relevant for article

**Details of the supplier of the article information sheet**

Company : Du Pont de Nemours (Luxembourg) S.à r.l.  
Rue du General Patton / Contern  
L-2984 Luxembourg  
Luxembourg

Telephone : +352-3666-1000

Telefax : +352-3666-5060

E-mail address : sds-support@dupont.com

**Emergency telephone number**

+(44)-870-8200418 (CHEMTREC)

**Hazards identification****Classification of the substance or mixture**

Not relevant for article

**Label elements**

Not relevant for article

**Product information**

This product has no known adverse effect on human health.

Additives in this product do not present a respiration hazard unless the product is ground to a powder of respirable size and the dust is inhaled. All dusts are potentially injurious to the respiratory tract if respirable particles are generated and inhaled.

**DuPont™ Flexwrap™ NF**

Ref. 130000121391  
Version 2.1 (replaces: Version 2.0)

Revision Date 26.03.2020  
Issue Date 03.11.2021

**Composition/information on ingredients****Article composition**

The above products are compliant to REACH registration obligations; Registration number(s) may not be provided because substance(s) are exempted, not yet registered under REACH or are registered under another regulatory process (biocide uses, plant protection products), etc.

**First aid measures****Description of first aid measures**

Not relevant for article

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

Not relevant for article

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

Not relevant for article

**Firefighting measures****Extinguishing media**

Not relevant for article

**Special hazards arising from the article**

Specific hazards during firefighting : Burning is accompanied by melting and dripping which may cause the fire to spread.  
: In fire conditions, toxic decomposition products may be formed. Hazardous combustion products: Carbon monoxide Carbon dioxide (CO<sub>2</sub>)

**Advice for firefighters**

Not relevant for article

**Accidental release measures****Personal precautions, protective equipment and emergency procedures**

Not relevant for article

**Environmental precautions**

Not relevant for article

**Methods and materials for containment and cleaning up**

Not relevant for article

**DuPont™ Flexwrap™ NF**

Ref. 130000121391  
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Revision Date 26.03.2020  
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**Reference to other sections**

Not relevant for article

**Handling and storage****Precautions for safe handling**

Not relevant for article

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

Not relevant for article

**Specific end use(s)**

Not relevant for article

**Exposure controls/personal protection****Control parameters**

If sub-section is empty then no values are applicable. For further information on any control parameters provided, please refer to the relevant regulation.

**Exposure controls**

Respiratory protection : Respiratory protection should not be required for normal use and handling.

**Physical and chemical properties****Information on basic physical and chemical properties**

Form : tape, roll

**Other information**

No other data to be specially mentioned.

**Stability and reactivity**

Reactivity : Not relevant for article

Chemical stability : Not relevant for article

Possibility of hazardous reactions : no data available





## DuPont™ Flexwrap™ NF

Ref. 130000121391

Version 2.1 (replaces: Version 2.0)

Revision Date 26.03.2020

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**Conditions to avoid** : no data available

**Incompatible materials** : Not relevant for article

**Hazardous decomposition products** : Not relevant for article

### Toxicological information

#### Information on toxicological effects

Acute oral toxicity

No data is available on the product itself.

Acute dermal toxicity

No data is available on the product itself.

### Ecological information

#### Toxicity

Not relevant for article

#### Persistence and degradability

Not relevant for article

#### Bioaccumulative potential

Not relevant for article

#### Mobility in soil

Not relevant for article

#### Results of PBT and vPvB assessment

Not relevant for article

#### Other adverse effects

#### Additional ecological information

No data is available on the product itself.

### Disposal considerations

#### Waste treatment methods



## DuPont™ Flexwrap™ NF

Ref. 130000121391

Revision Date 26.03.2020

Version 2.1 (replaces: Version 2.0)

Issue Date 03.11.2021

Product : Can be landfilled or incinerated, when in compliance with local regulations.

### Other information

#### Abbreviations and acronyms

ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute toxicity estimate
CAS-No.	Chemical Abstracts Service number
CLP	Classification, Labelling and Packaging
EbC50	Concentration at which 50% reduction of biomass is observed
EC50	Median effective concentration
EN	European Norm
EPA	Environmental Protection Agency
ErC50	Concentration at which a 50% inhibition of growth rate is observed
EyC50	Concentration at which 50 % inhibition of yield is observed
IATA_C	International Air Transport Association (Cargo)
IBC	International Bulk Chemical Code
ICAO	International Civil Aviation Organization
ISO	International Standard Organization
IMDG	International Maritime Dangerous Goods
LC50	Median Lethal Concentration
LD50	Median Lethal Dose
LOEC	Lowest Observed Effect Concentration
LOEL	Lowest observed effect level
MARPOL	International Convention for the Prevention of Marine Pollution from Ships
n.o.s.	Not Otherwise Specified
NOAEC	No Observed Adverse Effect Concentration
NOAEL	No observed adverse effect level
NOEC	No Observed Effect Concentration
NOEL	No Observed Effect Level
OECD	Organisation for Economic Co-operation and Development
OPPTS	Office of Prevention, Pesticides and Toxic Substances
PBT	Persistent, Bioaccumulative and Toxic
STEL	Short term exposure limit
TWA	Time Weighted Average (TWA):
vPvB	very Persistent and very Bioaccumulative

#### Further information

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**DuPont™ Tyvek® Spunbond Polyethylene**

Version 2.2

Revision Date 04/21/2009

Ref. 150000002811

This SDS adheres to the standards and regulatory requirements of the United States and may not meet the regulatory requirements in other countries.

**SECTION 1. PRODUCT AND COMPANY IDENTIFICATION**

Product name : DuPont™ Tyvek® Spunbond Polyethylene  
Tradename/Synonym : formerly MSDS SP6013

MSDS Number : 150000002811  
Manufacturer : DuPont  
1007 Market Street  
Wilmington, DE 19898

Product Information : 1-800-441-7515 (outside the U.S. 1-302-774-1000)  
Medical Emergency : 1-800-441-3637 (outside the U.S. 1-302-774-1139)  
Transport Emergency : CHEMTREC: 1-800-424-9300 (outside the U.S. 1-703-527-3887)

Other information : OSHA Hazard Communication Standard (29 CFR 1910.1200) requirements for Material Safety Data Sheets do not apply to this product. This product is excluded as an article. Information on potential hazards associated with product fabrication and/or installation are discussed in this datasheet.

**SECTION 2. HAZARDS IDENTIFICATION**

## Emergency Overview

This product has no known adverse effect on human health. Additives in this product do not present a respiration hazard unless the product is ground to a powder of respirable size and the dust is inhaled. All dusts are potentially injurious to the respiratory tract if respirable particles are generated and inhaled. Dust may form explosive mixture in air.

## Potential Health Effects

## Carcinogenicity

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, or OSHA, as a carcinogen.

**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

Component	CAS-No.	Concentration
Nonwoven Fabric		100 %

Includes percentages of the following:

Polyethylene	9002-88-4	
Additives		

**SECTION 4. FIRST AID MEASURES**

General advice : No hazards which require special first aid measures.

**DuPont™ Tyvek® Spunbond Polyethylene**

Version 2.2

Revision Date 04/21/2009

Ref. 150000002811

**SECTION 5. FIRE-FIGHTING MEASURES**

## Flammable Properties

Flash point : not applicable

Autoignition temperature : 330 - 350 °C (626 - 662 °F)

Thermal decomposition : &gt; 200 °C (&gt; 392 °F)

Fire and Explosion Hazard : Burning is accompanied by melting and dripping which may cause the fire to spread.

Fire and Explosion Hazard : Hazardous combustion products Carbon monoxide Carbon dioxide (CO<sub>2</sub>)

Firefighting Instructions : Wear self-contained breathing apparatus and protective suit. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

**SECTION 6. ACCIDENTAL RELEASE MEASURES**

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Spill Cleanup : not applicable

**SECTION 7. HANDLING AND STORAGE**

Handling (Personnel) : Material can create slippery conditions. Take precautionary measures against static discharges. Minimize the generation and accumulation of dust.

Storage : No special storage conditions required.

**SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

## Personal protective equipment

Respiratory protection : Respiratory protection should not be required for normal use and handling. When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

## Exposure Guidelines

## Exposure Limit Values

## Polyethylene

PEL	(OSHA)	5 mg/m <sup>3</sup>	8 hr. TWA	Respirable fraction.
PEL	(OSHA)	15 mg/m <sup>3</sup>	8 hr. TWA	Total dust.
TLV	(ACGIH)	3 mg/m <sup>3</sup>	8 hr. TWA	Respirable particles.
TLV	(ACGIH)	10 mg/m <sup>3</sup>	8 hr. TWA	Inhalable particles.

**DuPont™ Tyvek® Spunbond Polyethylene**

Version 2.2

Revision Date 04/21/2009

Ref. 150000002811

AEL *	(DUPONT)	5 mg/m3	8 & 12 hr. TWA	Respirable dust.
AEL *	(DUPONT)	10 mg/m3	8 & 12 hr. TWA	Total dust

\* AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

Form	:	sheets
Color	:	white
Odor	:	none
Melting point/range	:	135 °C (275 °F)

**SECTION 10. STABILITY AND REACTIVITY**

Hazardous decomposition products : , Carbon monoxide , Carbon dioxide

**SECTION 11. TOXICOLOGICAL INFORMATION**

Polyethylene	
Oral LD50	: 7,950 mg/kg, rat
Skin irritation	: non-irritant
Eye irritation	: non-irritant
Skin sensitization	: Not a skin sensitizer.
Further information	: The substance is a polymer and is not expected to produce toxic effects.

**SECTION 12. ECOLOGICAL INFORMATION**

Aquatic Toxicity Polyethylene	:	The substance is a polymer and is not expected to produce toxic effects.
Additional ecological information	:	This product has no known eco-toxicological effects.

**SECTION 13. DISPOSAL CONSIDERATIONS**

Waste Disposal : Where possible recycling is preferred to disposal or incineration.

**DuPont™ Tyvek® Spunbond Polyethylene**

Version 2.2

Revision Date 04/21/2009

Ref. 150000002811

**SECTION 14. TRANSPORT INFORMATION**

Not classified as dangerous in the meaning of transport regulations.

**SECTION 15. REGULATORY INFORMATION**

SARA 313 Regulated Chemical(s)	: SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.
California Prop. 65	: Chemicals known to State of California to cause cancer, birth defects or any other harm: none known

**SECTION 16. OTHER INFORMATION**

Restrictions for use	: Do not use DuPont materials in medical applications involving implantation in the human body or contact with internal body fluids or tissues unless the material has been provided from DuPont under a written contract that is consistent with DuPont policy regarding medical applications and expressly acknowledges the contemplated use. For further information, please contact your DuPont representative. You may also request a copy of the DuPont POLICY Regarding Medical Applications H-50103-3 and DuPont CAUTION Regarding Medical Applications H-50102-3.
Contact person	: MSDS Coordinator, 1007 Market St. Wilmington, DE 19898, Phone: 302-773-0904 (for MSDS information)/302-999-2778 (for technical information)

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## **MATERIAL SAFETY DATA SHEET**

Revised: March 29, 2012  
Issued: April 23, 2003

### ***I. IDENTIFICATION***

**Product:** 203-\*\* White Tyvek brand BOPP Sheathing Tape

### ***II. PHYSICAL DATA***

**Solubility in water:** Negligible  
**Volatility at 100°C:** Less than 0.1%

### ***III. HAZARDOUS INGREDIENTS***

None

### ***IV. FIRE AND EXPLOSION HAZARD DATA***

**Flashpoint:** Not applicable  
**Flammable limits:** Not applicable  
**Extinguishing media:** Water, dry chemicals, foam, CO<sub>2</sub>  
**Unusual fire hazards:** Produces dense black smoke if burned

### ***V. HEALTH HAZARD DATA***

**Skin Contact:** May cause skin irritation after prolonged exposure with adhesive side to skin

No other effect on health is known.

### ***VI. REACTIVITY DATA***

Not Reactive  
Exposure to temperatures in excess of 200°C (392°F) cause decompositions

### ***VII. SPILL OR LEAK PROCEDURES***

Not Applicable

### ***VJJ. SPECIAL PROTECTION INFORMATION***

Not Applicable

*Date of Issue: August 2, 2012*

*Prepared by: Ronald M. Jacobs  
Ronald M. Jacobs, Director Marketing & Sales*

#### **CANTECH INDUSTRIES, INC.**

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# SAFETY DATA SHEET

DDP Specialty Electronic Materials US,  
LLC

**Product name:** GREAT STUFF PRO™ Gaps & Cracks Insulating  
Foam Sealant 24oz HC ES GUN 12ct Grainger

**Issue Date:** 10/21/2019

**Print Date:** 03/15/2022

DDP Specialty Electronic Materials US, LLC encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

## 1. IDENTIFICATION

**Product name:** GREAT STUFF PRO™ Gaps & Cracks Insulating Foam Sealant 24oz HC ES GUN 12ct Grainger

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

**Identified uses:** Polyurethane foam.

**COMPANY IDENTIFICATION**

DDP Specialty Electronic Materials US,  
LLC  
974 Centre Road, Building 730,  
Wilmington DE 19805  
UNITED STATES

**Customer Information Number:**

833-338-7668  
SDSQuestion-NA@dupont.com

**EMERGENCY TELEPHONE NUMBER**

**24-Hour Emergency Contact:** 1-800-424-9300

**Local Emergency Contact:** 800-424-9300

## 2. HAZARDS IDENTIFICATION

**Hazard classification**

GHS classification in accordance with 29 CFR 1910.1200

Flammable aerosols - Category 2

Gases under pressure - Liquefied gas

Skin irritation - Category 2

Eye irritation - Category 2A

Respiratory sensitisation - Category 1

Skin sensitisation - Category 1

Effects on or via lactation

Specific target organ toxicity - single exposure - Category 3

Specific target organ toxicity - repeated exposure - Category 2 - Inhalation

**Label elements**

**Hazard pictograms**



Signal word: **DANGER!**

### **Hazards**

Flammable aerosol.

Contains gas under pressure; may explode if heated.

Causes skin irritation.

May cause an allergic skin reaction.

Causes serious eye irritation.

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

May cause respiratory irritation.

May cause harm to breast-fed children.

May cause damage to organs (Respiratory Tract) through prolonged or repeated exposure if inhaled.

### **Precautionary statements**

#### **Prevention**

Obtain special instructions before use.

Keep away from heat/sparks/open flames/hot surfaces. No smoking.

Do not spray on an open flame or other ignition source.

Pressurized container: Do not pierce or burn, even after use.

Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.

Avoid contact during pregnancy/ while nursing.

Wash skin thoroughly after handling.

Do not eat, drink or smoke when using this product.

Use only outdoors or in a well-ventilated area.

Contaminated work clothing must not be allowed out of the workplace.

Wear protective gloves/ eye protection/ face protection.

In case of inadequate ventilation wear respiratory protection.

#### **Response**

IF ON SKIN: Wash with plenty of soap and water.

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

IF exposed or concerned: Get medical advice/ attention.

If skin irritation or rash occurs: Get medical advice/ attention.

If eye irritation persists: Get medical advice/ attention.

Take off contaminated clothing and wash before reuse.

#### **Storage**

Store in a well-ventilated place. Keep container tightly closed.

Store locked up.

Protect from sunlight. Do not expose to temperatures exceeding 50 °C/ 122 °F.

**Disposal**

Dispose of contents/ container to an approved waste disposal plant.

**Other hazards**

No data available

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### 3. COMPOSITION/INFORMATION ON INGREDIENTS

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This product is a mixture.

Component	CASRN	Concentration
Polymethylenepolyphenylisocyanate, propoxylated glycerin polymer	57029-46-6	>= 30.0 - <= 60.0 %
Diphenylmethane Diisocyanate, isomers and homologues	9016-87-9	>= 10.0 - <= 30.0 %
4,4' -Methylenediphenyl diisocyanate	101-68-8	>= 7.0 - <= 13.0 %
Polymethylenepolyphenyl polyisocyanate, polypropyleneglycol copolymer	53862-89-8	>= 5.0 - <= 10.0 %
Paraffin waxes and Hydrocarbon waxes, chlorinated	63449-39-8	>= 5.0 - <= 10.0 %
Isobutane	75-28-5	>= 3.0 - <= 7.0 %
Propane	74-98-6	>= 1.0 - <= 5.0 %
Methyl ether	115-10-6	>= 1.0 - <= 5.0 %
N,N'-Dimorpholinodiethylether	6425-39-4	>= 0.5 - <= 5.0 %

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### 4. FIRST AID MEASURES

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**Description of first aid measures**

**General advice:**

First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

**Inhalation:** Move person to fresh air. If not breathing, give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask, etc). If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.

**Skin contact:** Remove material from skin immediately by washing with soap and plenty of water. Remove contaminated clothing and shoes while washing. Seek medical attention if irritation persists. Wash clothing before reuse. An MDI skin decontamination study demonstrated that cleaning very soon after exposure is important, and that a polyglycol-based skin cleanser or corn oil may be more effective than soap and water. Discard items which cannot be decontaminated, including leather articles such as shoes, belts and watchbands. Suitable emergency safety shower facility should be available in work area.

**Eye contact:** Immediately flush eyes with water; remove contact lenses, if present, after the first 5 minutes, then continue flushing eyes for at least 15 minutes. Obtain medical attention without delay, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.

**Ingestion:** If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

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

Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

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

**Notes to physician:** Maintain adequate ventilation and oxygenation of the patient. May cause respiratory sensitization or asthma-like symptoms. Bronchodilators, expectorants and antitussives may be of help. Treat bronchospasm with inhaled beta2 agonist and oral or parenteral corticosteroids. Respiratory symptoms, including pulmonary edema, may be delayed. Persons receiving significant exposure should be observed 24-48 hours for signs of respiratory distress. Exposure may increase "myocardial irritability". Do not administer sympathomimetic drugs such as epinephrine unless absolutely necessary. If you are sensitized to diisocyanates, consult your physician regarding working with other respiratory irritants or sensitizers. Although cholinesterase depression has been reported with this material, it is not of benefit in determining exposure and need not be considered in the treatment of persons exposed to the material. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Excessive exposure may aggravate preexisting asthma and other respiratory disorders (e.g. emphysema, bronchitis, reactive airways dysfunction syndrome). Repeated excessive exposure may aggravate preexisting lung disease.

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## **5. FIREFIGHTING MEASURES**

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### **Extinguishing media**

**Suitable extinguishing media:** Water fog or fine spray.. Dry chemical fire extinguishers.. Carbon dioxide fire extinguishers.. Foam.. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective..

**Unsuitable extinguishing media:** Do not use direct water stream.. Straight or direct water streams may not be effective to extinguish fire..

### **Special hazards arising from the substance or mixture**

**Hazardous combustion products:** During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating..

Combustion products may include and are not limited to: Nitrogen oxides.. Isocyanates.. Hydrogen chloride.. Carbon monoxide.. Carbon dioxide.. Hydrogen cyanide..

**Unusual Fire and Explosion Hazards:** Contains flammable propellant. Aerosol cans exposed to fire can rupture and become flaming projectiles. Propellant release may result in a fireball.. Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur.. Dense smoke is produced when product burns..

#### **Advice for firefighters**

**Fire Fighting Procedures:** Keep people away. Isolate fire and deny unnecessary entry.. Stay upwind. Keep out of low areas where gases (fumes) can accumulate.. Water may not be effective in extinguishing fire.. Do not use direct water stream. May spread fire.. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles.. Eliminate ignition sources.. Move container from fire area if this is possible without hazard.. Use water spray to cool fire-exposed containers and fire-affected zone until fire is out..

**Special protective equipment for firefighters:** Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves).. Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location.. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections..

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## **6. ACCIDENTAL RELEASE MEASURES**

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**Personal precautions, protective equipment and emergency procedures:** Evacuate area. Only trained and properly protected personnel must be involved in clean-up operations. Keep personnel out of low areas. Keep personnel out of confined or poorly ventilated areas. Keep upwind of spill. Ventilate area of leak or spill. No smoking in area. For large spills, warn public of downwind explosion hazard. Spilled material may cause a slipping hazard. Check area with combustible gas detector before reentering area. Ground and bond all containers and handling equipment. Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. Vapor explosion hazard. Keep out of sewers. See Section 10 for more specific information. Refer to section 7, Handling, for additional precautionary measures. Keep unnecessary and unprotected personnel from entering the area. Confined space entry procedures must be followed before entering the area. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

**Environmental precautions:** Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information. Spills or discharge to natural waterways is likely to kill aquatic organisms.

**Methods and materials for containment and cleaning up:** Contain spilled material if possible. Ground and bond all containers and handling equipment. Isolate area until gas has dispersed. Use non-sparking tools in cleanup operations. Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. Check area with combustible gas detector before reentering area. Ground and bond all containers and handling equipment. Collect in suitable and properly labeled containers. Absorb with materials such as: Clay. Dirt. Milsorb®. Sand. Sawdust. Vermiculite. See

Section 10 for more specific information. See Section 13, Disposal Considerations, for additional information.

## 7. HANDLING AND STORAGE

**Precautions for safe handling:** Keep away from heat, sparks and flame. Avoid contact with eyes. Avoid contact with skin and clothing. Avoid prolonged or repeated contact with skin. Avoid breathing vapor. Wash thoroughly after handling. Keep container closed. Use only with adequate ventilation. Keep out of reach of children. No smoking, open flames or sources of ignition in handling and storage area. This material is hygroscopic in nature. Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur. Contents under pressure. Do not puncture or incinerate container. Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. Do not enter confined spaces unless adequately ventilated. Never use air pressure for transferring product. Use of non-sparking or explosion-proof equipment may be necessary, depending upon the type of operation. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

**Conditions for safe storage:** Minimize sources of ignition, such as static build-up, heat, spark or flame. Store in a dry place. See Section 10 for more specific information.

### Storage stability

<b>Storage temperature:</b>	<b>Storage Period:</b>
49 °C (120 °F)	12 Month

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control parameters

If exposure limits exist, they are listed below. If no exposure limits are displayed, then no values are applicable.

Component	Regulation	Type of listing	Value
4,4' -Methylenediphenyl diisocyanate	Dow IHG	TWA	0.005 ppm
	Dow IHG	STEL	0.02 ppm
	ACGIH	TWA	0.005 ppm
	Further information: resp sens: Respiratory sensitization		
	OSHA Z-1	C	0.2 mg/m3 0.02 ppm
	Further information: (b): The value in mg/m3 is approximate.; ®: Ceiling limit is to be determined from breathing-zone air samples.		
Isobutane	ACGIH	STEL	1,000 ppm
	Further information: EX: Explosion hazard: the substance is a flammable asphyxiant or excursions above the TLV® could approach 10% of the lower explosive limit.; CNS impair: Central Nervous System impairment		
Propane	ACGIH		See Further information
	Further information: See Appendix F: Minimal Oxygen Content; EX: Explosion hazard: the substance is a flammable asphyxiant or excursions above the TLV® could approach 10% of the lower explosive limit.; asphyxia: Asphyxia; D: Simple asphyxiant; see discussion covering Minimal Oxygen Content found in the 'Definitions and Notations' section following the NIC tables		
	OSHA Z-1	TWA	1,800 mg/m3 1,000 ppm
	Further information: (b): The value in mg/m3 is approximate.		

	CAL PEL	PEL	1,800 mg/m3 1,000 ppm
	Further information: (h): A number of gases and vapors, when present in high concentrations, act primarily as asphyxiants without other adverse effects. A concentration limit is not included for each material because the limiting factor is the available oxygen. (Several of these materials present fire or explosion hazards.)		
	NIOSH REL	TWA	1,800 mg/m3 1,000 ppm
Methyl ether	US WEEL	TWA	1,000 ppm

This material contains a simple asphyxiant which may displace oxygen. Insure adequate ventilation to prevent an oxygen deficient atmosphere.

The minimum requirement of 19.5% oxygen at sea level (148 torr O<sub>2</sub>, dry air) provides an adequate amount of oxygen for most work assignments.

### **Exposure controls**

**Engineering controls:** Use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations. Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines. Exhaust systems should be designed to move the air away from the source of vapor/aerosol generation and people working at this point. The odor and irritancy of this material are inadequate to warn of excessive exposure. Lethal concentrations may exist in areas with poor ventilation.

### **Individual protection measures**

**Eye/face protection:** Use safety glasses (with side shields).

#### **Skin protection**

**Hand protection:** Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Butyl rubber. Chlorinated polyethylene. Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Viton. Polyvinyl chloride ("PVC" or "vinyl"). **NOTICE:** The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

**Other protection:** Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

**Respiratory protection:** Atmospheric levels should be maintained below the exposure guideline. When atmospheric levels may exceed the exposure guideline, use an approved air-purifying respirator equipped with an organic vapor sorbent and a particle filter. For situations where the atmospheric levels may exceed the level for which an air-purifying respirator is effective, use a positive-pressure air-supplying respirator (air line or self-contained breathing apparatus). For emergency response or for situations where the atmospheric level is unknown, use an approved positive-pressure self-contained breathing apparatus or positive-pressure air line with auxiliary self-contained air supply. In confined or poorly ventilated areas, use an approved self-contained breathing apparatus or positive pressure air line with auxiliary self-contained air supply.

The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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### Appearance

Physical state	Foam
Color	Orange
Odor	Odorless
Odor Threshold	No test data available
pH	Not applicable
Melting point/range	No test data available
Freezing point	No test data available
Boiling point (760 mmHg)	Not applicable
Flash point	<b>closed cup</b> -104 °C ( -155 °F) <i>Estimated.</i>
Evaporation Rate (Butyl Acetate = 1)	No test data available
Flammability (solid, gas)	No data available
Lower explosion limit	No test data available
Upper explosion limit	No test data available
Vapor Pressure	1,100 kPa at 55 °C (131 °F) <i>Supplier</i>
Relative Vapor Density (air = 1)	No test data available
Relative Density (water = 1)	1.06 <i>Calculated.</i>
Water solubility	insoluble
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No test data available
Decomposition temperature	No test data available
Kinematic Viscosity	Not applicable
Explosive properties	Not explosive
Oxidizing properties	No
Molecular weight	No data available

NOTE: The physical data presented above are typical values and should not be construed as a specification.

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## 10. STABILITY AND REACTIVITY

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**Reactivity:** No data available

**Chemical stability:** Stable under recommended storage conditions. See Storage, Section 7.  
Unstable at elevated temperatures.

**Possibility of hazardous reactions:** Can occur. Exposure to elevated temperatures can cause product to decompose and generate gas. This can cause pressure build-up and/or rupturing of closed containers. Acids.



**Conditions to avoid:** Avoid temperatures above 50 °C

Elevated temperatures can cause container to vent and/or rupture. Exposure to elevated temperatures can cause product to decompose.

**Incompatible materials:** Avoid contact with: Acids. Alcohols. Amines. Ammonia. Bases. Metal compounds. Strong oxidizers. Products based on diisocyanates like TDI and MDI react with many materials to release heat. The reaction rate increases with temperature as well as with increased contact; these reactions can become violent. Contact is increased by stirring or if the other material acts as a solvent. Products based on diisocyanates such as TDI and MDI are not soluble in water and will sink to the bottom, but react slowly at the interface. The reaction forms carbon dioxide gas and a layer of solid polyurea. Reaction with water will generate carbon dioxide and heat.

**Hazardous decomposition products:** Decomposition products depend upon temperature, air supply and the presence of other materials.. Toxic gases are released during decomposition..

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## **11. TOXICOLOGICAL INFORMATION**

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*Toxicological information appears in this section when such data is available.*

### **Acute toxicity**

#### **Acute oral toxicity**

Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury. Observations in animals include: Gastrointestinal irritation.

As product: Single dose oral LD50 has not been determined.

LD50, Rat, > 2,000 mg/kg Estimated.

#### **Acute dermal toxicity**

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

As product: The dermal LD50 has not been determined.

LD50, Rabbit, > 2,000 mg/kg Estimated.

#### **Acute inhalation toxicity**

In confined or poorly ventilated areas, vapor can easily accumulate and can cause unconsciousness and death due to displacement of oxygen. Excessive exposure may cause irritation to upper respiratory tract (nose and throat) and lungs. May cause pulmonary edema (fluid in the lungs.) Effects may be delayed. May cause central nervous system depression. Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed. Excessive exposure may increase sensitivity to epinephrine and increase myocardial irritability (irregular heartbeats). Decreased lung function has been associated with overexposure to isocyanates.

The LC50 has not been determined.,

### **Skin corrosion/irritation**

Prolonged contact may cause moderate skin irritation with local redness. Material may stick to skin causing irritation upon removal.

May stain skin.

**Serious eye damage/eye irritation**

May cause moderate eye irritation.

May cause slight temporary corneal injury.

**Sensitization**

Skin contact may cause an allergic skin reaction.

Animal studies have shown that skin contact with isocyanates may play a role in respiratory sensitization.

May cause allergic respiratory reaction.

MDI concentrations below the exposure guidelines may cause allergic respiratory reactions in individuals already sensitized.

Asthma-like symptoms may include coughing, difficult breathing and a feeling of tightness in the chest. Occasionally, breathing difficulties may be life threatening.

**Specific Target Organ Systemic Toxicity (Single Exposure)**

Contains component(s) which are classified as specific target organ toxicant, single exposure, category 3.

**Specific Target Organ Systemic Toxicity (Repeated Exposure)**

Tissue injury in the upper respiratory tract and lungs has been observed in laboratory animals after repeated excessive exposures to MDI/polymeric MDI aerosols.

Contains component(s) which have been reported to cause effects on the following organs in animals:

kidney

Liver.

**Carcinogenicity**

Lung tumors have been observed in laboratory animals exposed to respirable aerosol droplets of MDI/Polymeric MDI (6 mg/m<sup>3</sup>) for their lifetime. Tumors occurred concurrently with respiratory irritation and lung injury. Current exposure guidelines are expected to protect against these effects reported for MDI.

**Teratogenicity**

In laboratory animals, MDI/polymeric MDI did not cause birth defects; other fetal effects occurred only at high doses which were toxic to the mother. Contains component(s) which caused birth defects in laboratory animals only at doses toxic to the mother.

**Reproductive toxicity**

Based on information for component(s): May cause harm to breastfed babies.

**Mutagenicity**

In vitro genetic toxicity studies were negative for component(s) tested. Genetic toxicity data on MDI are inconclusive. MDI was weakly positive in some in vitro studies; other in vitro studies were negative. Animal mutagenicity studies were predominantly negative.

**Aspiration Hazard**

Based on physical properties, not likely to be an aspiration hazard.

**Carcinogenicity**

**Component**

**Paraffin waxes and**

**List**

IARC

**Classification**

Group 2B: Possibly carcinogenic to

Hydrocarbon waxes,  
chlorinated

humans

US NTP

Reasonably anticipated to be a human  
carcinogen

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## 12. ECOLOGICAL INFORMATION

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*Ecotoxicological information appears in this section when such data is available.*

### Toxicity

#### **Polymethylenepolyphenylisocyanate, propoxylated glycerin polymer**

##### **Acute toxicity to fish**

For this family of materials:

Material is practically non-toxic to aquatic organisms on an acute basis  
(LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

#### **Diphenylmethane Diisocyanate, isomers and homologues**

##### **Acute toxicity to fish**

The measured ecotoxicity is that of the hydrolyzed product, generally under conditions  
maximizing production of soluble species.

Material is practically non-toxic to aquatic organisms on an acute basis  
(LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

Based on information for a similar material:

LC50, Danio rerio (zebra fish), static test, 96 Hour, > 1,000 mg/l, OECD Test Guideline 203 or  
Equivalent

##### **Acute toxicity to aquatic invertebrates**

Based on information for a similar material:

EC50, Daphnia magna (Water flea), static test, 24 Hour, > 1,000 mg/l, OECD Test Guideline  
202 or Equivalent

##### **Acute toxicity to algae/aquatic plants**

Based on information for a similar material:

NOEC, Desmodesmus subspicatus (green algae), static test, 72 Hour, Growth rate inhibition,  
1,640 mg/l, OECD Test Guideline 201 or Equivalent

##### **Toxicity to bacteria**

Based on information for a similar material:

EC50, activated sludge, static test, 3 Hour, Respiration rates., > 100 mg/l

##### **Toxicity to soil-dwelling organisms**

EC50, Eisenia fetida (earthworms), Based on information for a similar material:, 14 d, > 1,000  
mg/kg

##### **Toxicity to terrestrial plants**

EC50, Avena sativa (oats), Growth inhibition, 1,000 mg/l

EC50, Lactuca sativa (lettuce), Growth inhibition, 1,000 mg/l

#### **4,4'-Methylenediphenyl diisocyanate**

##### **Acute toxicity to fish**

The measured ecotoxicity is that of the hydrolyzed product, generally under conditions maximizing production of soluble species.

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

Based on information for a similar material:

LC50, Danio rerio (zebra fish), static test, 96 Hour, > 1,000 mg/l, OECD Test Guideline 203 or Equivalent

**Acute toxicity to aquatic invertebrates**

Based on information for a similar material:

EC50, Daphnia magna (Water flea), static test, 24 Hour, > 1,000 mg/l, OECD Test Guideline 202 or Equivalent

**Acute toxicity to algae/aquatic plants**

Based on information for a similar material:

NOEC, Desmodesmus subspicatus (green algae), static test, 72 Hour, Growth rate inhibition, 1,640 mg/l, OECD Test Guideline 201 or Equivalent

**Toxicity to bacteria**

Based on information for a similar material:

EC50, activated sludge, static test, 3 Hour, Respiration rates., > 100 mg/l

**Toxicity to soil-dwelling organisms**

EC50, Eisenia fetida (earthworms), Based on information for a similar material:, 14 d, > 1,000 mg/kg

**Toxicity to terrestrial plants**

EC50, Avena sativa (oats), Growth inhibition, 1,000 mg/l

EC50, Lactuca sativa (lettuce), Growth inhibition, 1,000 mg/l

**Polymethylenepolyphenyl polyisocyanate, polypropyleneglycol copolymer**

**Acute toxicity to fish**

Not expected to be acutely toxic to aquatic organisms.

**Paraffin waxes and Hydrocarbon waxes, chlorinated**

**Acute toxicity to fish**

Material is highly toxic to aquatic organisms on an acute basis (LC50/EC50 between 0.1 and 1 mg/L in the most sensitive species tested).

LC50, Oncorhynchus mykiss (rainbow trout), 96 Hour, > 0.1 mg/l

**Chronic toxicity to fish**

Based on data from similar materials

NOEC, Oncorhynchus mykiss (rainbow trout), 60 d, 4.5 mg/l

**Isobutane**

**Acute toxicity to fish**

No relevant data found.

**Propane**

**Acute toxicity to fish**

No relevant data found.

**Methyl ether**

**Acute toxicity to fish**

Material is practically non-toxic to aquatic organisms on an acute basis  
(LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).  
LC50, Poecilia reticulata (guppy), semi-static test, 96 Hour, > 4,000 mg/l

**Acute toxicity to aquatic invertebrates**

LC50, Daphnia magna (Water flea), 48 Hour, > 4,000 mg/l, OECD Test Guideline 202 or  
Equivalent

**N,N'-Dimorpholinodiethylether**

**Acute toxicity to fish**

Material is practically non-toxic to fish on an acute basis (LC50 > 100 mg/L).  
May increase pH of aquatic systems to > pH 10 which may be toxic to aquatic organisms.  
LC50, Danio rerio (zebra fish), static test, 96 Hour, > 2,150 mg/l, OECD Test Guideline 203 or  
Equivalent

**Acute toxicity to aquatic invertebrates**

EC50, Daphnia (water flea), static test, 48 Hour, > 100 mg/l, OECD Test Guideline 202 or  
Equivalent

**Acute toxicity to algae/aquatic plants**

ErC50, Algae, static test, 72 Hour, > 100 mg/l, OECD Test Guideline 201 or Equivalent

**Toxicity to bacteria**

EC50, Bacteria, static test, 3 Hour, 100 mg/l, activated sludge test (OECD 209)

**Persistence and degradability**

**Polymethylenepolyphenylisocyanate, propoxylated glycerin polymer**

**Biodegradability:** For this family of materials: Material is readily biodegradable. Passes  
OECD test(s) for ready biodegradability.

**Diphenylmethane Diisocyanate, isomers and homologues**

**Biodegradability:** In the aquatic and terrestrial environment, material reacts with water  
forming predominantly insoluble polyureas which appear to be stable. In the atmospheric  
environment, material is expected to have a short tropospheric half-life, based on calculations  
and by analogy with related diisocyanates.

10-day Window: Not applicable

**Biodegradation:** 0 %

**Exposure time:** 28 d

**Method:** OECD Test Guideline 302C or Equivalent

**4,4' -Methylenediphenyl diisocyanate**

**Biodegradability:** In the aquatic and terrestrial environment, material reacts with water  
forming predominantly insoluble polyureas which appear to be stable. In the atmospheric  
environment, material is expected to have a short tropospheric half-life, based on calculations  
and by analogy with related diisocyanates.

10-day Window: Not applicable

**Biodegradation:** 0 %

**Exposure time:** 28 d

**Method:** OECD Test Guideline 302C or Equivalent

**Polymethylenepolyphenyl polyisocyanate, polypropyleneglycol copolymer**

**Biodegradability:** Expected to degrade slowly in the environment.

**Paraffin waxes and Hydrocarbon waxes, chlorinated**

**Biodegradability:** Expected to degrade slowly in the environment.

For similar material(s):

**Biodegradation:** 5 %

**Exposure time:** 28 d

**Method:** OECD Test Guideline 301D

**Theoretical Oxygen Demand:** 2.89 mg/mg

**Isobutane**

**Biodegradability:** Biodegradation may occur under aerobic conditions (in the presence of oxygen).

**Theoretical Oxygen Demand:** 3.58 mg/mg

**Photodegradation**

**Test Type:** Half-life (indirect photolysis)

**Sensitization:** OH radicals

**Atmospheric half-life:** 4.4 d

**Method:** Estimated.

**Propane**

**Biodegradability:** No relevant data found.

**Theoretical Oxygen Demand:** 3.64 mg/mg

**Photodegradation**

**Test Type:** Half-life (indirect photolysis)

**Sensitization:** OH radicals

**Atmospheric half-life:** 8.4 d

**Method:** Estimated.

**Methyl ether**

**Biodegradability:** Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.

10-day Window: Fail

**Biodegradation:** 5 %

**Exposure time:** 28 d

**Method:** OECD Test Guideline 301A or Equivalent

**Theoretical Oxygen Demand:** 2.08 mg/mg

**Photodegradation**

**Test Type:** Half-life (indirect photolysis)

**Sensitization:** OH radicals

**Atmospheric half-life:** 6.4 d

**Method:** Estimated.

**N,N'-Dimorpholinodiethylether**

**Biodegradability:** Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.

10-day Window: Fail

**Biodegradation:** 0 - 10 %

**Exposure time:** 28 d

**Method:** OECD Test Guideline 301A or Equivalent

**Theoretical Oxygen Demand:** 2.49 mg/mg

**Photodegradation**

**Test Type:** Half-life (indirect photolysis)

**Sensitization:** OH radicals

**Atmospheric half-life:** 0.03 d

**Method:** Estimated.

#### **Bioaccumulative potential**

##### **Polymethylenepolyphenylisocyanate, propoxylated glycerin polymer**

**Bioaccumulation:** No relevant data found.

##### **Diphenylmethane Diisocyanate, isomers and homologues**

**Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3). Reacts with water. In the aquatic and terrestrial environment, movement is expected to be limited by its reaction with water forming predominantly insoluble polyureas.

**Bioconcentration factor (BCF):** 92 Cyprinus carpio (Carp) 28 d

##### **4,4' -Methylenediphenyl diisocyanate**

**Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3). Reacts with water. In the aquatic and terrestrial environment, movement is expected to be limited by its reaction with water forming predominantly insoluble polyureas.

**Bioconcentration factor (BCF):** 92 Cyprinus carpio (Carp) 28 d

##### **Polymethylenepolyphenyl polyisocyanate, polypropyleneglycol copolymer**

**Bioaccumulation:** In the aquatic and terrestrial environment, movement is expected to be limited by its reaction with water forming predominantly insoluble polyureas.

##### **Paraffin waxes and Hydrocarbon waxes, chlorinated**

**Bioaccumulation:** Bioconcentration potential is low (BCF less than 100 or log Pow greater than 7).

**Partition coefficient: n-octanol/water(log Pow):** 7.4 Estimated.

##### **Isobutane**

**Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

**Partition coefficient: n-octanol/water(log Pow):** 2.76 Measured

##### **Propane**

**Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

**Partition coefficient: n-octanol/water(log Pow):** 2.36 Measured

##### **Methyl ether**

**Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

**Partition coefficient: n-octanol/water(log Pow):** 0.10 Measured

**N,N'-Dimorpholinodiethylether**

**Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

**Partition coefficient: n-octanol/water(log Pow):** 0.5 Estimated.

**Mobility in soil**

**Polymethylenepolyphenylisocyanate, propoxylated glycerin polymer**

No relevant data found.

**Diphenylmethane Diisocyanate, isomers and homologues**

In the aquatic and terrestrial environment, movement is expected to be limited by its reaction with water forming predominantly insoluble polyureas.

**4,4' -Methylenediphenyl diisocyanate**

In the aquatic and terrestrial environment, movement is expected to be limited by its reaction with water forming predominantly insoluble polyureas.

**Polymethylenepolyphenyl polyisocyanate, polypropyleneglycol copolymer**

In the aquatic and terrestrial environment, movement is expected to be limited by its reaction with water forming predominantly insoluble polyureas.

**Paraffin waxes and Hydrocarbon waxes, chlorinated**

Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.

Expected to be relatively immobile in soil (Koc > 5000).

**Partition coefficient (Koc):** > 5000 Estimated.

**Isobutane**

Potential for mobility in soil is very high (Koc between 0 and 50).

**Partition coefficient (Koc):** 35 Estimated.

**Propane**

Potential for mobility in soil is very high (Koc between 0 and 50).

**Partition coefficient (Koc):** 24 - 460 Estimated.

**Methyl ether**

Potential for mobility in soil is very high (Koc between 0 and 50).

**Partition coefficient (Koc):** 1.29 - 14 Estimated.

**N,N'-Dimorpholinodiethylether**

Potential for mobility in soil is low (Koc between 500 and 2000).

Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.

**Partition coefficient (Koc):** 784 Estimated.

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## **13. DISPOSAL CONSIDERATIONS**

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**Disposal methods:** DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. AS YOUR



SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION: Composition Information. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Incinerator or other thermal destruction device.

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## **14. TRANSPORT INFORMATION**

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### **DOT**

<b>Proper shipping name</b>	Aerosols
<b>UN number</b>	UN 1950
<b>Class</b>	2.1
<b>Packing group</b>	

### **Classification for SEA transport (IMO-IMDG):**

<b>Proper shipping name</b>	AEROSOLS
<b>UN number</b>	UN 1950
<b>Class</b>	2.1
<b>Packing group</b>	
<b>Marine pollutant</b>	Paraffin waxes and Hydrocarbon waxes, chlorinated
<b>Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code</b>	Consult IMO regulations before transporting ocean bulk

### **Classification for AIR transport (IATA/ICAO):**

<b>Proper shipping name</b>	Aerosols, flammable
<b>UN number</b>	UN 1950
<b>Class</b>	2.1
<b>Packing group</b>	

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

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## **15. REGULATORY INFORMATION**

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### **Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312**

Flammable (gases, aerosols, liquids, or solids)  
Gases under pressure

Skin corrosion or irritation  
Serious eye damage or eye irritation  
Respiratory or skin sensitisation  
Reproductive toxicity  
Specific target organ toxicity (single or repeated exposure)

**Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313**

This product contains the following substances which are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and which are listed in 40 CFR 372.

<b>Components</b>	<b>CASRN</b>
Diphenylmethane Diisocyanate, isomers and homologues	9016-87-9
4,4' -Methylenediphenyl diisocyanate	101-68-8

**Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) Section 103**

Calculated RQ exceeds reasonably attainable upper limit.

<b>Components</b>	<b>CASRN</b>	<b>RQ (RCRA Code)</b>
4,4' -Methylenediphenyl diisocyanate	101-68-8	5000 lbs RQ

**Pennsylvania Worker and Community Right-To-Know Act:**

The following chemicals are listed because of the additional requirements of Pennsylvania law:

<b>Components</b>	<b>CASRN</b>
Isobutane	75-28-5
Propane	74-98-6
Methyl ether	115-10-6

**California Prop. 65**

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

**United States TSCA Inventory (TSCA)**

All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

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## **16. OTHER INFORMATION**

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**Hazard Rating System**

**HMIS**

Health	Flammability	Physical Hazard
4*	4	3

\* = Chronic Effects (See Hazards Identification)

**Revision**

Identification Number: 99054172 / A749 / Issue Date: 10/21/2019 / Version: 4.2

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

**Legend**

ACGIH	USA. ACGIH Threshold Limit Values (TLV)
C	Ceiling
CAL PEL	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
Dow IHG	Dow Industrial Hygiene Guideline
NIOSH REL	USA. NIOSH Recommended Exposure Limits
OSHA Z-1	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
PEL	Permissible exposure limit
STEL	Short-term exposure limit
TWA	8-hr TWA
US WEEL	USA. Workplace Environmental Exposure Levels (WEEL)

**Full text of other abbreviations**

AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

**Information Source and References**

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

DDP Specialty Electronic Materials US, LLC urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.

US



# SAFETY DATA SHEET

DDP Specialty Electronic Materials US,  
LLC

**Product name:** GREAT STUFF™ Fireblock Insulating Foam  
Sealant 16oz HC ES STW 12ct

**Issue Date:** 06/29/2020

**Print Date:** 03/15/2022

DDP Specialty Electronic Materials US, LLC encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

## 1. IDENTIFICATION

**Product name:** GREAT STUFF™ Fireblock Insulating Foam Sealant 16oz HC ES STW 12ct

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

**Identified uses:** Polyurethane foam.

### COMPANY IDENTIFICATION

DDP Specialty Electronic Materials US,  
LLC  
974 Centre Road, Building 730,  
Wilmington DE 19805  
UNITED STATES

**Customer Information Number:**

833-338-7668  
SDSQuestion-NA@dupont.com

### EMERGENCY TELEPHONE NUMBER

**24-Hour Emergency Contact:** 1-800-424-9300

**Local Emergency Contact:** 800-424-9300

## 2. HAZARDS IDENTIFICATION

### Hazard classification

GHS classification in accordance with 29 CFR 1910.1200

Flammable aerosols - Category 2

Gases under pressure - Liquefied gas

Skin irritation - Category 2

Eye irritation - Category 2B

Respiratory sensitisation - Category 1

Skin sensitisation - Category 1

Effects on or via lactation

Specific target organ toxicity - single exposure - Category 3

Specific target organ toxicity - repeated exposure - Category 2 - Inhalation

### Label elements

**Hazard pictograms**



Signal word: **DANGER!**

#### **Hazards**

Flammable aerosol.

Contains gas under pressure; may explode if heated.

Causes skin and eye irritation.

May cause an allergic skin reaction.

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

May cause respiratory irritation.

May cause harm to breast-fed children.

May cause damage to organs (Respiratory Tract) through prolonged or repeated exposure if inhaled.

#### **Precautionary statements**

##### **Prevention**

Obtain special instructions before use.

Keep away from heat/sparks/open flames/hot surfaces. No smoking.

Do not spray on an open flame or other ignition source.

Pressurized container: Do not pierce or burn, even after use.

Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.

Avoid contact during pregnancy/ while nursing.

Wash skin thoroughly after handling.

Do not eat, drink or smoke when using this product.

Use only outdoors or in a well-ventilated area.

Contaminated work clothing must not be allowed out of the workplace.

Wear protective gloves.

In case of inadequate ventilation wear respiratory protection.

##### **Response**

IF ON SKIN: Wash with plenty of soap and water.

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

IF exposed or concerned: Get medical advice/ attention.

If skin irritation or rash occurs: Get medical advice/ attention.

If eye irritation persists: Get medical advice/ attention.

Take off contaminated clothing and wash before reuse.

##### **Storage**

Store in a well-ventilated place. Keep container tightly closed.

Store locked up.

Protect from sunlight. Do not expose to temperatures exceeding 50 °C/ 122 °F.

##### **Disposal**

Dispose of contents/ container to an approved waste disposal plant.

**Other hazards**

No data available

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### 3. COMPOSITION/INFORMATION ON INGREDIENTS

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This product is a mixture.

Component	CASRN	Concentration
Diphenylmethane Diisocyanate, isomers and homologues	9016-87-9	>= 10.0 - <= 30.0 %
4,4' -Methylenediphenyl diisocyanate	101-68-8	>= 10.0 - <= 30.0 %
Polymethylenepolyphenylisocyanate, propoxylated glycerin polymer	57029-46-6	>= 10.0 - <= 30.0 %
Polymethylenepolyphenyl polyisocyanate, polypropyleneglycol copolymer	53862-89-8	>= 10.0 - <= 30.0 %
Isobutane	75-28-5	>= 7.0 - <= 13.0 %
Tris(1-chloro-2-propyl) phosphate	13674-84-5	>= 5.0 - <= 10.0 %
Paraffin waxes and Hydrocarbon waxes, chlorinated	63449-39-8	>= 5.0 - <= 10.0 %
Methyl ether	115-10-6	>= 1.0 - <= 5.0 %
Propane	74-98-6	>= 1.0 - <= 5.0 %

*Note*

Note: CAS 101-68-8 is an MDI isomer that is part of CAS 9016-87-9.

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### 4. FIRST AID MEASURES

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**Description of first aid measures**

**General advice:**

First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

**Inhalation:** Move person to fresh air. If not breathing, give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask, etc). If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.

**Skin contact:** Remove material from skin immediately by washing with soap and plenty of water. Remove contaminated clothing and shoes while washing. Seek medical attention if irritation persists. Wash clothing before reuse. An MDI skin decontamination study demonstrated that cleaning very soon after exposure is important, and that a polyglycol-based skin cleanser or corn oil may be more effective than soap and water. Discard items which cannot be decontaminated, including leather articles such as shoes, belts and watchbands. Suitable emergency safety shower facility should be available in work area.

**Eye contact:** Immediately flush eyes with water; remove contact lenses, if present, after the first 5 minutes, then continue flushing eyes for at least 15 minutes. Obtain medical attention without delay, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.

**Ingestion:** If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

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

Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

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

**Notes to physician:** Maintain adequate ventilation and oxygenation of the patient. May cause respiratory sensitization or asthma-like symptoms. Bronchodilators, expectorants and antitussives may be of help. Treat bronchospasm with inhaled beta2 agonist and oral or parenteral corticosteroids. Respiratory symptoms, including pulmonary edema, may be delayed. Persons receiving significant exposure should be observed 24-48 hours for signs of respiratory distress. Exposure may increase "myocardial irritability". Do not administer sympathomimetic drugs such as epinephrine unless absolutely necessary. If you are sensitized to diisocyanates, consult your physician regarding working with other respiratory irritants or sensitizers. Although cholinesterase depression has been reported with this material, it is not of benefit in determining exposure and need not be considered in the treatment of persons exposed to the material. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Excessive exposure may aggravate preexisting asthma and other respiratory disorders (e.g. emphysema, bronchitis, reactive airways dysfunction syndrome). Repeated excessive exposure may aggravate preexisting lung disease.

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## **5. FIREFIGHTING MEASURES**

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**Suitable extinguishing media:** Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

**Unsuitable extinguishing media:** Do not use direct water stream. Straight or direct water streams may not be effective to extinguish fire.

**Special hazards arising from the substance or mixture**

**Hazardous combustion products:** During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Nitrogen oxides. Isocyanates. Hydrogen chloride. Carbon monoxide. Carbon dioxide. Hydrogen cyanide.



**Unusual Fire and Explosion Hazards:** Contains flammable propellant. Aerosol cans exposed to fire can rupture and become flaming projectiles. Propellant release may result in a fireball. Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur. Dense smoke is produced when product burns.

**Advice for firefighters**

**Fire Fighting Procedures:** Keep people away. Isolate fire and deny unnecessary entry. Stay upwind. Keep out of low areas where gases (fumes) can accumulate. Water may not be effective in extinguishing fire. Do not use direct water stream. May spread fire. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Eliminate ignition sources. Move container from fire area if this is possible without hazard. Use water spray to cool fire-exposed containers and fire-affected zone until fire is out.

**Special protective equipment for firefighters:** Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

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## **6. ACCIDENTAL RELEASE MEASURES**

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**Personal precautions, protective equipment and emergency procedures:** Evacuate area. Only trained and properly protected personnel must be involved in clean-up operations. Keep personnel out of low areas. Keep personnel out of confined or poorly ventilated areas. Keep upwind of spill. Ventilate area of leak or spill. No smoking in area. Spilled material may cause a slipping hazard. For large spills, warn public of downwind explosion hazard. Check area with combustible gas detector before reentering area. Ground and bond all containers and handling equipment. Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. Vapor explosion hazard. Keep out of sewers. See Section 10 for more specific information. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection. Refer to section 7, Handling, for additional precautionary measures.

**Environmental precautions:** Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information. Spills or discharge to natural waterways is likely to kill aquatic organisms.

**Methods and materials for containment and cleaning up:** Contain spilled material if possible. Ground and bond all containers and handling equipment. Isolate area until gas has dispersed. Use non-sparking tools in cleanup operations. Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. Check area with combustible gas detector before reentering area. Ground and bond all containers and handling equipment. Collect in suitable and properly labeled containers. Absorb with materials such as: Clay. Dirt. Milsorb®. Sand. Sawdust. Vermiculite. See Section 10 for more specific information. See Section 13, Disposal Considerations, for additional information.

## 7. HANDLING AND STORAGE

**Precautions for safe handling:** Keep away from heat, sparks and flame. Avoid contact with eyes. Avoid contact with skin and clothing. Avoid prolonged or repeated contact with skin. Avoid breathing vapor. Wash thoroughly after handling. Keep container closed. Use only with adequate ventilation. Keep out of reach of children. This material is hygroscopic in nature. No smoking, open flames or sources of ignition in handling and storage area. Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur. Contents under pressure. Do not puncture or incinerate container. Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. Do not enter confined spaces unless adequately ventilated. Never use air pressure for transferring product. Use of non-sparking or explosion-proof equipment may be necessary, depending upon the type of operation. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

**Conditions for safe storage:** Minimize sources of ignition, such as static build-up, heat, spark or flame. Store in a dry place. See Section 10 for more specific information.

### Storage stability

<b>Storage temperature:</b>	<b>Storage Period:</b>
25 °C (77 °F)	18 Month

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control parameters

If exposure limits exist, they are listed below. If no exposure limits are displayed, then no values are applicable.

Component	Regulation	Type of listing	Value
4,4' -Methylenediphenyl diisocyanate	Dow IHG	TWA	0.005 ppm
	Dow IHG	STEL	0.02 ppm
	ACGIH	TWA	0.005 ppm
	Further information: resp sens: Respiratory sensitization		
	OSHA Z-1	C	0.2 mg/m3 0.02 ppm
	Further information: (b): The value in mg/m3 is approximate.; °: Ceiling limit is to be determined from breathing-zone air samples.		
Isobutane	ACGIH	STEL	1,000 ppm
	Further information: EX: Explosion hazard: the substance is a flammable asphyxiant or excursions above the TLV® could approach 10% of the lower explosive limit.; CNS impair: Central Nervous System impairment		
Methyl ether	US WEEL	TWA	1,000 ppm
Propane	ACGIH		See Further information
	Further information: See Appendix F: Minimal Oxygen Content; EX: Explosion hazard: the substance is a flammable asphyxiant or excursions above the TLV® could approach 10% of the lower explosive limit.; asphyxia: Asphyxia; D: Simple asphyxiant; see discussion covering Minimal Oxygen Content found in the 'Definitions and Notations' section following the NIC tables		
	OSHA Z-1	TWA	1,800 mg/m3 1,000 ppm
	Further information: (b): The value in mg/m3 is approximate.		
	CAL PEL	PEL	1,800 mg/m3 1,000 ppm

Further information: (h): A number of gases and vapors, when present in high concentrations, act primarily as asphyxiants without other adverse effects. A concentration limit is not included for each material because the limiting factor is the available oxygen. (Several of these materials present fire or explosion hazards.)		
	NIOSH REL	TWA 1,800 mg/m3 1,000 ppm

This material contains a simple asphyxiant which may displace oxygen. Insure adequate ventilation to prevent an oxygen deficient atmosphere.

The minimum requirement of 19.5% oxygen at sea level (148 torr O<sub>2</sub>, dry air) provides an adequate amount of oxygen for most work assignments.

### Exposure controls

**Engineering controls:** Use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations. Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines. Exhaust systems should be designed to move the air away from the source of vapor/aerosol generation and people working at this point. The odor and irritancy of this material are inadequate to warn of excessive exposure. Lethal concentrations may exist in areas with poor ventilation.

### Individual protection measures

**Eye/face protection:** Use safety glasses (with side shields).

#### Skin protection

**Hand protection:** Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Butyl rubber. Chlorinated polyethylene. Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Viton. Polyvinyl chloride ("PVC" or "vinyl"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

**Other protection:** Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

**Respiratory protection:** Atmospheric levels should be maintained below the exposure guideline. When atmospheric levels may exceed the exposure guideline, use an approved air-purifying respirator equipped with an organic vapor sorbent and a particle filter. For situations where the atmospheric levels may exceed the level for which an air-purifying respirator is effective, use a positive-pressure air-supplying respirator (air line or self-contained breathing apparatus). For emergency response or for situations where the atmospheric level is unknown, use an approved positive-pressure self-contained breathing apparatus or positive-pressure air line with auxiliary self-contained air supply. In confined or poorly ventilated areas, use an approved self-contained breathing apparatus or positive pressure air line with auxiliary self-contained air supply.

The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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### Appearance

Physical state                      Foam

Color	Orange
Odor	mild
Odor Threshold	0.4 ppm <i>Based on Literature for MDI.</i> Odor is inadequate warning of excessive exposure.
pH	Not applicable
Melting point/range	No test data available
Freezing point	No test data available
Boiling point (760 mmHg)	Not applicable
Flash point	<b>closed cup</b> -104 °C ( -155 °F) <i>Estimated.</i>
Evaporation Rate (Butyl Acetate = 1)	No test data available
Flammability (solid, gas)	No data available
Lower explosion limit	No test data available
Upper explosion limit	No test data available
Vapor Pressure	1,151 hPa at 55 °C (131 °F) <i>Not reported</i> Container is under pressure.
Relative Vapor Density (air = 1)	No test data available
Relative Density (water = 1)	1.069 at 25 °C (77 °F) / 25 °C <i>Estimated.</i>
Water solubility	Not applicable
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No test data available
Decomposition temperature	No test data available
Dynamic Viscosity	No test data available
Kinematic Viscosity	Not applicable
Explosive properties	Not explosive
Oxidizing properties	No
Molecular weight	No test data available

NOTE: The physical data presented above are typical values and should not be construed as a specification.

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## 10. STABILITY AND REACTIVITY

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**Reactivity:** No data available

**Chemical stability:** Stable under recommended storage conditions. See Storage, Section 7.  
Unstable at elevated temperatures.

**Possibility of hazardous reactions:** Can occur. Exposure to elevated temperatures can cause product to decompose and generate gas. This can cause pressure build-up and/or rupturing of closed containers. Acids.

**Conditions to avoid:** Avoid temperatures above 50 °C  
Elevated temperatures can cause container to vent and/or rupture. Exposure to elevated temperatures can cause product to decompose.

**Incompatible materials:** Avoid contact with: Acids. Alcohols. Amines. Ammonia. Bases. Metal compounds. Strong oxidizers. Products based on diisocyanates like TDI and MDI react with many materials to release heat. The reaction rate increases with temperature as well as with increased contact; these reactions can become violent. Contact is increased by stirring or if the other material acts as a solvent. Products based on diisocyanates such as TDI and MDI are not soluble in water and will sink to the bottom, but react slowly at the interface. The reaction forms carbon dioxide gas and a layer of solid polyurea. Reaction with water will generate carbon dioxide and heat.

**Hazardous decomposition products:** Decomposition products depend upon temperature, air supply and the presence of other materials. Toxic gases are released during decomposition.

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## **11. TOXICOLOGICAL INFORMATION**

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*Toxicological information appears in this section when such data is available.*

### **Acute toxicity**

#### **Acute oral toxicity**

Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury. Observations in animals include: Gastrointestinal irritation.

As product: Single dose oral LD50 has not been determined.

LD50, Rat, > 2,000 mg/kg Estimated.

#### **Acute dermal toxicity**

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

As product: The dermal LD50 has not been determined.

LD50, Rabbit, > 2,000 mg/kg Estimated.

#### **Acute inhalation toxicity**

In confined or poorly ventilated areas, vapor can easily accumulate and can cause unconsciousness and death due to displacement of oxygen. Excessive exposure may cause irritation to upper respiratory tract (nose and throat) and lungs. May cause pulmonary edema (fluid in the lungs.) Effects may be delayed. May cause central nervous system depression. Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed. Excessive exposure may increase sensitivity to epinephrine and increase myocardial irritability (irregular heartbeats). Decreased lung function has been associated with overexposure to isocyanates.

The LC50 has not been determined.,

### **Skin corrosion/irritation**

Prolonged contact may cause moderate skin irritation with local redness.  
Material may stick to skin causing irritation upon removal.  
May stain skin.

### **Serious eye damage/eye irritation**

May cause moderate eye irritation.  
May cause slight temporary corneal injury.

#### **Sensitization**

Skin contact may cause an allergic skin reaction.  
Animal studies have shown that skin contact with isocyanates may play a role in respiratory sensitization.

May cause allergic respiratory reaction.  
MDI concentrations below the exposure guidelines may cause allergic respiratory reactions in individuals already sensitized.  
Asthma-like symptoms may include coughing, difficult breathing and a feeling of tightness in the chest. Occasionally, breathing difficulties may be life threatening.

#### **Specific Target Organ Systemic Toxicity (Single Exposure)**

Contains component(s) which are classified as specific target organ toxicant, single exposure, category 3.

#### **Specific Target Organ Systemic Toxicity (Repeated Exposure)**

Tissue injury in the upper respiratory tract and lungs has been observed in laboratory animals after repeated excessive exposures to MDI/polymeric MDI aerosols.  
Contains component(s) which have been reported to cause effects on the following organs in animals:  
kidney  
Liver.

#### **Carcinogenicity**

Lung tumors have been observed in laboratory animals exposed to respirable aerosol droplets of MDI/Polymeric MDI (6 mg/m<sup>3</sup>) for their lifetime. Tumors occurred concurrently with respiratory irritation and lung injury. Current exposure guidelines are expected to protect against these effects reported for MDI.

#### **Teratogenicity**

In laboratory animals, MDI/polymeric MDI did not cause birth defects; other fetal effects occurred only at high doses which were toxic to the mother. Contains component(s) which caused birth defects in laboratory animals only at doses toxic to the mother.

#### **Reproductive toxicity**

Based on information for component(s): May cause harm to breastfed babies.

#### **Mutagenicity**

In vitro genetic toxicity studies were negative for component(s) tested. Genetic toxicity data on MDI are inconclusive. MDI was weakly positive in some in vitro studies; other in vitro studies were negative. Animal mutagenicity studies were predominantly negative.

#### **Aspiration Hazard**

Based on physical properties, not likely to be an aspiration hazard.

#### **Carcinogenicity**

**Component**  
**Paraffin waxes and**  
**Hydrocarbon waxes,**  
**chlorinated**

**List**  
IARC

#### **Classification**

Group 2B: Possibly carcinogenic to humans

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## 12. ECOLOGICAL INFORMATION

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*Ecotoxicological information appears in this section when such data is available.*

### Toxicity

#### **Diphenylmethane Diisocyanate, isomers and homologues**

##### **Acute toxicity to fish**

The measured ecotoxicity is that of the hydrolyzed product, generally under conditions maximizing production of soluble species.

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

Based on information for a similar material:

LC50, Danio rerio (zebra fish), static test, 96 Hour, > 1,000 mg/l, OECD Test Guideline 203 or Equivalent

##### **Acute toxicity to aquatic invertebrates**

Based on information for a similar material:

EC50, Daphnia magna (Water flea), static test, 24 Hour, > 1,000 mg/l, OECD Test Guideline 202 or Equivalent

##### **Acute toxicity to algae/aquatic plants**

Based on information for a similar material:

NOEC, Desmodesmus subspicatus (green algae), static test, 72 Hour, Growth rate inhibition, 1,640 mg/l, OECD Test Guideline 201 or Equivalent

##### **Toxicity to bacteria**

Based on information for a similar material:

EC50, activated sludge, static test, 3 Hour, Respiration rates., > 100 mg/l

##### **Toxicity to soil-dwelling organisms**

EC50, Eisenia fetida (earthworms), Based on information for a similar material:, 14 d, > 1,000 mg/kg

##### **Toxicity to terrestrial plants**

EC50, Avena sativa (oats), Growth inhibition, 1,000 mg/l

EC50, Lactuca sativa (lettuce), Growth inhibition, 1,000 mg/l

#### **4,4' -Methylenediphenyl diisocyanate**

##### **Acute toxicity to fish**

The measured ecotoxicity is that of the hydrolyzed product, generally under conditions maximizing production of soluble species.

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

Based on information for a similar material:

LC50, Danio rerio (zebra fish), static test, 96 Hour, > 1,000 mg/l, OECD Test Guideline 203 or Equivalent

##### **Acute toxicity to aquatic invertebrates**

Based on information for a similar material:

EC50, Daphnia magna (Water flea), static test, 24 Hour, > 1,000 mg/l, OECD Test Guideline 202 or Equivalent

**Acute toxicity to algae/aquatic plants**

Based on information for a similar material:

NOEC, Desmodesmus subspicatus (green algae), static test, 72 Hour, Growth rate inhibition, 1,640 mg/l, OECD Test Guideline 201 or Equivalent

**Toxicity to bacteria**

Based on information for a similar material:

EC50, activated sludge, static test, 3 Hour, Respiration rates., > 100 mg/l

**Toxicity to soil-dwelling organisms**

EC50, Eisenia fetida (earthworms), Based on information for a similar material:, 14 d, > 1,000 mg/kg

**Toxicity to terrestrial plants**

EC50, Avena sativa (oats), Growth inhibition, 1,000 mg/l

EC50, Lactuca sativa (lettuce), Growth inhibition, 1,000 mg/l

**Polymethylenepolyphenylisocyanate, propoxylated glycerin polymer**

**Acute toxicity to fish**

For this family of materials:

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

**Polymethylenepolyphenyl polyisocyanate, polypropyleneglycol copolymer**

**Acute toxicity to fish**

Not expected to be acutely toxic to aquatic organisms.

**Isobutane**

**Acute toxicity to fish**

No relevant data found.

**Tris(1-chloro-2-propyl) phosphate**

**Acute toxicity to fish**

Material is slightly toxic to aquatic organisms on an acute basis (LC50/EC50 between 10 and 100 mg/L in the most sensitive species tested).

LC50, Lepomis macrochirus (Bluegill sunfish), static test, 96 Hour, 84 mg/l, OECD Test Guideline 203 or Equivalent

**Acute toxicity to aquatic invertebrates**

EC50, Daphnia magna (Water flea), 48 Hour, 131 mg/l

**Acute toxicity to algae/aquatic plants**

ErC50, Pseudokirchneriella subcapitata (green algae), static test, 96 Hour, Growth rate inhibition, 82 mg/l, OECD Test Guideline 201 or Equivalent

**Toxicity to bacteria**

EC50, activated sludge, Respiration inhibition, 3 Hour, 784 mg/l, OECD 209 Test

**Chronic toxicity to aquatic invertebrates**

NOEC, Daphnia magna (Water flea), semi-static test, 21 d, number of offspring, 32 mg/l



**Paraffin waxes and Hydrocarbon waxes, chlorinated**

**Acute toxicity to fish**

Material is highly toxic to aquatic organisms on an acute basis (LC50/EC50 between 0.1 and 1 mg/L in the most sensitive species tested).

LC50, Oncorhynchus mykiss (rainbow trout), 96 Hour, > 0.1 mg/l

**Chronic toxicity to fish**

Based on data from similar materials

NOEC, Oncorhynchus mykiss (rainbow trout), 60 d, 4.5 mg/l

**Methyl ether**

**Acute toxicity to fish**

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

LC50, Poecilia reticulata (guppy), semi-static test, 96 Hour, > 4,000 mg/l

**Acute toxicity to aquatic invertebrates**

LC50, Daphnia magna (Water flea), 48 Hour, > 4,000 mg/l, OECD Test Guideline 202 or Equivalent

**Propane**

**Acute toxicity to fish**

No relevant data found.

**Persistence and degradability**

**Diphenylmethane Diisocyanate, isomers and homologues**

**Biodegradability:** In the aquatic and terrestrial environment, material reacts with water forming predominantly insoluble polyureas which appear to be stable. In the atmospheric environment, material is expected to have a short tropospheric half-life, based on calculations and by analogy with related diisocyanates.

10-day Window: Not applicable

**Biodegradation:** 0 %

**Exposure time:** 28 d

**Method:** OECD Test Guideline 302C or Equivalent

**4,4' -Methylenediphenyl diisocyanate**

**Biodegradability:** In the aquatic and terrestrial environment, material reacts with water forming predominantly insoluble polyureas which appear to be stable. In the atmospheric environment, material is expected to have a short tropospheric half-life, based on calculations and by analogy with related diisocyanates.

10-day Window: Not applicable

**Biodegradation:** 0 %

**Exposure time:** 28 d

**Method:** OECD Test Guideline 302C or Equivalent

**Polymethylenepolyphenylisocyanate, propoxylated glycerin polymer**

**Biodegradability:** For this family of materials: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

**Polymethylenepolyphenyl polyisocyanate, polypropyleneglycol copolymer**

**Biodegradability:** Expected to degrade slowly in the environment.

**Isobutane**

**Biodegradability:** Biodegradation may occur under aerobic conditions (in the presence of oxygen).

**Theoretical Oxygen Demand:** 3.58 mg/mg

**Photodegradation**

**Test Type:** Half-life (indirect photolysis)

**Sensitization:** OH radicals

**Atmospheric half-life:** 4.4 d

**Method:** Estimated.

**Tris(1-chloro-2-propyl) phosphate**

**Biodegradability:** Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability. Material is ultimately biodegradable (reaches > 70% mineralization in OECD test(s) for inherent biodegradability).

10-day Window: Fail

**Biodegradation:** 14 %

**Exposure time:** 28 d

**Method:** OECD Test Guideline 301E or Equivalent

10-day Window: Not applicable

**Biodegradation:** 95 %

**Exposure time:** 64 d

**Method:** OECD Test Guideline 302A or Equivalent

**Theoretical Oxygen Demand:** 1.17 mg/mg

**Photodegradation**

**Test Type:** Half-life (indirect photolysis)

**Sensitization:** OH radicals

**Atmospheric half-life:** 0.24 d

**Method:** Estimated.

**Paraffin waxes and Hydrocarbon waxes, chlorinated**

**Biodegradability:** Expected to degrade slowly in the environment.

For similar material(s):

**Biodegradation:** 5 %

**Exposure time:** 28 d

**Method:** OECD Test Guideline 301D

**Theoretical Oxygen Demand:** 2.89 mg/mg

**Methyl ether**

**Biodegradability:** Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.

10-day Window: Fail

**Biodegradation:** 5 %

**Exposure time:** 28 d

**Method:** OECD Test Guideline 301A or Equivalent

**Theoretical Oxygen Demand:** 2.08 mg/mg

**Photodegradation**

**Test Type:** Half-life (indirect photolysis)

**Sensitization:** OH radicals

**Atmospheric half-life:** 6.4 d

**Method:** Estimated.

**Propane**

**Biodegradability:** No relevant data found.

**Theoretical Oxygen Demand:** 3.64 mg/mg

**Photodegradation**

**Test Type:** Half-life (indirect photolysis)

**Sensitization:** OH radicals

**Atmospheric half-life:** 8.4 d

**Method:** Estimated.

**Bioaccumulative potential**

**Diphenylmethane Diisocyanate, isomers and homologues**

**Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3). Reacts with water. In the aquatic and terrestrial environment, movement is expected to be limited by its reaction with water forming predominantly insoluble polyureas.

**Bioconcentration factor (BCF):** 92 Cyprinus carpio (Carp) 28 d

**4,4' -Methylenediphenyl diisocyanate**

**Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3). Reacts with water. In the aquatic and terrestrial environment, movement is expected to be limited by its reaction with water forming predominantly insoluble polyureas.

**Bioconcentration factor (BCF):** 92 Cyprinus carpio (Carp) 28 d

**Polymethylenepolyphenylisocyanate, propoxylated glycerin polymer**

**Bioaccumulation:** No relevant data found.

**Polymethylenepolyphenyl polyisocyanate, polypropyleneglycol copolymer**

**Bioaccumulation:** In the aquatic and terrestrial environment, movement is expected to be limited by its reaction with water forming predominantly insoluble polyureas.

**Isobutane**

**Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

**Partition coefficient: n-octanol/water(log Pow):** 2.76 Measured

**Tris(1-chloro-2-propyl) phosphate**

**Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

**Partition coefficient: n-octanol/water(log Pow):** 2.59 Measured

**Bioconcentration factor (BCF):** 0.8 - 4.6 Cyprinus carpio (Carp) 42 d Measured

**Paraffin waxes and Hydrocarbon waxes, chlorinated**

**Bioaccumulation:** Bioconcentration potential is low (BCF less than 100 or log Pow greater than 7).

**Partition coefficient: n-octanol/water(log Pow):** 7.4 Estimated.

**Methyl ether**

**Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

**Partition coefficient: n-octanol/water(log Pow):** 0.10 Measured

**Propane**

**Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

**Partition coefficient: n-octanol/water(log Pow):** 2.36 Measured

**Mobility in soil**

**Diphenylmethane Diisocyanate, isomers and homologues**

In the aquatic and terrestrial environment, movement is expected to be limited by its reaction with water forming predominantly insoluble polyureas.

**4,4' -Methylenediphenyl diisocyanate**

In the aquatic and terrestrial environment, movement is expected to be limited by its reaction with water forming predominantly insoluble polyureas.

**Polymethylenepolyphenylisocyanate, propoxylated glycerin polymer**

No relevant data found.

**Polymethylenepolyphenyl polyisocyanate, polypropyleneglycol copolymer**

In the aquatic and terrestrial environment, movement is expected to be limited by its reaction with water forming predominantly insoluble polyureas.

**Isobutane**

Potential for mobility in soil is very high (Koc between 0 and 50).

**Partition coefficient (Koc):** 35 Estimated.

**Tris(1-chloro-2-propyl) phosphate**

Potential for mobility in soil is slight (Koc between 2000 and 5000).

**Partition coefficient (Koc):** 1300 Estimated.

**Paraffin waxes and Hydrocarbon waxes, chlorinated**

Expected to be relatively immobile in soil (Koc > 5000).

Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.

**Partition coefficient (Koc):** > 5000 Estimated.

**Methyl ether**

Potential for mobility in soil is very high (Koc between 0 and 50).

**Partition coefficient (Koc):** 1.29 - 14 Estimated.

**Propane**

Potential for mobility in soil is very high (Koc between 0 and 50).

**Partition coefficient (Koc):** 24 - 460 Estimated.

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### 13. DISPOSAL CONSIDERATIONS

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**Disposal methods:** DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. AS YOUR SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION: Composition Information. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Incinerator or other thermal destruction device.

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### 14. TRANSPORT INFORMATION

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**DOT**

<b>Proper shipping name</b>	Aerosols
<b>UN number</b>	UN 1950
<b>Class</b>	2.1
<b>Packing group</b>	
<b>Reportable Quantity</b>	MDI

**Classification for SEA transport (IMO-IMDG):**

<b>Proper shipping name</b>	AEROSOLS
<b>UN number</b>	UN 1950
<b>Class</b>	2.1
<b>Packing group</b>	
<b>Marine pollutant</b>	Paraffin waxes and Hydrocarbon waxes, chlorinated
<b>Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code</b>	Consult IMO regulations before transporting ocean bulk

**Classification for AIR transport (IATA/ICAO):**

<b>Proper shipping name</b>	Aerosols, flammable
<b>UN number</b>	UN 1950
<b>Class</b>	2.1
<b>Packing group</b>	

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

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## 15. REGULATORY INFORMATION

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### Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312

Flammable (gases, aerosols, liquids, or solids)

Gases under pressure

Skin corrosion or irritation

Serious eye damage or eye irritation

Respiratory or skin sensitisation

Reproductive toxicity

Specific target organ toxicity (single or repeated exposure)

### Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313

This product contains the following substances which are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and which are listed in 40 CFR 372.

#### Components

#### CASRN

Diphenylmethane Diisocyanate, isomers and homologues

9016-87-9

4,4' -Methylenediphenyl diisocyanate

101-68-8

### Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) Section 103

Calculated RQ exceeds reasonably attainable upper limit.

#### Components

#### CASRN

#### RQ (RCRA Code)

4,4' -Methylenediphenyl diisocyanate

101-68-8

5000 lbs RQ

### Pennsylvania Worker and Community Right-To-Know Act:

The following chemicals are listed because of the additional requirements of Pennsylvania law:

#### Components

#### CASRN

Isobutane

75-28-5

Propane

74-98-6

Methyl ether

115-10-6

### California Prop. 65

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

### United States TSCA Inventory (TSCA)

All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

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## 16. OTHER INFORMATION

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### Hazard Rating System

#### HMIS

Health	Flammability	Physical Hazard
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4*	4	3
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\* = Chronic Effects (See Hazards Identification)

## Revision

Identification Number: 345372 / A749 / Issue Date: 06/29/2020 / Version: 9.0

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

## Legend

ACGIH	USA. ACGIH Threshold Limit Values (TLV)
C	Ceiling
CAL PEL	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
Dow IHG	Dow Industrial Hygiene Guideline
NIOSH REL	USA. NIOSH Recommended Exposure Limits
OSHA Z-1	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
PEL	Permissible exposure limit
STEL	Short-term exposure limit
TWA	8-hr TWA
US WEEL	USA. Workplace Environmental Exposure Levels (WEEL)

## Full text of other abbreviations

AICS - Australian Inventory of Chemical Substances; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ERcx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act

(United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

**Information Source and References**

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

DDP Specialty Electronic Materials US, LLC urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.

US



**DuPont™ Flexwrap™ NF**

Ref. 130000121391

Version 2.1 (replaces: Version 2.0)

Revision Date 26.03.2020

Issue Date 03.11.2021

The composition information contained in this document is provided to satisfy the requirements of Regulation (EC) No 1907/2006 (REACH), Article 33. Other information is provided voluntarily and is not subject to regulatory requirement.

**Identification of the article and of the company/undertaking****Product identifier**

Product name : DuPont™ Flexwrap™ NF

**Relevant identified uses of the article and uses advised against**

Not relevant for article

**Details of the supplier of the article information sheet**

Company : Du Pont de Nemours (Luxembourg) S.à r.l.  
Rue du General Patton / Contern  
L-2984 Luxembourg  
Luxembourg

Telephone : +352-3666-1000

Telefax : +352-3666-5060

E-mail address : sds-support@dupont.com

**Emergency telephone number**

+(44)-870-8200418 (CHEMTREC)

**Hazards identification****Classification of the substance or mixture**

Not relevant for article

**Label elements**

Not relevant for article

**Product information**

This product has no known adverse effect on human health.

Additives in this product do not present a respiration hazard unless the product is ground to a powder of respirable size and the dust is inhaled. All dusts are potentially injurious to the respiratory tract if respirable particles are generated and inhaled.

**DuPont™ Flexwrap™ NF**

Ref. 130000121391  
Version 2.1 (replaces: Version 2.0)

Revision Date 26.03.2020  
Issue Date 03.11.2021

**Composition/information on ingredients****Article composition**

The above products are compliant to REACH registration obligations; Registration number(s) may not be provided because substance(s) are exempted, not yet registered under REACH or are registered under another regulatory process (biocide uses, plant protection products), etc.

**First aid measures****Description of first aid measures**

Not relevant for article

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

Not relevant for article

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

Not relevant for article

**Firefighting measures****Extinguishing media**

Not relevant for article

**Special hazards arising from the article**

Specific hazards during firefighting : Burning is accompanied by melting and dripping which may cause the fire to spread.  
: In fire conditions, toxic decomposition products may be formed. Hazardous combustion products: Carbon monoxide Carbon dioxide (CO<sub>2</sub>)

**Advice for firefighters**

Not relevant for article

**Accidental release measures****Personal precautions, protective equipment and emergency procedures**

Not relevant for article

**Environmental precautions**

Not relevant for article

**Methods and materials for containment and cleaning up**

Not relevant for article

**DuPont™ Flexwrap™ NF**

Ref. 130000121391  
Version 2.1 (replaces: Version 2.0)

Revision Date 26.03.2020  
Issue Date 03.11.2021

**Reference to other sections**

Not relevant for article

**Handling and storage****Precautions for safe handling**

Not relevant for article

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

Not relevant for article

**Specific end use(s)**

Not relevant for article

**Exposure controls/personal protection****Control parameters**

If sub-section is empty then no values are applicable. For further information on any control parameters provided, please refer to the relevant regulation.

**Exposure controls**

Respiratory protection : Respiratory protection should not be required for normal use and handling.

**Physical and chemical properties****Information on basic physical and chemical properties**

Form : tape, roll

**Other information**

No other data to be specially mentioned.

**Stability and reactivity**

Reactivity : Not relevant for article

Chemical stability : Not relevant for article

Possibility of hazardous reactions : no data available



## DuPont™ Flexwrap™ NF

Ref. 130000121391  
Version 2.1 (replaces: Version 2.0)

Revision Date 26.03.2020  
Issue Date 03.11.2021

**Conditions to avoid** : no data available

**Incompatible materials** : Not relevant for article

**Hazardous decomposition products** : Not relevant for article

### Toxicological information

#### Information on toxicological effects

Acute oral toxicity

No data is available on the product itself.

Acute dermal toxicity

No data is available on the product itself.

### Ecological information

#### Toxicity

Not relevant for article

#### Persistence and degradability

Not relevant for article

#### Bioaccumulative potential

Not relevant for article

#### Mobility in soil

Not relevant for article

#### Results of PBT and vPvB assessment

Not relevant for article

#### Other adverse effects

#### Additional ecological information

No data is available on the product itself.

### Disposal considerations

#### Waste treatment methods



## DuPont™ Flexwrap™ NF

Ref. 130000121391

Revision Date 26.03.2020

Version 2.1 (replaces: Version 2.0)

Issue Date 03.11.2021

Product : Can be landfilled or incinerated, when in compliance with local regulations.

### Other information

#### Abbreviations and acronyms

ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute toxicity estimate
CAS-No.	Chemical Abstracts Service number
CLP	Classification, Labelling and Packaging
EbC50	Concentration at which 50% reduction of biomass is observed
EC50	Median effective concentration
EN	European Norm
EPA	Environmental Protection Agency
ErC50	Concentration at which a 50% inhibition of growth rate is observed
EyC50	Concentration at which 50 % inhibition of yield is observed
IATA_C	International Air Transport Association (Cargo)
IBC	International Bulk Chemical Code
ICAO	International Civil Aviation Organization
ISO	International Standard Organization
IMDG	International Maritime Dangerous Goods
LC50	Median Lethal Concentration
LD50	Median Lethal Dose
LOEC	Lowest Observed Effect Concentration
LOEL	Lowest observed effect level
MARPOL	International Convention for the Prevention of Marine Pollution from Ships
n.o.s.	Not Otherwise Specified
NOAEC	No Observed Adverse Effect Concentration
NOAEL	No observed adverse effect level
NOEC	No Observed Effect Concentration
NOEL	No Observed Effect Level
OECD	Organisation for Economic Co-operation and Development
OPPTS	Office of Prevention, Pesticides and Toxic Substances
PBT	Persistent, Bioaccumulative and Toxic
STEL	Short term exposure limit
TWA	Time Weighted Average (TWA):
vPvB	very Persistent and very Bioaccumulative

#### Further information

Do not use DuPont materials in medical applications involving implantation in the human body or contact with internal body fluids or tissues unless the material has been provided from DuPont under a written contract that is consistent with DuPont policy regarding medical applications and expressly acknowledges the contemplated use. For further information, please contact your DuPont representative. You may also request a copy of the DuPont POLICY Regarding Medical Applications and DuPont CAUTION Regarding Medical Applications.

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Significant change from previous version is denoted with a double bar.



**DuPont™ Flexwrap™ NF**

Ref. 130000121391

Version 2.1 (replaces: Version 2.0)

Revision Date 26.03.2020

Issue Date 03.11.2021

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