



Safety Data Sheet

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|------------------------|------------|-------------------------|------------|
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This Safety Data Sheet has been prepared in accordance with the Malaysia Occupational Safety and Health (Chemical Classification, Labelling and Safety Data Sheets) Regulations 2013.

SECTION 1: Identification

1.1. Product identifier

3M™ Fire Block Foam FB-Foam

Product Identification Numbers

98-0400-5614-9 98-0441-1020-7 98-0441-1104-9

1.2. Recommended use and restrictions on use

Recommended use

Sealant

For Industrial or Professional use only

1.3. Supplier's details

ADDRESS: 3M Malaysia Sdn. Bhd., Level 8, Block F, Oasis Square, No.2, Jalan PJU 1A/7A, Ara Damansara 47301
Petaling, Jaya, Selangor

Telephone: 03-7884 2888

E Mail: 3mmyehsr@mmm.com

Website: www.3M.com.my

1.4. Emergency telephone number

+60 03-7884 2888

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

Flammable Aerosol: Category 1.
Gas Under Pressure: Liquefied gas.
Acute Toxicity (inhalation): Category 4.
Skin Corrosion/Irritation: Category 2.
Serious Eye Damage/Irritation: Category 2.
Respiratory Sensitizer: Category 1.
Skin Sensitizer: Category 1.
Reproductive Toxicity: Lactation.
Specific Target Organ Toxicity (single exposure): Category 1.
Specific Target Organ Toxicity (repeated exposure): Category 2.

Acute Aquatic Toxicity: Category 1.
Chronic Aquatic Toxicity: Category 1.

2.2. Label elements

Signal word

Danger

Symbols

Flame | Gas cylinder | Exclamation mark | Health Hazard | Environment |

Pictograms



Hazard Statements:

| | |
|------|--|
| H222 | Extremely flammable aerosol. |
| H280 | Contains gas under pressure; may explode if heated. |
| H332 | Harmful if inhaled. |
| H315 | Causes skin irritation. |
| H319 | Causes serious eye irritation. |
| H334 | May cause allergy or asthma symptoms or breathing difficulties if inhaled. |
| H317 | May cause an allergic skin reaction. |
| H362 | May cause harm to breast-fed children. |
| H370 | Causes damage to organs: cardiovascular system. |
| H373 | May cause damage to organs through prolonged or repeated exposure: respiratory system. |
| H410 | Very toxic to aquatic life with long lasting effects. |

Precautionary statements

General:

| | |
|------|---|
| P101 | If medical advice is needed, have product container or label at hand. |
| P102 | Keep out of reach of children. |

Prevention:

| | |
|-------|---|
| P201 | Obtain special instructions before use. |
| P210 | Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. |
| P211 | Do not spray on an open flame or other ignition source. |
| P251 | Do not pierce or burn, even after use. |
| P260 | Do not breathe dust/fume/gas/mist/vapors/spray. |
| P263 | Avoid contact during pregnancy and while nursing. |
| P271 | Use only outdoors or in a well-ventilated area. |
| P273 | Avoid release to the environment. |
| P280E | Wear protective gloves. |
| P285 | In case of inadequate ventilation wear respiratory protection. |

Response:

| | |
|-------------|---|
| P302 + P352 | IF ON SKIN: Wash with plenty of soap and water. |
| P304 + P341 | IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in |

P305 + P351 + P338 a position comfortable for breathing.
 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P307+ P311 IF exposed: Call a POISON CENTER or doctor/physician.
 P312 Call a POISON CENTER or doctor/physician if you feel unwell.
 P333 + P313 If skin irritation or rash occurs: Get medical advice/attention.
 P342 + P311 If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.

Storage:

P403 Store in a well-ventilated place.
 P410 + P412 Protect from sunlight. Do not expose to temperatures exceeding 50C/122F.

Disposal:

P501 Dispose of contents/container in accordance with applicable local/regional/national/international regulations.

2.3. Other hazards

Intentional misuse by deliberately concentrating and inhaling contents can be harmful or fatal., May cause drowsiness or dizziness., May displace oxygen and cause rapid suffocation., Persons previously sensitized to isocyanates may develop a cross-sensitization reaction to other isocyanates.

SECTION 3: Composition/information on ingredients

This material is a mixture.

| Ingredient | C.A.S. No. | % by Wt |
|--|--------------|---------|
| Polyol Blend (NJTS Reg. No. 04499600-7192) | Trade Secret | 40 - 70 |
| 4,4' Diphenylmethane diisocyanate (MDI) | 101-68-8 | 5 - 10 |
| Dimethyl Ether | 115-10-6 | 5 - 10 |
| Higher Oligomers of MDI (pMDI) | 9016-87-9 | 5 - 10 |
| Isobutane | 75-28-5 | 5 - 10 |
| Propane | 74-98-6 | 1 - 5 |

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation:

Remove person to fresh air. Get medical attention.

Skin Contact:

Immediately wash with soap and water. Remove contaminated clothing and wash before reuse. If signs/symptoms develop, get medical attention.

Eye Contact:

Immediately flush with large amounts of water. Remove contact lenses if easy to do. Continue rinsing. Get medical attention.

If Swallowed:

Rinse mouth. If you feel unwell, get medical attention.

4.2. Most important symptoms and effects, both acute and delayed

Allergic respiratory reaction (difficulty breathing, wheezing, cough, and tightness of chest). Allergic skin reaction (redness, swelling, blistering, and itching). Central nervous system depression (headache, dizziness, drowsiness, incoordination, nausea, slurred speech,

giddiness, and unconsciousness). Target organ effects. See Section 11 for additional details. Target organ effects following prolonged or repeated exposure. See Section 11 for additional details.

4.3. Indication of any immediate medical attention and special treatment required

Exposure may increase myocardial irritability. Do not administer sympathomimetic drugs unless absolutely necessary.

SECTION 5: Fire-fighting measures

5.1. Suitable extinguishing media

Use a fire fighting agent suitable for the surrounding fire.

5.2. Special hazards arising from the substance or mixture

Closed containers exposed to heat from fire may build pressure and explode.

Hazardous Decomposition or By-Products

Substance

Formaldehyde
Carbon monoxide
Carbon dioxide
Hydrogen Chloride
Hydrogen Cyanide
Oxides of Nitrogen

Condition

During Combustion
During Combustion
During Combustion
During Combustion
During Combustion
During Combustion

5.3. Special protective actions for fire-fighters

Water may not effectively extinguish fire; however, it should be used to keep fire-exposed containers and surfaces cool and prevent explosive rupture.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Evacuate area. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Use only non-sparking tools. Ventilate the area with fresh air. Warning! A motor could be an ignition source and could cause flammable gases or vapors in the spill area to burn or explode. Refer to other sections of this SDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment.

6.2. Environmental precautions

For larger spills, cover drains and build dikes to prevent entry into sewer systems or bodies of water.

6.3. Methods and material for containment and cleaning up

If possible, seal leaking container. Place leaking containers in a well-ventilated area, preferably an operating exhaust hood, or if necessary outdoors on an impermeable surface until appropriate packaging for the leaking container or its contents is available. Contain spill. Cover spill area with a fire-extinguishing foam. Pour isocyanate decontaminant solution (90% water, 8% concentrated ammonia, 2% detergent) on spill and allow to react for 10 minutes. Or pour water on spill and allow to react for more than 30 minutes. Cover with absorbent material. Working from around the edges of the spill inward, cover with bentonite, vermiculite, or commercially available inorganic absorbent material. Mix in sufficient absorbent until it appears dry. Remember, adding an absorbent material does not remove a physical, health, or environmental hazard. Collect as much of the spilled material as possible using non-sparking tools. Place in a container approved for transportation by appropriate authorities, but do not seal the container for 48 hours to avoid pressure build-up. Clean up residue with an appropriate solvent selected by a qualified and authorized person. Ventilate the area with fresh air. Read and follow safety precautions on the solvent label and SDS. Dispose of collected material as soon as possible in accordance with applicable local/regional/national/international regulations.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Do not use in a confined area with minimal air exchange. Keep out of reach of children. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Do not spray on an open flame or other ignition source. Do not pierce or burn, even after use. Do not breathe dust/fume/gas/mist/vapors/spray. Do not get in eyes, on skin, or on clothing. Avoid contact during pregnancy/while nursing. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse. Avoid contact with oxidizing agents (eg. chlorine, chromic acid etc.)

7.2. Conditions for safe storage including any incompatibilities

Store in a well-ventilated place. Keep container tightly closed. Protect from sunlight. Do not expose to temperatures exceeding 50C/122F. Store away from heat. Store away from acids. Store away from strong bases. Store away from oxidizing agents. Store away from amines.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

If a component is disclosed in section 3 but does not appear in the table below, an occupational exposure limit is not available for the component.

| Ingredient | C.A.S. No. | Agency | Limit type | Additional Comments |
|---|------------|---------------|-------------------------------------|---------------------|
| 4,4' Diphenylmethane diisocyanate (MDI) | 101-68-8 | ACGIH | TWA:0.005 ppm | |
| 4,4' Diphenylmethane diisocyanate (MDI) | 101-68-8 | Malaysia OELs | TWA(8 hours):0.051 mg/m3(0.005 ppm) | |
| Propane | 74-98-6 | ACGIH | Limit value not established: | simple asphyxiant |
| Propane | 74-98-6 | Malaysia OELs | TWA(8 hours):2500 ppm | |
| Isobutane | 75-28-5 | ACGIH | STEL:1000 ppm | |

ACGIH : American Conference of Governmental Industrial Hygienists

CMRG : Chemical Manufacturer's Recommended Guidelines

Malaysia OELs : Malaysia. Occupational Safety and Health (Use and Standards of Exposure of Chemicals Hazardous to Health) Regulations

TWA: Time-Weighted-Average

STEL: Short Term Exposure Limit

CEIL: Ceiling

8.2. Exposure controls

8.2.1. Engineering controls

Do not remain in area where available oxygen may be reduced. Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below relevant Exposure Limits and/or control dust/fume/gas/mist/vapors/spray. If ventilation is not adequate, use respiratory protection equipment.

8.2.2. Personal protective equipment (PPE)

Eye/face protection

Select and use eye/face protection to prevent contact based on the results of an exposure assessment. The following eye/face protection(s) are recommended:

Full Face Shield

Indirect Vented Goggles

Skin/hand protection

Select and use gloves and/or protective clothing approved to relevant local standards to prevent skin contact based on the results of an exposure assessment. Selection should be based on use factors such as exposure levels, concentration of the substance or mixture, frequency and duration, physical challenges such as temperature extremes, and other use conditions. Consult with your glove and/or protective clothing manufacturer for selection of appropriate compatible gloves/protective clothing. Note: Nitrile gloves may be worn over polymer laminate gloves to improve dexterity.

Gloves made from the following material(s) are recommended: Fluoroelastomer
Polymer laminate

If this product is used in a manner that presents a higher potential for exposure (eg. spraying, high splash potential etc.), then use of protective coveralls may be necessary. Select and use body protection to prevent contact based on the results of an exposure assessment. The following protective clothing material(s) are recommended: Apron - polymer laminate

Respiratory protection

An exposure assessment may be needed to decide if a respirator is required. If a respirator is needed, use respirators as part of a full respiratory protection program. Based on the results of the exposure assessment, select from the following respirator type(s) to reduce inhalation exposure:

Half facepiece or full facepiece air-purifying respirator suitable for organic vapors and particulates
Half facepiece or full facepiece supplied-air respirator

For questions about suitability for a specific application, consult with your respirator manufacturer.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

| | |
|---|--|
| Physical state | Liquid |
| Color | Off-White, Yellow |
| Odor | Slight Hydrocarbon |
| Odor threshold | No Data Available |
| pH | No Data Available |
| Melting point/Freezing point | No Data Available |
| Boiling point/Initial boiling point/Boiling range | -33.3 - -11.7 °C [Details:Liquefied petroleum gas (hydrocarbon, HC) components boil between -33.3 to -11.7C. Other components boil at temperatures greater than 93.3C] |
| Flash Point | -104.4 °C [Test Method:Estimated] |
| Evaporation rate | No Data Available |
| Flammability (solid, gas) | Not Applicable |
| Flammable Limits(LEL) | No Data Available |
| Flammable Limits(UEL) | No Data Available |
| Vapor Pressure | >=345 kPa [Details:Contents under pressure have vapor pressure greater than 345kPa. After release from container, the pressure is very low.] |
| Vapor Density and/or Relative Vapor Density | Not Applicable |
| Density | 1.1 g/ml |
| Relative Density | 1.1 [Ref Std:WATER=1] |
| Water solubility | Nil [Details:Reacts slowly with water during cure] |
| Solubility- non-water | No Data Available |
| Partition coefficient: n-octanol/ water | No Data Available |
| Autoignition temperature | No Data Available |
| Decomposition temperature | No Data Available |
| Viscosity/Kinematic Viscosity | No Data Available |
| Volatile Organic Compounds | No Data Available |
| Percent volatile | No Data Available |
| VOC Less H2O & Exempt Solvents | 165 g/l |

SECTION 10: Stability and reactivity

10.1. Reactivity

This material may be reactive with certain agents under certain conditions - see the remaining headings in this section.

10.2. Chemical stability

Stable. Do not store above 50C

10.3. Possibility of hazardous reactions

Hazardous polymerization will not occur.

10.4. Conditions to avoid

Heat

10.5. Incompatible materials

Alcohols
Strong bases
Amines
Strong oxidizing agents

10.6. Hazardous decomposition products

| <u>Substance</u> | <u>Condition</u> |
|------------------|------------------|
| None known. | |

Refer to section 5.2 for hazardous decomposition products during combustion.

SECTION 11: Toxicological information

The information below may not be consistent with the material classification in Section 2 if specific ingredient classifications are mandated by a competent authority. In addition, toxicological data on ingredients may not be reflected in the material classification and/or the signs and symptoms of exposure, because an ingredient may be present below the threshold for labeling, an ingredient may not be available for exposure, or the data may not be relevant to the material as a whole.

11.1. Information on Toxicological effects

Signs and Symptoms of Exposure

Based on test data and/or information on the components, this material may produce the following health effects:

Inhalation:

Harmful if inhaled. Simple Asphyxiation: Signs/symptoms may include increased heart rate, rapid respirations, drowsiness, headache, incoordination, altered judgement, nausea, vomiting, lethargy, seizures, coma, and may be fatal.

Respiratory Tract Irritation: Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

Allergic Respiratory Reaction: Signs/symptoms may include difficulty breathing, wheezing, cough, and tightness of chest.

May cause additional health effects (see below).

Skin Contact:

Skin Irritation: Signs/symptoms may include localized redness, swelling, itching, dryness, cracking, blistering, and pain.
Allergic Skin Reaction (non-photo induced): Signs/symptoms may include redness, swelling, blistering, and itching.

Eye Contact:

Severe Eye Irritation: Signs/symptoms may include significant redness, swelling, pain, tearing, cloudy appearance of the cornea, and impaired vision.

Ingestion:

Gastrointestinal Irritation: Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhea.

May cause additional health effects (see below).

Additional Health Effects:**Single exposure may cause target organ effects:**

Central Nervous System (CNS) Depression: Signs/symptoms may include headache, dizziness, drowsiness, incoordination, nausea, slowed reaction time, slurred speech, giddiness, and unconsciousness.

Single exposure, above recommended guidelines, may cause: Cardiac Sensitization: Signs/symptoms may include irregular heartbeat (arrhythmia), faintness, chest pain, and may be fatal.

Prolonged or repeated exposure may cause target organ effects:

Respiratory Effects: Signs/symptoms may include cough, shortness of breath, chest tightness, wheezing, increased heart rate, bluish colored skin (cyanosis), sputum production, changes in lung function tests, and/or respiratory failure.

Reproductive/Developmental Toxicity:

Contains a chemical or chemicals which may interfere with lactation or be harmful to breastfed children.

Additional Information:

Persons previously sensitized to isocyanates may develop a cross-sensitization reaction to other isocyanates.

Toxicological Data

If a component is disclosed in section 3 but does not appear in a table below, either no data are available for that endpoint or the data are not sufficient for classification.

Acute Toxicity

| Name | Route | Species | Value |
|---|--------------------------------|---------|--|
| Overall product | Inhalation-Dust/Mist(4 hr) | | No data available; calculated ATE >1 - =5 mg/l |
| Overall product | Ingestion | | No data available; calculated ATE >5,000 mg/kg |
| Isobutane | Inhalation-Gas (4 hours) | Rat | LC50 276,000 ppm |
| Dimethyl Ether | Inhalation-Gas (4 hours) | Rat | LC50 164,000 ppm |
| Propane | Inhalation-Gas (4 hours) | Rat | LC50 > 200,000 ppm |
| 4,4' Diphenylmethane diisocyanate (MDI) | Dermal | Rabbit | LD50 > 5,000 mg/kg |
| Higher Oligomers of MDI (pMDI) | Dermal | Rabbit | LD50 > 5,000 mg/kg |
| 4,4' Diphenylmethane diisocyanate (MDI) | Inhalation-Dust/Mist (4 hours) | Rat | LC50 0.368 mg/l |
| 4,4' Diphenylmethane diisocyanate (MDI) | Ingestion | Rat | LD50 31,600 mg/kg |
| Higher Oligomers of MDI (pMDI) | Inhalation-Dust/Mist (4 hours) | Rat | LC50 0.368 mg/l |
| Higher Oligomers of MDI (pMDI) | Ingestion | Rat | LD50 31,600 mg/kg |

ATE = acute toxicity estimate

Skin Corrosion/Irritation

| Name | Species | Value |
|-----------|-----------|---------------------------|
| Isobutane | Professio | No significant irritation |

| | | |
|---|--------------------------------|--------------------|
| | nal judgemen t | |
| Propane | Rabbit | Minimal irritation |
| 4,4' Diphenylmethane diisocyanate (MDI) | official classificat ion | Irritant |
| Higher Oligomers of MDI (pMDI) | official classificat ion | Irritant |

Serious Eye Damage/Irritation

| Name | Species | Value |
|---|-----------------------------------|---------------------------|
| Isobutane | Professio nal judgemen t | No significant irritation |
| Propane | Rabbit | Mild irritant |
| 4,4' Diphenylmethane diisocyanate (MDI) | official classificat ion | Severe irritant |
| Higher Oligomers of MDI (pMDI) | official classificat ion | Severe irritant |

Sensitization:**Skin Sensitization**

| Name | Species | Value |
|---|--------------------------------|-------------|
| 4,4' Diphenylmethane diisocyanate (MDI) | official classificat ion | Sensitizing |
| Higher Oligomers of MDI (pMDI) | official classificat ion | Sensitizing |

Respiratory Sensitization

| Name | Species | Value |
|---|---------|-------------|
| 4,4' Diphenylmethane diisocyanate (MDI) | Human | Sensitizing |
| Higher Oligomers of MDI (pMDI) | Human | Sensitizing |

Germ Cell Mutagenicity

| Name | Route | Value |
|---|----------|--|
| Isobutane | In Vitro | Not mutagenic |
| Dimethyl Ether | In Vitro | Not mutagenic |
| Dimethyl Ether | In vivo | Not mutagenic |
| Propane | In Vitro | Not mutagenic |
| 4,4' Diphenylmethane diisocyanate (MDI) | In Vitro | Some positive data exist, but the data are not sufficient for classification |
| Higher Oligomers of MDI (pMDI) | In Vitro | Some positive data exist, but the data are not sufficient for classification |

Carcinogenicity

| Name | Route | Species | Value |
|---|------------|---------|--|
| Dimethyl Ether | Inhalation | Rat | Not carcinogenic |
| 4,4' Diphenylmethane diisocyanate (MDI) | Inhalation | Rat | Some positive data exist, but the data are not sufficient for classification |
| Higher Oligomers of MDI (pMDI) | Inhalation | Rat | Some positive data exist, but the data are not sufficient for classification |

Reproductive Toxicity**Reproductive and/or Developmental Effects**

| Name | Route | Value | Species | Test Result | Exposure Duration |
|---|------------|--------------------------------|---------|---------------------|----------------------|
| Dimethyl Ether | Inhalation | Not classified for development | Rat | NOAEL 40,000 ppm | during organogenesis |
| 4,4' Diphenylmethane diisocyanate (MDI) | Inhalation | Not classified for development | Rat | NOAEL 0.004 mg/l | during organogenesis |
| Higher Oligomers of MDI (pMDI) | Inhalation | Not classified for development | Rat | NOAEL 0.004 mg/l | during organogenesis |

Target Organ(s)**Specific Target Organ Toxicity - single exposure**

| Name | Route | Target Organ(s) | Value | Species | Test Result | Exposure Duration |
|---|------------|-----------------------------------|--|-------------------------|----------------------|-------------------|
| Isobutane | Inhalation | cardiac sensitization | Causes damage to organs | Multiple animal species | NOAEL Not available | |
| Isobutane | Inhalation | central nervous system depression | May cause drowsiness or dizziness | Human and animal | NOAEL Not available | |
| Isobutane | Inhalation | respiratory irritation | Not classified | Mouse | NOAEL Not available | |
| Dimethyl Ether | Inhalation | central nervous system depression | May cause drowsiness or dizziness | Rat | LOAEL 10,000 ppm | 30 minutes |
| Dimethyl Ether | Inhalation | cardiac sensitization | Some positive data exist, but the data are not sufficient for classification | Dog | NOAEL 100,000 ppm | 5 minutes |
| Propane | Inhalation | cardiac sensitization | Causes damage to organs | Human | NOAEL Not available | |
| Propane | Inhalation | central nervous system depression | May cause drowsiness or dizziness | Human | NOAEL Not available | |
| Propane | Inhalation | respiratory irritation | Not classified | Human | NOAEL Not available | |
| 4,4' Diphenylmethane diisocyanate (MDI) | Inhalation | respiratory irritation | May cause respiratory irritation | official classification | NOAEL Not available | |
| Higher Oligomers of MDI (pMDI) | Inhalation | respiratory irritation | May cause respiratory irritation | official classification | NOAEL Not available | |

Specific Target Organ Toxicity - repeated exposure

| Name | Route | Target Organ(s) | Value | Species | Test Result | Exposure Duration |
|---|------------|-----------------------|--|---------|---------------------|-------------------|
| Isobutane | Inhalation | kidney and/or bladder | Not classified | Rat | NOAEL 4,500 ppm | 13 weeks |
| Dimethyl Ether | Inhalation | hematopoietic system | Not classified | Rat | NOAEL 25,000 ppm | 2 years |
| Dimethyl Ether | Inhalation | liver | Not classified | Rat | NOAEL 20,000 ppm | 30 weeks |
| 4,4' Diphenylmethane diisocyanate (MDI) | Inhalation | respiratory system | Causes damage to organs through prolonged or repeated exposure | Rat | LOAEL 0.004 mg/l | 13 weeks |
| Higher Oligomers of MDI (pMDI) | Inhalation | respiratory system | Causes damage to organs through prolonged or repeated exposure | Rat | LOAEL 0.004 mg/l | 13 weeks |

Aspiration Hazard

For the component/components, either no data are currently available or the data are not sufficient for classification.

Please contact the address or phone number listed on the first page of the SDS for additional toxicological information on this material and/or its components.

SECTION 12: Ecological information

The information below may not be consistent with the material classification in Section 2 if specific ingredient classifications are mandated by a competent authority. Additional information leading to material classification in Section 2 is available upon request. In addition, environmental fate and effects data on ingredients may not be reflected in this section because an ingredient is present below the threshold for labeling, an ingredient is not expected to be available for exposure, or the data is considered not relevant to the material as a whole.

12.1. Toxicity**Acute aquatic hazard:**

GHS Acute 1: Very toxic to aquatic life.

Chronic aquatic hazard:

GHS Chronic 1: Very toxic to aquatic life with long lasting effects.

No product test data available

| Material | Cas # | Organism | Type | Exposure | Test Endpoint | Test Result |
|--|-----------|------------------|--------------------|----------|--------------------------------|-------------|
| 4,4' Diphenylmethane diisocyanate (MDI) | 101-68-8 | Activated sludge | Estimated | 3 hours | EC50 | >100 mg/l |
| 4,4' Diphenylmethane diisocyanate (MDI) | 101-68-8 | Green algae | Estimated | 72 hours | EC50 | >1,640 mg/l |
| 4,4' Diphenylmethane diisocyanate (MDI) | 101-68-8 | Water flea | Estimated | 24 hours | EC50 | >1,000 mg/l |
| 4,4' Diphenylmethane diisocyanate (MDI) | 101-68-8 | Zebra Fish | Estimated | 96 hours | LC50 | >1,000 mg/l |
| 4,4' Diphenylmethane diisocyanate (MDI) | 101-68-8 | Green algae | Estimated | 72 hours | NOEC | 1,640 mg/l |
| 4,4' Diphenylmethane diisocyanate (MDI) | 101-68-8 | Water flea | Estimated | 21 days | NOEC | 10 mg/l |
| Dimethyl Ether | 115-10-6 | Bacteria | Experimental | | EC10 | >1,600 mg/l |
| Dimethyl Ether | 115-10-6 | Guppy | Experimental | 96 hours | LC50 | >4,100 mg/l |
| Dimethyl Ether | 115-10-6 | Water flea | Experimental | 48 hours | EC50 | >4,400 mg/l |
| Higher Oligomers of MDI (pMDI) | 9016-87-9 | Green algae | Analogous Compound | 72 hours | No tox obs at lmt of water sol | >100 mg/l |
| Higher Oligomers of MDI (pMDI) | 9016-87-9 | Water flea | Analogous Compound | 24 hours | No tox obs at lmt of water sol | >100 mg/l |
| Higher Oligomers of | 9016-87-9 | Green algae | Analogous Compound | 72 hours | No tox obs at lmt of water sol | >100 mg/l |

| | | | | | | |
|--------------------------------|-----------|------------------|---|---------|------|-----------|
| MDI (pMDI) | | | | | | |
| Higher Oligomers of MDI (pMDI) | 9016-87-9 | Activated sludge | Analogous Compound | 3 hours | EC50 | >100 mg/l |
| Isobutane | 75-28-5 | | Data not available or insufficient for classification | | | N/A |
| Propane | 74-98-6 | | Data not available or insufficient for classification | | | N/A |

12.2. Persistence and degradability

| Material | CAS No. | Test Type | Duration | Study Type | Test Result | Protocol |
|---|-----------|--|----------|-------------------------------|-------------------|--------------------------------|
| 4,4' Diphenylmethane diisocyanate (MDI) | 101-68-8 | Estimated Hydrolysis | | Hydrolytic half-life | 20 hours (t 1/2) | |
| Dimethyl Ether | 115-10-6 | Experimental Biodegradation | 28 days | Biological Oxygen Demand | 5 %BOD/ThOD | OECD 301D - Closed Bottle Test |
| Dimethyl Ether | 115-10-6 | Experimental Photolysis | | Photolytic half-life (in air) | 12.4 days (t 1/2) | |
| Higher Oligomers of MDI (pMDI) | 9016-87-9 | Analogous Compound Aquatic Inherent Biodegrad. | 28 days | Biological Oxygen Demand | 0 %BOD/ThOD | OECD 302C - Modified MITI (II) |
| Higher Oligomers of MDI (pMDI) | 9016-87-9 | Analogous Compound Hydrolysis | | Hydrolytic half-life | 20 hours (t 1/2) | |
| Isobutane | 75-28-5 | Experimental Photolysis | | Photolytic half-life (in air) | 13.4 days (t 1/2) | |
| Propane | 74-98-6 | Experimental Photolysis | | Photolytic half-life (in air) | 27.5 days (t 1/2) | |

12.3. Bioaccumulative potential

| Material | CAS No. | Test Type | Duration | Study Type | Test Result | Protocol |
|---|-----------|---|----------|---|-------------|--------------------------|
| 4,4' Diphenylmethane diisocyanate (MDI) | 101-68-8 | Experimental BCF - Fish | 28 days | Bioaccumulation Factor | 200 | OECD305-Bioconcentration |
| Dimethyl Ether | 115-10-6 | Data not available or insufficient for classification | N/A | N/A | N/A | N/A |
| Higher Oligomers of MDI (pMDI) | 9016-87-9 | Analogous Compound BCF - Fish | 28 days | Bioaccumulation Factor | 200 | OECD305-Bioconcentration |
| Higher Oligomers of MDI (pMDI) | 9016-87-9 | Analogous Compound Bioconcentration | | Log of Octanol/H ₂ O part. coeff | 4.51 | |

| | | | | | | |
|-----------|---------|-------------------------------|--|---|------|--|
| | | on | | | | |
| Isobutane | 75-28-5 | Experimental Bioconcentration | | Log of Octanol/H ₂ O part. coeff | 2.76 | |
| Propane | 74-98-6 | Experimental Bioconcentration | | Log of Octanol/H ₂ O part. coeff | 2.36 | |

12.4. Mobility in soil

Please contact manufacturer for more details

12.5 Other adverse effects

No information available

SECTION 13: Disposal considerations

13.1. Disposal methods

According to the Environmental Quality (Scheduled Wastes) Regulations 2005, scheduled waste has to be sent to a prescribed premise for recycling, treatment or disposal. Please approach Kualiti Alam for proper schedule waste classification and disposal.

SECTION 14: Transport Information

Marine Transport (IMDG)

UN Number:UN1950

Proper Shipping Name:AEROSOLS, FLAMMABLE

Technical Name:None assigned.

Hazard Class/Division:2.1

Subsidiary Risk:None assigned.

Packing Group:None assigned.

Limited Quantity:Yes

Marine Pollutant: None assigned.

Marine Pollutant Technical Name: None assigned.

Other Dangerous Goods Descriptions:

None assigned.

Air Transport (IATA)

UN Number:UN1950

Proper Shipping Name:AEROSOLS, FLAMMABLE

Technical Name:None assigned.

Hazard Class/Division:2.1

Subsidiary Risk:None assigned.

Packing Group:None assigned.

Limited Quantity:None assigned.

Marine Pollutant: None assigned.

Marine Pollutant Technical Name: None assigned.

Other Dangerous Goods Descriptions:

None assigned.

Transportation classifications are provided as a customer service. As for shipping, YOU remain responsible for complying with all applicable laws and regulations, including proper transportation classification and packaging. 3M's transportation

classifications are based on product formulation, packaging, 3M policies and 3M's understanding of applicable current regulations. 3M does not guarantee the accuracy of this classification information. This information applies only to transportation classification and not the packaging, labeling or marking requirements. The above information is only for reference. If you are shipping by air or ocean, YOU are advised to check & meet applicable regulatory requirements.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Global inventory status

Contact 3M for more information. The components of this material are in compliance with the provisions of Australia National Industrial Chemical Notification and Assessment Scheme (NICNAS). Certain restrictions may apply. Contact the selling division for additional information. The components of this product are in compliance with the new substance notification requirements of CEPA. The components of this product are in compliance with the chemical notification requirements of TSCA. All required components of this product are listed on the active portion of the TSCA Inventory.

SECTION 16: Other information

DISCLAIMER: The information in this Safety Data Sheet (SDS) is based on our experience and is correct to the best of our knowledge at the date of publication, but we do not accept any liability for any loss, damage or injury resulting from its use (except as required by law). The information may not be valid for any use not referred to in this SDS or use of the product in combination with other materials. For these reasons, it is important that customers carry out their own evaluation to satisfy themselves as to the suitability of the product for their own intended applications. In addition, this SDS is being provided to convey health and safety information. If you are the importer of record of this product into Malaysia, you are responsible for all applicable regulatory requirements, including, but not limited to, product registrations/notifications, substance volume tracking, and potential substance registration/notification.

3M Malaysia SDSs are available at www.3M.com.my