# SAFETY DATA SHEET
**DOW CHEMICAL CANADA ULC**

**Product name: GREAT STUFF™ Big Gap Filler Insulating Foam Sealant 12oz HC EF STW QP 144ct**

**Issue Date:** 10/13/2016

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DOW CHEMICAL CANADA ULC 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™ Big Gap Filler Insulating Foam Sealant 12oz HC EF STW QP 144ct

**Recommended use of the chemical and restrictions on use**
**Identified uses:** Polyurethane foam.

**COMPANY IDENTIFICATION**
DOW CHEMICAL CANADA ULC
#2400, 215 - 2ND STREET S.W.
CALGARY AB T2P 1M4
CANADA

**Customer Information Number:** 800-258-2436
SDSQuestion@dow.com

**EMERGENCY TELEPHONE NUMBER**
**24-Hour Emergency Contact:** 1-888-226-8832
**Local Emergency Contact:** 613-996-6666

## 2. HAZARDS IDENTIFICATION

**Hazard classification**
This product is hazardous under the criteria of the Hazardous Products Regulation (HPR) as implemented under the Workplace Hazardous Materials Information System (WHMIS 2015).
Flammable aerosols - Category 2
Gases under pressure - Liquefied gas
Skin irritation - Category 2
Eye irritation - Category 2B
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: **WARNING!**

**Hazards**
Flammable aerosol.
Contains gas under pressure; may explode if heated.
Causes skin and eye irritation.
May cause an allergic skin reaction.
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, hot surfaces, sparks, open flames and other ignition sources. 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/ vapours/ spray.
Avoid contact during pregnancy and 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 should not be allowed out of the workplace.
Wear protective gloves.

**Response**
IF ON SKIN: Wash with plenty of 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.

**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

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

This product is a mixture.

| Component | CASRN | Concentration |
|---|---|---|
| Diphenylmethane Diisocyanate, isomers and homologues | 9016-87-9 | >= 10.0 - <= 30.0 % |
| Polymethylenepolyphenylisocyanate, propoxylated glycerin polymer | 57029-46-6 | >= 30.0 - <= 60.0 % |
| Polymethylenepolyphenyl polyisocyanate, polypropyleneglycol copolymer | 53862-89-8 | >= 10.0 - <= 30.0 % |
| 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 % |
| Isobutane | 75-28-5 | >= 5.0 - <= 10.0 % |
| Methyl ether | 115-10-6 | >= 1.0 - <= 5.0 % |
| Propane | 74-98-6 | >= 1.0 - <= 5.0 % |
| 4,4' -Methylenediphenyl diisocyanate | 101-68-8 | >= 5.0 - <= 10.0 % |

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

## 4. FIRST AID MEASURES

**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:** 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. 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.

## 5. FIREFIGHTING MEASURES

**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.

## 6. ACCIDENTAL RELEASE MEASURES

**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. 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. Confined space entry procedures must be followed before entering the area. 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 breathing vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated contact with skin. Wash thoroughly after handling. Keep container closed. Use only with adequate ventilation. 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**

| Storage temperature: | Storage Period: |
|---|---|
| 25 °C | 12 Month |

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Control parameters**

Exposure limits are listed below, if they exist.

| Component | Regulation | Type of listing | Value/Notation |
|---|---|---|---|
| Diphenylmethane Diisocyanate, isomers and homologues | CA AB OEL | TWA | 0.07 mg/m3 0.005 ppm |
| | CA BC OEL | TWA | 0.005 ppm |
| | CA BC OEL | C | 0.01 ppm |
| | CA BC OEL | TWA | SKIN, SEN |
| | CA BC OEL | C | SEN |
| Isobutane | ACGIH | STEL | 1,000 ppm |
| | CA AB OEL | TWA | 1,000 ppm |
| | CA BC OEL | TWA | 1,000 ppm |
| | CA ON OEL | TWA | 800 ppm |
| Methyl ether | US WEEL | TWA | 1,000 ppm |
| | CA BC OEL | TWA | 1,000 ppm |
| Propane | ACGIH | | Asphyxiant |
| | CA AB OEL | TWA | 1,000 ppm |
| | CA BC OEL | TWA | 1,000 ppm |
| | CA QC OEL | TWAEV | 1,800 mg/m3 1,000 ppm |
| | CA ON OEL | TWA | 1,000 ppm |
| 4,4' -Methylenediphenyl diisocyanate | ACGIH | TWA | 0.005 ppm |
| | Dow IHG | TWA | 0.005 ppm |
| | Dow IHG | STEL | 0.02 ppm |
| | CA AB OEL | TWA | 0.05 mg/m3 0.005 ppm |
| | CA BC OEL | TWA | 0.005 ppm |

| | | |
|---|---|---|
| CA BC OEL | C | 0.01 ppm |
| CA BC OEL | TWA | SKIN, SEN |
| CA QC OEL | TWAEV | 0.051 mg/m3 0.005 ppm |
| CA BC OEL | C | SKIN, SEN |
| CA QC OEL | TWAEV | SKIN, SEN |
| CA ON OEL | TWA | 0.005 ppm |
| CA ON OEL | C | 0.02 ppm |

Consult local authorities for recommended exposure limits.

**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.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance**

**Physical state** Foam

| | |
|---|---|
| **Color** | Yellow |
| **Odor** | Mild |
| **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** | **closed cup** -104 °C *Estimated.* |
| **Evaporation Rate (Butyl Acetate = 1)** | No test data available |
| **Flammability (solid, gas)** | Flammable gas. |
| **Lower explosion limit** | No test data available |
| **Upper explosion limit** | No test data available |
| **Vapor Pressure** | 1,151 kPa at 55 °C *Calculated.* |
| **Relative Vapor Density (air = 1)** | No test data available |
| **Relative Density (water = 1)** | 1.06 *Estimated.* |
| **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.

## 10. STABILITY AND REACTIVITY

**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.

## 11. TOXICOLOGICAL INFORMATION

*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 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.

Does not cause respiratory sensitisation.

**Specific Target Organ Systemic Toxicity (Single Exposure)**
May cause respiratory irritation.
Route of Exposure: Inhalation

**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/m3) 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.

**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** | **List** | **Classification** |
|---|---|---|
| **Paraffin waxes and Hydrocarbon waxes, chlorinated** | IARC | Group 2B: Possibly carcinogenic to humans |
| | US NTP | Reasonably anticipated to be a human carcinogen |

## 12. ECOLOGICAL INFORMATION

*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

**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.

**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
MATC (Maximum Acceptable Toxicant Level), 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

**Isobutane**

**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

**Propane**

**Acute toxicity to fish**
No relevant data found.

**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

**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

**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.

**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.
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)
**Sensitizer:** OH radicals
**Atmospheric half-life:** 0.24 d
**Method:** Estimated.

**Paraffin waxes and Hydrocarbon waxes, chlorinated**

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

**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)
**Sensitizer:** OH radicals
**Atmospheric half-life:** 4.4 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)
**Sensitizer:** 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)
**Sensitizer:** OH radicals
**Atmospheric half-life:** 8.4 d
**Method:** Estimated.

**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

**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

**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.

**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.

**Isobutane**

**Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
**Partition coefficient: n-octanol/water(log Pow):** 2.76 Measured

**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

**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

**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.

**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.

**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**

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.

**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.

**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.

## 13. DISPOSAL CONSIDERATIONS

**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.

## 14. TRANSPORT INFORMATION

**TDG**

| | |
|---|---|
| **Proper shipping name** | AEROSOLS |
| **UN number** | UN 1950 |
| **Class** | 2.1 |
| **Packing group** | |

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

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

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

| | |
|---|---|
| **Proper shipping name** | Aerosols, flammable |
| **UN number** | UN 1950 |
| **Class** | 2.1 |
| **Packing group** | |

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.

## 15. REGULATORY INFORMATION

**Canadian Domestic Substances List (DSL) (DSL)**
All substances contained in this product are listed on the Canadian Domestic Substances List (DSL) or are not required to be listed.

## 16. OTHER INFORMATION

**Revision**

Identification Number: 101194255 / A208 / Issue Date: 10/13/2016 / Version: 9.0
Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

**Legend**

| | |
|---|---|
| ACGIH | USA. American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLV) |
| Asphyxiant | Asphyxiant |
| C | ceiling limit |
| CA AB OEL | Canada. Alberta, Occupational Health and Safety Code (table 2: OEL) |
| CA BC OEL | Canada. British Columbia OEL |
| CA ON OEL | Ontario Table of Occupational Exposure Limits made under the Occupational Health and Safety Act. |
| CA QC OEL | Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants |
| Dow IHG | Dow Industrial Hygiene Guideline |
| SEN | Sensitizer |
| SKIN, SEN | Absorbed via Skin, Sensitizer |
| STEL | Short term exposure limit |
| TWA | Time weighted average |
| TWAEV | Time-weighted average exposure value |
| US WEEL | USA. Workplace Environmental Exposure Levels (WEEL) |

**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.

DOW CHEMICAL CANADA ULC 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.