

**Product Name:** Dimension\* Turf Herbicide**Issue Date:** 2012.02.28

Dow AgroSciences Canada Inc. 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. Product and Company Identification

**Product Name**

Dimension\* Turf Herbicide

**COMPANY IDENTIFICATION**

Dow AgroSciences Canada Inc.  
A Subsidiary of The Dow Chemical Company  
Suite 2100, 450 1<sup>st</sup> Street SW,  
Calgary, AB T2P 5H1  
Canada

**For MSDS updates and Product Information:** 800-667-3852**Prepared By:** Prepared for use in Canada by EH&S, Hazard Communications.  
**Revision** 2012.02.28**Customer Information Number:** 800-667-3852  
[solutions@dow.com](mailto:solutions@dow.com)**EMERGENCY TELEPHONE NUMBER****24-Hour Emergency Contact:** 613-996-6666  
**Local Emergency Contact:** 613-996-6666

## 2. Hazards Identification

**Emergency Overview****Color:** Yellow**Physical State:** Liquid**Odor:** Solvent**Hazards of product:**

CAUTION! Combustible liquid and vapor. May cause eye irritation. May cause skin irritation. May cause central nervous system effects. Aspiration hazard. Can enter lungs and cause damage. Isolate area. Keep upwind of spill. Stay out of low areas. Suspect cancer hazard. May cause cancer.

**Potential Health Effects**

**Eye Contact:** May cause eye irritation. Vapor may cause eye irritation experienced as mild discomfort and redness.

**Skin Contact:** Prolonged contact may cause skin irritation with local redness. May cause drying and flaking of the skin.

**Skin Absorption:** Prolonged skin contact is unlikely to result in absorption of harmful amounts.

**Skin Sensitization:** For the minor component(s): Naphthalene. Skin contact may cause an allergic skin reaction in a small proportion of individuals.

**Inhalation:** Prolonged exposure is not expected to cause adverse effects. Excessive exposure may cause irritation to upper respiratory tract (nose and throat). May cause central nervous system effects.

**Ingestion:** Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.

**Aspiration hazard:** Aspiration into the lungs may occur during ingestion or vomiting, causing lung damage or even death due to chemical pneumonia.

**Effects of Repeated Exposure:** For the active ingredient(s): In animals, effects have been reported on the following organs after ingestion: Liver. Kidney. Adrenal gland. Thyroid. Gall bladder. Blood. Cataracts and other eye effects have been reported in humans repeatedly exposed to naphthalene vapor or dust. Ingestion of naphthalene by humans has caused hemolytic anemia. Excessive exposure may cause hemolysis, thereby impairing the blood's ability to transport oxygen. Excessive exposure to solvent(s) may cause respiratory irritation and central nervous system depression.

**Cancer Information:** Contains naphthalene which has caused cancer in some laboratory animals. In humans, there is limited evidence of cancer in workers involved in naphthalene production. Limited oral studies in rats were negative.

**Birth Defects/Developmental Effects:** For the minor component(s): Has been toxic to the fetus in laboratory animals at doses toxic to the mother.

**3. Composition/information on ingredients**

Component	CAS #	Amount W/W
Dithiopyr	97886-45-8	12.7 %
Heavy aromatic naphtha	64742-94-5	80.8 %
Naphthalene	91-20-3	>= 4.0 - <= 8.0 %
1,2,4-Trimethylbenzene	95-63-6	4.3 %
1,3,5-Trimethylbenzene	108-67-8	0.8 %
2-Ethylhexanol	104-76-7	0.2 %

Amounts are presented as percentages by weight.

**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 person is not breathing, call an emergency responder or ambulance, then give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask etc). Call a poison control center or doctor for treatment advice. If breathing is difficult, oxygen should be administered by qualified personnel.

**Skin Contact:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice. Suitable emergency safety shower facility should be available in work area.

**Eye Contact:** Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eyes. Call a poison control center or doctor for treatment advice. Suitable emergency eye wash facility should be available in work area.

**Ingestion:** Immediately call a poison control center or doctor. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give any liquid to the person. Do not give anything by mouth to an unconscious person.

**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), no additional symptoms and effects are anticipated.

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

Maintain adequate ventilation and oxygenation of the patient. If hemolysis is suspected, monitor hemoglobin, hematocrit, plasma free hemoglobin, and urinalysis. Whole blood or packed RBC transfusion may be required in severe cases. Alkalinization of urine with bicarbonate may prevent renal damage. Administer 100% oxygen to relieve headache and a general sense of weakness. Determine methemoglobin concentration of blood every 3 to 6 hours for first 24 hours. It should return to normal within 24 hours. The treatment of toxic methemoglobinemia may include the intravenous administration of methylene blue. If methemoglobin >10-20% consider methylene blue 1-2 mg/kg body weight as 1% solution intravenously over 5 minutes followed by 15-30 cc flush (Price D, Methemoglobinemia, Goldfrank Toxicologic Emergencies, 5<sup>th</sup> ed., 1994). Also provide 100% oxygen. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. The decision of whether to induce vomiting or not should be made by a physician. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Have the Safety Data Sheet, and if available, the product container or label with you when calling a poison control center or doctor, or going for treatment.

Methemoglobinemia may aggravate any preexisting condition sensitive to a decrease in available oxygen, such as chronic lung disease, coronary artery disease or anemia. Skin contact may aggravate preexisting dermatitis.

## 5. Fire Fighting 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.

### 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. Carbon monoxide. Carbon dioxide.

**Unusual Fire and Explosion Hazards:** Violent steam generation or eruption may occur upon application of direct water stream to hot liquids. Dense smoke is produced when product burns.

### Advice for firefighters

**Fire Fighting Procedures:** Keep people away. Isolate fire and deny unnecessary entry. Consider feasibility of a controlled burn to minimize environment damage. Foam fire extinguishing system is preferred because uncontrolled water can spread possible contamination. Burning liquids may be extinguished by dilution with water. Do not use direct water stream. May spread fire. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS.

**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.

See Section 9 for related Physical Properties

## 6. Accidental Release Measures

**Personal precautions, protective equipment and emergency procedures:** No smoking in area. Isolate area. Keep unnecessary and unprotected personnel from entering the area. Keep personnel out of low areas. Keep upwind of spill. Ventilate area of leak or spill. Refer to Section 7, Handling, for additional precautionary measures. 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.

**Methods and materials for containment and cleaning up:** Contain spilled material if possible. Small spills: Absorb with materials such as: Clay. Dirt. Sand. Sweep up. Collect in suitable and properly labeled containers. Large spills: Contact Dow AgroSciences for clean-up assistance. See Section 13, Disposal Considerations, for additional information.

## 7. Handling and Storage

### Handling

**General Handling:** Keep out of reach of children. Keep away from heat, sparks and flame. Do not swallow. Avoid breathing vapor or mist. Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling. Keep container closed. Use with adequate ventilation. This product is a poor conductor of electricity and can become electrostatically charged, even in bonded or grounded equipment. If sufficient charge is accumulated, ignition of flammable mixtures can occur. Handling operations that can promote accumulation of static charges include but are not limited to mixing, filtering, pumping at high flow rates, splash filling, creating mists or sprays, tank and container filling, tank cleaning, sampling, gauging, switch loading, vacuum truck operations. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

**Other Precautions:** 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.

### Storage

Do not store near food, foodstuffs, drugs or potable water supplies. Store in a dry place. Store in original container. Keep container tightly closed.

## 8. Exposure Controls / Personal Protection

### Exposure Limits

Component	List	Type	Value
Dithiopyr	Dow IHG	TWA	0.25 mg/m <sup>3</sup>
1,2,4-Trimethylbenzene	CAD AB OEL	TWA	123 mg/m <sup>3</sup> 25 ppm
	CAD BC OEL	TWA	25 ppm
	CAD ON OEL	TWAEV	123 mg/m <sup>3</sup> 25 ppm
	ACGIH	TWA	25 ppm
	OEL (QUE)	TWA	123 mg/m <sup>3</sup> 25 ppm
	OEL (QUE)	TWA	123 mg/m <sup>3</sup> 25 ppm
Naphthalene	CAD AB OEL	TWA	52 mg/m <sup>3</sup> 10 ppm SKIN
	CAD AB OEL	STEL	79 mg/m <sup>3</sup> 15 ppm SKIN
	CAD BC OEL	TWA	10 ppm SKIN
	CAD BC OEL	STEL	15 ppm SKIN
	CAD ON OEL	TWAEV	52 mg/m <sup>3</sup> 10 ppm
	CAD ON OEL	STEV	78 mg/m <sup>3</sup> 15 ppm
	ACGIH	TWA	10 ppm SKIN

	ACGIH	STEL	15 ppm SKIN
	OEL (QUE)	TWA	52 mg/m3 10 ppm
	OEL (QUE)	STEL	79 mg/m3 15 ppm
<b>1,3,5-Trimethylbenzene</b>	CAD ON OEL	TWAEV	123 mg/m3 25 ppm
	ACGIH	TWA	25 ppm
	CAD AB OEL	TWA	123 mg/m3 25 ppm
	CAD BC OEL	TWA	25 ppm
	OEL (QUE)	TWA	123 mg/m3 25 ppm

Consult local authorities for recommended exposure limits.

RECOMMENDATIONS IN THIS SECTION ARE FOR MANUFACTURING, COMMERCIAL BLENDING AND PACKAGING WORKERS. APPLICATORS AND HANDLERS SHOULD SEE THE PRODUCT LABEL FOR PROPER PERSONAL PROTECTIVE EQUIPMENT AND CLOTHING.

A "skin" notation following the inhalation exposure guideline refers to the potential for dermal absorption of the material including mucous membranes and the eyes either by contact with vapors or by direct skin contact.

It is intended to alert the reader that inhalation may not be the only route of exposure and that measures to minimize dermal exposures should be considered.

### Personal Protection

**Eye/Face Protection:** Use safety glasses (with side shields). If exposure causes eye discomfort, use a full-face respirator.

**Skin Protection:** Wear clean, body-covering clothing.

**Hand protection:** Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. Examples of preferred glove barrier materials include: Viton. Polyethylene. Chlorinated polyethylene. Polyvinyl chloride ("PVC" or "vinyl"). Styrene/butadiene rubber. Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: Butyl rubber. Natural rubber ("latex"). Nitrile/butadiene rubber ("nitrile" or "NBR"). 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.

**Respiratory Protection:** Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions no respiratory protection should be needed; however, if discomfort is experienced, use an approved air-purifying respirator. The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

**Ingestion:** Avoid ingestion of even very small amounts; do not consume or store food or tobacco in the work area; wash hands and face before smoking or eating.

### Engineering Controls

**Ventilation:** Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

## 9. Physical and Chemical Properties

### Appearance

<b>Physical State</b>	Liquid.
<b>Color</b>	Yellow
<b>Odor</b>	Solvent
<b>Odor Threshold</b>	No test data available
<b>pH</b>	4.1 <i>Literature</i>
<b>Melting Point</b>	Not applicable
<b>Freezing Point</b>	No test data available
<b>Boiling Point (760 mmHg)</b>	176 - 210 °C <i>Vendor Solvent.</i>

<b>Flash Point - Closed Cup</b>	63 °C <i>Tag Closed Cup ASTM D56</i>
<b>Evaporation Rate (Butyl Acetate = 1)</b>	<1 <i>Literature</i>
<b>Flammable Limits In Air</b>	<b>Lower:</b> 0.8 %(V) <i>Vendor Solvent</i> <b>Upper:</b> 7.0 %(V) <i>Vendor Solvent</i>
<b>Vapor Pressure</b>	3 mmHg @ 25 °C <i>Vendor Solvent</i>
<b>Vapor Density (air = 1)</b>	4.8 <i>Vendor Solvent</i>
<b>Specific Gravity (H2O = 1)</b>	0.95 <i>Literature</i>
<b>Solubility in water (by weight)</b>	emulsifiable
<b>Partition coefficient, n-octanol/water (log Pow)</b>	No data available for this product. See Section 12 for individual component data.
<b>Autoignition Temperature</b>	No test data available
<b>Decomposition Temperature</b>	No test data available
<b>Dynamic Viscosity</b>	No test data available
<b>Kinematic Viscosity</b>	No test data available
<b>Liquid Density</b>	0.95 g/cm <sup>3</sup> <i>Literature</i>
<b>Percent Volatiles</b>	85 Wt% <i>Literature</i> Approximately

## 10. Stability and Reactivity

### Reactivity

No dangerous reaction known under conditions of normal use.

### Chemical stability

Stable under recommended storage conditions. See Storage, Section 7. Thermally stable at recommended temperatures and pressures.

### Possibility of hazardous reactions

Polymerization will not occur.

**Conditions to Avoid:** Exposure to elevated temperatures can cause product to decompose.

Avoid static discharge. Avoid direct sunlight.

**Incompatible Materials:** Avoid contact with: Strong oxidizers.

### Hazardous decomposition products

Decomposition products depend upon temperature, air supply and the presence of other materials.

Decomposition products can include and are not limited to: Carbon monoxide. Carbon dioxide.

Nitrogen oxides.

## 11. Toxicological Information

### Acute Toxicity

#### Ingestion

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

Based on information for component(s): LD50, rat > 5,000 mg/kg

#### Dermal

As product: The dermal LD50 has not been determined.

Based on information for component(s): LD50, rabbit > 5,000 mg/kg

#### Inhalation

As product: The LC50 has not been determined.

For the major component(s): Estimated. LC50, Aerosol, rat > 11 mg/l

### Eye damage/eye irritation

May cause eye irritation. Vapor may cause eye irritation experienced as mild discomfort and redness.

### Skin corrosion/irritation

Prolonged contact may cause skin irritation with local redness. May cause drying and flaking of the skin.

**Sensitization****Skin**

For the active ingredient(s): Did not cause allergic skin reactions when tested in guinea pigs. For the minor component(s): Naphthalene. Skin contact may cause an allergic skin reaction in a small proportion of individuals.

**Respiratory**

No relevant data found.

**Repeated Dose Toxicity**

For the active ingredient(s): In animals, effects have been reported on the following organs after ingestion: Liver. Kidney. Adrenal gland. Thyroid. Gall bladder. Blood. Cataracts and other eye effects have been reported in humans repeatedly exposed to naphthalene vapor or dust. Ingestion of naphthalene by humans has caused hemolytic anemia. Excessive exposure may cause hemolysis, thereby impairing the blood's ability to transport oxygen. Excessive exposure to solvent(s) may cause respiratory irritation and central nervous system depression.

**Chronic Toxicity and Carcinogenicity**

Active ingredient did not cause cancer in laboratory animals. Contains naphthalene which has caused cancer in some laboratory animals. In humans, there is limited evidence of cancer in workers involved in naphthalene production. Limited oral studies in rats were negative.

**Carcinogenicity Classifications:**

Component	List	Classification
Naphthalene	IARC	Possibly carcinogenic to humans.; 2B

**Developmental Toxicity**

For the active ingredient(s): Did not cause birth defects or other effects in the fetus even at doses which caused toxic effects in the mother. For the minor component(s): Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals.

**Reproductive Toxicity**

In animal studies, active ingredient did not interfere with reproduction.

**Genetic Toxicology**

For the active ingredient(s): In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative. For the minor component(s): Naphthalene. In vitro genetic toxicity studies were negative in some cases and positive in other cases.

## 12. Ecological Information

**Toxicity****Data for Component: Dithiopyr**

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). Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg). Material is practically non-toxic to birds on a dietary basis (LC50 > 5000 ppm).

**Fish Acute & Prolonged Toxicity**

LC50, *Oncorhynchus mykiss* (rainbow trout), 96 h: 0.5 mg/l

**Aquatic Invertebrate Acute Toxicity**

EC50, *Daphnia magna* (Water flea), 48 h: > 1.1 mg/l

**Toxicity to Above Ground Organisms**

oral LD50, *Colinus virginianus* (Bobwhite quail): > 2,250 mg/kg

dietary LC50, *Colinus virginianus* (Bobwhite quail): > 5,620 ppm

contact LD50, *Apis mellifera* (bees): 80 ug/bee

**Toxicity to Soil Dwelling Organisms**

LC50, *Eisenia fetida* (earthworms): > 1,000 mg/kg

**Data for Component: Heavy aromatic naphtha**

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). Material is practically non-toxic to birds on a dietary basis (LC50 > 5000 ppm). Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg).

**Fish Acute & Prolonged Toxicity**

LC50, Oncorhynchus mykiss (rainbow trout), semi-static test, 96 h: 2.34 mg/l

**Aquatic Invertebrate Acute Toxicity**

EC50, Daphnia magna (Water flea), semi-static test, 48 h, immobilization: 0.95 mg/l

**Aquatic Invertebrates Chronic Toxicity Value**

Daphnia pulex (Water flea), 21 d, mortality, NOEC: 5.2 mg/l

**Toxicity to Above Ground Organisms**

dietary LC50, Colinus virginianus (Bobwhite quail): > 6,500 ppm

oral LD50, Colinus virginianus (Bobwhite quail): > 2,250 mg/kg

**Data for Component: Naphthalene**

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).

**Fish Acute & Prolonged Toxicity**

LC50, Oncorhynchus mykiss (rainbow trout), 96 h: 0.11 mg/l

**Aquatic Invertebrate Acute Toxicity**

EC50, Daphnia magna (Water flea), static test, 48 h, immobilization: 1.6 - 24.1 mg/l

**Data for Component: 1,2,4-Trimethylbenzene**

Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).

**Fish Acute & Prolonged Toxicity**

LC50, Pimephales promelas (fathead minnow), flow-through test, 96 h: 7.7 mg/l

**Aquatic Invertebrate Acute Toxicity**

EC50, Daphnia magna (Water flea), 48 h: 3.6 mg/l

**Data for Component: 1,3,5-Trimethylbenzene**

Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).

**Fish Acute & Prolonged Toxicity**

LC50, Carassius auratus (goldfish), flow-through test, 96 h: 12.5 mg/l

**Aquatic Invertebrate Acute Toxicity**

LC50, Daphnia magna (Water flea), static test, 48 h, mortality: 6 mg/l

**Aquatic Plant Toxicity**

EbC50, alga Scenedesmus sp., biomass growth inhibition, 48 h: 25 mg/l

**Aquatic Invertebrates Chronic Toxicity Value**

Daphnia magna (Water flea), semi-static test, 21 d, number of offspring, NOEC: 0.4 mg/l

**Data for Component: 2-Ethylhexanol**

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).

**Fish Acute & Prolonged Toxicity**

LC50, Oncorhynchus mykiss (rainbow trout), 96 h: 32 - 37 mg/l

**Aquatic Invertebrate Acute Toxicity**

LC50, Daphnia magna (Water flea), 48 h, lethality: 35.2 mg/l

**Aquatic Plant Toxicity**

ErC50, Pseudokirchneriella subcapitata (green algae), Growth rate inhibition, 72 h: 11.5 mg/l

**Toxicity to Micro-organisms**

EC50; Bacteria, 16 h: 256 - 320 mg/l

**Persistence and Degradability****Data for Component: Dithiopyr**

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

**Data for Component: Heavy aromatic naphtha**

Biodegradation may occur under aerobic conditions (in the presence of oxygen). Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.



**OECD Biodegradation Tests:**

Biodegradation	Exposure Time	Method	10 Day Window
30 - 41 %	28 d	OECD 301D Test	fail

**Data for Component: Naphthalene**

Biodegradation under aerobic static laboratory conditions is high (BOD20 or BOD28/ThOD > 40%).

**Indirect Photodegradation with OH Radicals**

Rate Constant	Atmospheric Half-life	Method
2.16E-11 cm <sup>3</sup> /s	5.9 h	Estimated.

**Biological oxygen demand (BOD):**

BOD 5	BOD 10	BOD 20	BOD 28
57.000 %	71.000 %	71.000 %	

Theoretical Oxygen Demand: 3.00 mg/mg

**Data for Component: 1,2,4-Trimethylbenzene**

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

**OECD Biodegradation Tests:**

Biodegradation	Exposure Time	Method	10 Day Window
4 - 18 %	28 d	OECD 301C Test	Not applicable

**Indirect Photodegradation with OH Radicals**

Rate Constant	Atmospheric Half-life	Method
1.670E-11 cm <sup>3</sup> /s	0.641 d	Estimated.

Theoretical Oxygen Demand: 3.19 mg/mg

**Data for Component: 1,3,5-Trimethylbenzene**

Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.

**OECD Biodegradation Tests:**

Biodegradation	Exposure Time	Method	10 Day Window
0 %	28 d	OECD 301C Test	Not applicable
50 %	4.4 d	Calculated	Not applicable

**Indirect Photodegradation with OH Radicals**

Rate Constant	Atmospheric Half-life	Method
3.51E-11 cm <sup>3</sup> /s	3.7 h	Estimated.

Theoretical Oxygen Demand: 3.19 mg/mg

**Data for Component: 2-Ethylhexanol**

Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. Material is ultimately biodegradable (reaches > 70% biodegradation in OECD test(s) for inherent biodegradability).

**OECD Biodegradation Tests:**

Biodegradation	Exposure Time	Method	10 Day Window
68 %	17 d	OECD 301B Test	pass
> 95 %	5 d	OECD 302B Test	Not applicable

**Indirect Photodegradation with OH Radicals**

Rate Constant	Atmospheric Half-life	Method
1.32E-11 cm <sup>3</sup> /s	9.7 h	Estimated.

**Biological oxygen demand (BOD):**

BOD 5	BOD 10	BOD 20	BOD 28
26 - 70 %	75 - 81 %	86 - 87 %	

Chemical Oxygen Demand: 2.70 mg/mg

Theoretical Oxygen Demand: 2.95 mg/mg

**Bioaccumulative potential**Data for Component: Dithiopyr

**Bioaccumulation:** Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

**Partition coefficient, n-octanol/water (log Pow):** 4.75 Measured

Data for Component: Heavy aromatic naphtha

**Bioaccumulation:** Bioconcentration potential is high (BCF > 3000 or Log Pow between 5 and 7).

**Partition coefficient, n-octanol/water (log Pow):** 2.9 - 6.1 Measured

**Bioconcentration Factor (BCF):** 61 - 159; Fish

Data for Component: Naphthalene

**Bioaccumulation:** Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

**Partition coefficient, n-octanol/water (log Pow):** 3.3 Measured

**Bioconcentration Factor (BCF):** 40 - 300; Fish; Measured

Data for Component: 1,2,4-Trimethylbenzene

**Bioaccumulation:** Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

**Partition coefficient, n-octanol/water (log Pow):** 3.63 Measured

**Bioconcentration Factor (BCF):** 33 - 275; Cyprinus carpio (Carp); Measured

Data for Component: 1,3,5-Trimethylbenzene

**Bioaccumulation:** Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

**Partition coefficient, n-octanol/water (log Pow):** 3.42 Measured

**Bioconcentration Factor (BCF):** 161; Pimephales promelas (fathead minnow); Measured

Data for Component: 2-Ethylhexanol

**Bioaccumulation:** Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

**Partition coefficient, n-octanol/water (log Pow):** 3.1 Measured

**Mobility in soil**Data for Component: Dithiopyr

**Mobility in soil:** 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, soil organic carbon/water (Koc):** 20,500 **Henry's Law Constant (H):** 1.51E-09 atm\*m3/mole; 25 °C Measured

Data for Component: Heavy aromatic naphtha

**Mobility in soil:** No data available.

Data for Component: Naphthalene

**Mobility in soil:** Potential for mobility in soil is medium (Koc between 150 and 500).

**Partition coefficient, soil organic carbon/water (Koc):** 240 - 1,300 Measured

**Henry's Law Constant (H):** 2.92E-04 - 5.53E-04 atm\*m3/mole; 25 °C Measured

**Distribution in Environment: Mackay Level 1 Fugacity Model:**

Air	Water.	Biota	Soil	Sediment
74 %	8.5 %	< 0.01 %	18 %	0.39 %

Data for Component: 1,2,4-Trimethylbenzene

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

**Partition coefficient, soil organic carbon/water (Koc):** 720 Estimated.

**Henry's Law Constant (H):** 6.16E-03 atm\*m3/mole; 25 °C Measured

Data for Component: 1,3,5-Trimethylbenzene

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

**Partition coefficient, soil organic carbon/water (Koc):** 741.65 Estimated.

**Henry's Law Constant (H):** 1.97E-02 atm\*m3/mole; 25 °C Estimated.

**Distribution in Environment: Mackay Level 1 Fugacity Model:**

Air	Water.	Biota	Soil	Sediment
97.26 %	0.62 %	< 0.01 %	2.08 %	0.05 %

Data for Component: 2-Ethylhexanol

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

**Partition coefficient, soil organic carbon/water (Koc):** 800 Estimated.

**Henry's Law Constant (H):** 2.49E-05 atm\*m3/mole Estimated.

**13. Disposal Considerations**

If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws.

**14. Transport Information****TDG Small container**

NOT REGULATED

**TDG Large container**

NOT REGULATED

**IMDG**

**Proper Shipping Name:** ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID, N.O.S

**Technical Name:** DITHIOPYR, NAPHTHALENE

**Hazard Class:** 9 **ID Number:** UN3082 **Packing Group:** PG III

**EMS Number:** F-A,S-F

**Marine pollutant.:** Yes

**ICAO/IATA**

**Proper Shipping Name:** ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID, N.O.S

**Technical Name:** DITHIOPYR, NAPHTHALENE

**Hazard Class:** 9 **ID Number:** UN3082 **Packing Group:** PG III

**Cargo Packing Instruction:** 964

**Passenger Packing Instruction:** 964

**15. Regulatory Information****CEPA - Domestic Substances List (DSL)**

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

**Hazardous Products Act Information: CPR Compliance**

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

**Hazardous Products Act Information: WHMIS Classification**

This product is exempt under WHMIS.

**Pest Control Products Act Registration number:** 23003

**National Fire Code of Canada**

Class IIIA

## 16. Other Information

### Hazard Rating System

<b>NFPA</b>	<b>Health</b>	<b>Fire</b>	<b>Reactivity</b>
	3	2	0

### Recommended Uses and Restrictions

#### Identified uses

Product use: End use herbicide product

#### Revision

Identification Number: 76577 / 1023 / Issue Date 2012.02.28 / Version: 4.0

DAS Code: GF-1270

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

#### Legend

N/A	Not available
W/W	Weight/Weight
OEL	Occupational Exposure Limit
STEL	Short Term Exposure Limit
TWA	Time Weighted Average
ACGIH	American Conference of Governmental Industrial Hygienists, Inc.
DOW IHG	Dow Industrial Hygiene Guideline
WEEL	Workplace Environmental Exposure Level
HAZ_DES	Hazard Designation
VOL/VOL	Volume/Volume

*Dow AgroSciences Canada Inc. 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.*