



SAFETY DATA SHEET

Product name: CARTEL DOT 4 BRAKE FLUID #02-32-12,02-12-12 **Issue Date:** 03/09/2015
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CARTEL PRODUCTS 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: DOT 4 BRAKE FLUID

Recommended use of the chemical and restrictions on use

Identified uses: Brake fluid formulations. For use in automotive applications.

COMPANY IDENTIFICATION

CARTEL PRODUCTS

PO BOX 151

WOODSTOCK IL 60098

PH 815-334-0250 FAX 815-333-0348

info@cartelproducts.com

24 Hour Emergency Response Number

INFOTRAC 1-800-535-5053 US AND CANADA

1-352-323-3500 INTERNATIONAL

2. HAZARDS IDENTIFICATION

Hazard classification

This material is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29CFR 1910.1200.

Skin irritation - Category 2

Serious eye damage - Category 1

Reproductive toxicity - Category 2

Label elements

Hazard pictograms



Signal word: **DANGER!**

Hazards

Causes skin irritation.

Causes serious eye damage.

Suspected of damaging fertility or the unborn child.

Precautionary statements

Prevention

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Wash skin thoroughly after handling.

Wear eye protection/ face protection.

Wear protective gloves.

Use personal protective equipment as required.

Response

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

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.

IF exposed or concerned: Get medical advice/ attention.

If skin irritation occurs: Get medical advice/ attention.

Take off contaminated clothing and wash before reuse.

Storage

Store locked up.

Disposal

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

Other hazards

no data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature: Polyglycol

This product is a mixture.

Component	CASRN	Concentration
Triethylene glycol monomethyl ether borate ester	30989-05-0	> 15.0 - < 40.0 %

Triethylene glycol monomethyl ether	112-35-6	> 10.0 - < 30.0 %
Polyethylene glycol monomethyl ether	9004-74-4	> 10.0 - < 30.0 %
Triethylene glycol monobutyl ether	143-22-6	> 8.0 - < 18.0 %
Polyethylene glycol monobutyl ether	9004-77-7	> 7.0 - < 13.0 %
Tetraethylene glycol	112-60-7	< 10.0 %
Pentaethylene glycol	4792-15-8	< 5.0 %
Triethylene glycol	112-27-6	< 5.0 %
Diisopropanolamine	110-97-4	< 1.5 %
2,6-Di-tert-butyl-p-cresol (BHT)	128-37-0	< 1.0 %
Diethylene glycol monomethyl ether	111-77-3	< 1.0 %
Sodium hydroxide	1310-73-2	< 1.0 %

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 effects occur, consult a physician.

Skin contact: Wash off with plenty of water.

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: No specific antidote. 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. May spread 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: Carbon monoxide. Carbon dioxide. Combustion products may include trace amounts of: Nitrogen oxides.

Unusual Fire and Explosion Hazards: Container may rupture from gas generation in a fire situation. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.

Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Burning liquids may be extinguished by dilution with water. Do not use direct water stream. May spread fire. Move container from fire area if this is possible without hazard. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage.

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). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Isolate area. Keep unnecessary and unprotected personnel from entering the area. 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: Spills or discharge to natural waterways is likely to kill aquatic organisms. Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

Methods and materials for containment and cleaning up: Small spills: Absorb with materials such as: Sand. Vermiculite. Collect in suitable and properly labeled containers. Large spills: Contain spilled material if possible. Pump into suitable and properly labeled containers. See Section 13, Disposal Considerations, for additional information.

7. HANDLING AND STORAGE

Precautions for safe handling: Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling. Spills of these organic materials on hot fibrous insulations may lead to lowering of the autoignition temperatures possibly resulting in spontaneous combustion. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Conditions for safe storage: Store in the following material(s): Carbon steel. Stainless steel. Phenolic lined steel drums. Do not store in: Aluminum. Copper. Galvanized iron. Galvanized steel.

Storage stability

Storage temperature:

> 5 - < 35 °C (> 41 - < 95 °F)

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure limits are listed below, if they exist.

Component	Regulation	Type of listing	Value/Notation
Tetraethylene glycol	US WEEL	TWA particulate	10 mg/m3
Triethylene glycol	Dow IHG	TWA Total	100 mg/m3
Diisopropanolamine	Dow IHG	TWA	10 ppm
2,6-Di-tert-butyl-p-cresol (BHT)	Dow IHG	TWA	10 mg/m3
	ACGIH	TWA Inhalable fraction and vapor	2 mg/m3
Diethylene glycol monomethyl ether	Dow IHG	TWA	30 ppm
Sodium hydroxide	ACGIH	C	2 mg/m3
	OSHA Z-1	TWA	2 mg/m3

Exposure controls

Engineering controls: 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.

Individual protection measures

Eye/face protection: Use chemical goggles.

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: Natural rubber ("latex"). Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyvinyl chloride ("PVC" or "vinyl"). Viton. 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: 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. In misty atmospheres, use an approved particulate respirator. 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	Liquid.
Color	Yellow
Odor	Ammoniacal
Odor Threshold	No test data available
pH	7.7 <i>Estimated.</i>
Melting point/range	<i>No test data available</i>
Freezing point	< -59 °C (< -74 °F) <i>Estimated.</i>
Boiling point (760 mmHg)	281.6 °C (538.9 °F) <i>FMVSS 116</i> 170 °C (338 °F) <i>FMVSS 116</i> Equilibrium Reflux Boiling Point, wet 279 °C (534 °F) <i>FMVSS 116</i> Equilibrium Reflux Boiling Point, dry
Flash point	closed cup 132.2 °C (270.0 °F) <i>PMCC, ASTM D93</i>
Evaporation Rate (Butyl Acetate = 1)	No test data available
Flammability (solid, gas)	No
Lower explosion limit	No test data available
Upper explosion limit	No test data available
Vapor Pressure	< 0.01 mmHg <i>Estimated.</i>
Relative Vapor Density (air = 1)	>10 <i>Estimated.</i>
Relative Density (water = 1)	1.053 at 20 °C (68 °F) <i>ASTM D1475</i>
Water solubility	100 % <i>Estimated.</i>
Partition coefficient: n-octanol/water	no data available
Auto-ignition temperature	No test data available
Decomposition temperature	No test data available
Dynamic Viscosity	No test data available
Kinematic Viscosity	1,100 mm ² /s at -40 °C (-40 °F) <i>Estimated.</i>
Explosive properties	No test data available
Oxidizing properties	No test data available

Molecular weight no data available
Volatile Organic Compounds *Not applicable* No test 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.

Possibility of hazardous reactions: Polymerization will not occur.

Conditions to avoid: Do not distill to dryness. Product can oxidize at elevated temperatures. Generation of gas during decomposition can cause pressure in closed systems.

Incompatible materials: Avoid contact with: Strong acids. Strong bases. 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: Aldehydes. Ketones. Organic acids. Decomposition products can include trace amounts of: Nitrogen oxides.

11. TOXICOLOGICAL INFORMATION

Toxicological information on this product or its components appear 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.

Single dose oral LD50 has not been determined.

Acute dermal toxicity

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

The dermal LD50 has not been determined.

Acute inhalation toxicity

At room temperature, exposure to vapor is minimal due to low volatility. Prolonged exposure is not expected to cause adverse effects. Mist may cause irritation of upper respiratory tract (nose and throat).

The LC50 has not been determined.

Skin corrosion/irritation

Prolonged contact may cause skin irritation with local redness.

May cause more severe response on covered skin (under clothing, gloves).
May cause more severe response if skin is abraded (scratched or cut).

Serious eye damage/eye irritation

May cause severe eye irritation.
May cause moderate corneal injury.

Sensitization

For skin sensitization:
Based on information for component(s):
Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:
No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)

Available data are inadequate to determine single exposure specific target organ toxicity.

Specific Target Organ Systemic Toxicity (Repeated Exposure)

Contains component(s) which have been reported to cause effects on the following organs in animals:
Bladder.
Kidney.
These effects were only observed at exaggerated doses.

Carcinogenicity

Contains component(s) which did not cause cancer in laboratory animals.

Teratogenicity

Triethylene glycol did not cause birth defects in animals; reduced fetal body weight effects were seen only at very high doses. In animals, diethylene glycol methyl ether is slightly toxic to the fetus at doses nontoxic to the mother following skin contact; birth defects have been seen only following high oral doses which have little relevance to human exposure. Contains component(s) which did not cause birth defects in animals; other fetal effects occurred only at doses toxic to the mother.

Reproductive toxicity

Based on information for component(s): In laboratory animals, excessive doses toxic to the parent animals caused decreased weight and survival of offspring. Contains component(s) which did not interfere with reproduction in animal studies.

Mutagenicity

In vitro genetic toxicity studies were negative for component(s) tested. Genetic toxicity studies in animals were negative for component(s) tested.

Aspiration Hazard

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

COMPONENTS INFLUENCING TOXICOLOGY:

Triethylene glycol monomethyl ether borate ester

Acute oral toxicity

LD50, Rat, male and female, > 2,000 mg/kg OECD Test Guideline 401 No deaths occurred at this concentration.

Acute dermal toxicity

LD50, Rat, male and female, > 2,000 mg/kg OECD Test Guideline 402 No deaths occurred at this concentration.

Acute inhalation toxicity

The LC50 has not been determined.

Triethylene glycol monomethyl ether

Acute oral toxicity

LD50, Rat, 10,500 mg/kg

Acute dermal toxicity

LD50, Rabbit, 7,100 mg/kg

Acute inhalation toxicity

Prolonged exposure is not expected to cause adverse effects. For respiratory irritation and narcotic effects: No relevant data found.

Rat, 8 Hour, vapour, No deaths occurred following exposure to a saturated atmosphere.

Polyethylene glycol monomethyl ether

Acute oral toxicity

Typical for this family of materials. LD50, Rat, > 4,000 mg/kg Estimated. No deaths occurred at this concentration.

Acute dermal toxicity

Typical for this family of materials. LD50, Rabbit, > 17,460 mg/kg Estimated.

Acute inhalation toxicity

At room temperature, exposure to vapor is minimal due to low volatility; single exposure is not likely to be hazardous. For respiratory irritation and narcotic effects: No relevant data found.

The LC50 has not been determined.

Triethylene glycol monobutyl ether

Acute oral toxicity

LD50, Rat, 5,170 mg/kg

Acute dermal toxicity

LD50, Rabbit, 3,540 mg/kg

Acute inhalation toxicity

As product: The LC50 has not been determined.

Polyethylene glycol monobutyl ether

Acute oral toxicity

Single dose oral LD50 has not been determined.

Based on information for a similar material: May cause nausea and vomiting. May cause abdominal discomfort or diarrhea. May cause dizziness and drowsiness. LD50, Rat, 2,630 mg/kg

Acute dermal toxicity

The dermal LD50 has not been determined.

Based on information for a similar material: LD50, Rabbit, 3,540 mg/kg

Acute inhalation toxicity

At room temperature, exposure to vapor is minimal due to low volatility. Mist may cause severe irritation of upper respiratory tract (nose and throat).

As product: The LC50 has not been determined.

Tetraethylene glycol

Acute oral toxicity

LD50, Rat, 30,000 mg/kg Estimated.

Acute dermal toxicity

LD50, Rabbit, 22,600 mg/kg

Acute inhalation toxicity

No deaths occurred following exposure to a saturated atmosphere.

Pentaethylene glycol

Acute oral toxicity

LD50, Guinea pig, 22,500 mg/kg

For similar material(s): Estimated. LD50, Rat, 30,000 mg/kg

Acute dermal toxicity

For similar material(s): LD50, Rabbit, 22,600 mg/kg

Acute inhalation toxicity

For similar material(s): No deaths occurred following exposure to a saturated atmosphere.

Triethylene glycol

Acute oral toxicity

Oral toxicity is expected to be greater in humans due to triethylene glycol even though tests in animals show a lower degree of toxicity. May cause nausea and vomiting. May cause abdominal discomfort or diarrhea. May cause dizziness and drowsiness. LD50, Rat, male and female, > 2,000 mg/kg

Acute dermal toxicity

LD50, Rabbit, > 18,016 mg/kg

Acute inhalation toxicity

At room temperature, exposure to vapor is minimal due to low volatility. Mist may cause irritation of upper respiratory tract (nose and throat). Vapor from heated material may cause adverse effects.

LC50, Rat, male and female, 4 Hour, dust/mist, > 5.2 mg/l No deaths occurred at this concentration.

Maximum attainable concentration. LC50, Rat, 4 Hour, dust/mist, > 4.5 mg/l No deaths occurred at this concentration.

Diisopropanolamine

Acute oral toxicity

LD50, Rat, > 2,000 mg/kg OECD 401 or equivalent No deaths occurred at this concentration.

Acute dermal toxicity

LD50, Rabbit, 8,000 mg/kg

Acute inhalation toxicity

The LC50 has not been determined. No deaths occurred following exposure to a saturated atmosphere.

2,6-Di-tert-butyl-p-cresol (BHT)

Acute oral toxicity

LD50, Rat, > 6,000 mg/kg OECD Test Guideline 401

Acute dermal toxicity

LD50, Rat, male and female, > 2,000 mg/kg OECD Test Guideline 402 No deaths occurred at this concentration.

Acute inhalation toxicity

The LC50 has not been determined.

Diethylene glycol monomethyl ether

Acute oral toxicity

LD50, Mouse, 7,128 mg/kg

Acute dermal toxicity

LD50, Rabbit, 9,404 mg/kg

Acute inhalation toxicity

No adverse effects are anticipated from single exposure to vapor. For respiratory irritation and narcotic effects: No relevant data found. The LC50 value is greater than the Maximum Attainable Concentration.

LC0, Rat, 6 Hour, vapour, > 1.2 mg/l No deaths occurred at this concentration.

Sodium hydroxide

Acute oral toxicity

Single dose oral LD50 has not been determined.

Acute dermal toxicity

The dermal LD50 has not been determined.

Acute inhalation toxicity

The LC50 has not been determined.

12. ECOLOGICAL INFORMATION

Ecotoxicological information on this product or its components appear in this section when such data is available.

Toxicity

Triethylene glycol monomethyl ether borate ester

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, Oncorhynchus mykiss (rainbow trout), semi-static test, 96 Hour, 590 mg/l

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), static test, 48 Hour, > 1,000 mg/l

Acute toxicity to algae/aquatic plants

EC50, alga Scenedesmus sp., static test, 96 Hour, Growth rate inhibition, 430 mg/l

Triethylene glycol monomethyl 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, Danio rerio (zebra fish), static test, 96 Hour, > 5,000 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), static test, 48 Hour, > 500 mg/l, Directive 84/449/EEC, C.2

Acute toxicity to algae/aquatic plants

ErC50, Desmodesmus subspicatus (green algae), static test, 72 Hour, Growth rate inhibition, > 500 mg/l, OECD Test Guideline 201 or Equivalent

Toxicity to bacteria

EC0, activated sludge, static test, 0.5 Hour, Respiration rates., > 2,000 mg/l, activated sludge test (OECD 209)

Polyethylene glycol monomethyl ether

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).
For this family of materials:
LC50, Pimephales promelas (fathead minnow), 96 Hour, > 10,000 mg/l

Acute toxicity to aquatic invertebrates

For this family of materials:
LC50, Daphnia magna (Water flea), 48 Hour, > 10,000 mg/l

Triethylene glycol monobutyl 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, Leuciscus idus (Golden orfe), static test, 96 Hour, 2,200 - 4,600 mg/l, DIN 38412

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), static test, 48 Hour, > 500 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants

EC50, *Desmodesmus subspicatus* (green algae), static test, 72 Hour, Growth rate inhibition, 62.5 mg/l, OECD Test Guideline 201 or Equivalent

Toxicity to bacteria

IC50, Bacteria, static test, 16 Hour, > 5,000 mg/l

Polyethylene glycol monobutyl 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).

Based on information for a similar material:

LC50, Fish., semi-static test, 96 Hour, > 1,800 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, 48 Hour, > 3,200 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants

Based on information for a similar material:

ErC50, *Scenedesmus capricornutum* (fresh water algae), static test, 72 Hour, Growth rate inhibition, 2,490 mg/l, OECD Test Guideline 201 or Equivalent

Toxicity to bacteria

IC50, activated sludge, static test, 16 Hour, Growth inhibition, > 5,000 mg/l

Tetraethylene glycol**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, *Pimephales promelas* (fathead minnow), static test, 96 Hour, > 10,000 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

LC50, *Daphnia magna* (Water flea), static test, 48 Hour, 7,746 mg/l, OECD Test Guideline 202 or Equivalent

LC50, Brine shrimp (*Artemia salina*), static test, 24 Hour, > 10,000 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants

EC50, *Skeletonema costatum*, static test, 72 Hour, Biomass, > 100 mg/l, OECD Test Guideline 201 or Equivalent

EC50, *Pseudokirchneriella subcapitata* (green algae), static test, 96 Hour, Biomass, > 1,000 mg/l, OECD Test Guideline 201 or Equivalent

Toxicity to bacteria

EC50, Bacteria, 7,500 mg/l

Pentaethylene glycol**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, *Pimephales promelas* (fathead minnow), 96 Hour, > 50,000 mg/l

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), 48 Hour, > 20,000 mg/l

Acute toxicity to algae/aquatic plants

EC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, Growth inhibition (cell density reduction), > 100 mg/l

Toxicity to bacteria

IC50, Bacteria, 16 Hour, > 5,000 mg/l

Triethylene glycol

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, Lepomis macrochirus (Bluegill sunfish), static test, 96 Hour, > 10,000 mg/l, Method Not Specified.

LC50, Pimephales promelas (fathead minnow), flow-through test, 96 Hour, 69,800 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), static test, 48 Hour, > 10,000 mg/l, DIN 38412

Toxicity to bacteria

EC50, Bacteria, 16 Hour, > 10,000 mg/l

Chronic toxicity to aquatic invertebrates

NOEC, Daphnia magna (Water flea), semi-static test, 21 d, number of offspring, > 15,000 mg/l
ChV (Chronic Value), Daphnia magna (Water flea), semi-static test, 21 d, number of offspring, > 15,000 mg/l

Diisopropanolamine

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, Pimephales promelas (fathead minnow), static test, 96 Hour, 580 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), static test, 48 Hour, 277.7 mg/l, Directive 84/449/EEC, C.2

Acute toxicity to algae/aquatic plants

EC50, alga Scenedesmus sp., static test, 72 Hour, Growth rate inhibition, 339 mg/l, OECD Test Guideline 201 or Equivalent

Toxicity to bacteria

EC50, activated sludge, 30 min, > 1,995 mg/l

2,6-Di-tert-butyl-p-cresol (BHT)

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).

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), static test, 48 Hour, 0.48 mg/l, OECD Test Guideline 202 or Equivalent

Chronic toxicity to aquatic invertebrates

NOEC, Daphnia magna (Water flea), semi-static test, 21 d, number of offspring, 0.07 mg/l

Diethylene glycol monomethyl 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, Pimephales promelas (fathead minnow), static test, 96 Hour, 5,741 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), static test, 48 Hour, 1,192 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants

EC50, Pseudokirchneriella subcapitata (green algae), static test, 96 Hour, Biomass, > 1,000 mg/l, OECD Test Guideline 201 or Equivalent

Toxicity to bacteria

EC50, activated sludge, 0.5 Hour, > 1,995 mg/l

Sodium hydroxide

Acute toxicity to fish

May increase pH of aquatic systems to > pH 10 which may be toxic to aquatic organisms.

Persistence and degradability

Triethylene glycol monomethyl ether borate ester

Biodegradability: 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.

10-day Window: Fail

Biodegradation: 22 - 26 %

Exposure time: 28 d

Method: OECD Test Guideline 301B or Equivalent

Triethylene glycol monomethyl ether

Biodegradability: Biodegradation under aerobic static laboratory conditions is high (BOD20 or BOD28/ThOD > 40%). Material is ultimately biodegradable (reaches > 70% mineralization in OECD test(s) for inherent biodegradability).

10-day Window: Pass

Biodegradation: 100 %

Exposure time: 13 d

Method: OECD Test Guideline 301B or Equivalent

Theoretical Oxygen Demand: 1.75 mg/mg

Biological oxygen demand (BOD)

Incubation Time	BOD
5 d	29 %
10 d	33 %
20 d	71 %

Photodegradation**Atmospheric half-life:** 3.2 Hour**Method:** Estimated.**Polyethylene glycol monomethyl ether****Biodegradability:** For this family of materials: Biodegradation under aerobic static laboratory conditions is low (BOD20 or BOD28/ThOD between 2.5 and 10%).**Triethylene glycol monobutyl ether****Biodegradability:** Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. Material is ultimately biodegradable (reaches > 70% mineralization in OECD test(s) for inherent biodegradability).

10-day Window: Fail

Biodegradation: 85 %**Exposure time:** 28 d**Method:** OECD Test Guideline 301D or Equivalent**Theoretical Oxygen Demand:** 2.10 mg/mg**Polyethylene glycol monobutyl ether****Biodegradability:** Based on information for a similar material: Material is expected to be readily biodegradable.

10-day Window: Pass

Biodegradation: 76 %**Exposure time:** 28 d**Method:** OECD Test Guideline 301D or Equivalent**Photodegradation****Sensitizer:** OH radicals**Atmospheric half-life:** 0.21 d**Method:** Estimated.**Tetraethylene glycol****Biodegradability:** Biodegradation under aerobic static laboratory conditions is high (BOD20 or BOD28/ThOD > 40%).**Theoretical Oxygen Demand:** 1.65 mg/mg Calculated.**Biological oxygen demand (BOD)**

Incubation Time	BOD
5 d	< 2.5 %
10 d	3 %
20 d	43 %

Photodegradation**Test Type:** Half-life (indirect photolysis)**Sensitizer:** OH radicals**Atmospheric half-life:** 2.55 Hour**Method:** Estimated.**Pentaethylene glycol****Biodegradability:** Biodegradation under aerobic static laboratory conditions is moderate (BOD20 or BOD28/ThOD between 10 and 40%).**Theoretical Oxygen Demand:** 1.68 mg/mg**Chemical Oxygen Demand:** 1.68 mg/mg**Biological oxygen demand (BOD)**

Incubation Time	BOD
5 d	3 %
10 d	11 %
20 d	34 %

Photodegradation**Test Type:** Half-life (indirect photolysis)**Sensitizer:** OH radicals**Atmospheric half-life:** 2 Hour**Method:** Estimated.**Triethylene glycol****Biodegradability:** Material is ultimately biodegradable (reaches > 70% mineralization in OECD test(s) for inherent biodegradability). Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

10-day Window: Pass

Biodegradation: 90 - 100 %**Exposure time:** 10 d**Method:** OECD Test Guideline 301A or Equivalent

10-day Window: Not applicable

Biodegradation: > 70 %**Exposure time:** 2 - 14 d**Method:** OECD Test Guideline 302B or Equivalent**Theoretical Oxygen Demand:** 1.60 mg/mg**Biological oxygen demand (BOD)**

Incubation Time	BOD
5 d	12 - 32 %
10 d	15 - 64 %
20 d	17 - 86 %

Photodegradation**Test Type:** Half-life (indirect photolysis)**Sensitizer:** OH radicals**Atmospheric half-life:** 10.6 Hour**Method:** Estimated.**Diisopropanolamine****Biodegradability:** Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. Material is ultimately biodegradable (reaches > 70% mineralization in OECD test(s) for inherent biodegradability).

10-day Window: Pass

Biodegradation: 94 %**Exposure time:** 28 d**Method:** OECD Test Guideline 301F or Equivalent**Theoretical Oxygen Demand:** 2.41 mg/mg**Chemical Oxygen Demand:** 1.86 mg/mg**Biological oxygen demand (BOD)**

Incubation Time	BOD
5 d	3 %
10 d	60 %
20 d	91 %

Photodegradation**Test Type:** Half-life (indirect photolysis)**Sensitizer:** OH radicals**Atmospheric half-life:** 0.105 d**Method:** Estimated.**2,6-Di-tert-butyl-p-cresol (BHT)****Biodegradability:** Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.

10-day Window: Not applicable

Biodegradation: 4.5 %**Exposure time:** 28 d**Method:** OECD Test Guideline 301C or Equivalent**Theoretical Oxygen Demand:** 2.98 mg/mg**Chemical Oxygen Demand:** 2.25 - 2.27 mg/mg**Diethylene glycol monomethyl ether****Biodegradability:** Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. Material is ultimately biodegradable (reaches > 70% mineralization in OECD test(s) for inherent biodegradability).

10-day Window: Pass

Biodegradation: 100 %**Exposure time:** 28 d

Method: OECD Test Guideline 301B or Equivalent

Theoretical Oxygen Demand: 1.73 mg/mg

Photodegradation

Atmospheric half-life: 4.9 Hour

Method: Estimated.

Sodium hydroxide

Biodegradability: Biodegradation is not applicable.

Bioaccumulative potential

Bioaccumulation: No test data available

Mobility in soil

Triethylene glycol monomethyl ether borate ester

No relevant data found.

Triethylene glycol monomethyl ether

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

Partition coefficient(Koc): 10 Estimated.

Polyethylene glycol monomethyl ether

No data available.

Triethylene glycol monobutyl ether

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

Partition coefficient(Koc): 10 Estimated.

Polyethylene glycol monobutyl ether

No data available.

Tetraethylene glycol

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.

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

Partition coefficient(Koc): < 0 Estimated.

Pentaethylene glycol

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.

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

Partition coefficient(Koc): 10 Estimated.

Triethylene glycol

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.

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

Partition coefficient(Koc): 10 Estimated.

Diisopropanolamine

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

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

Partition coefficient(Koc): 43 Estimated.

2,6-Di-tert-butyl-p-cresol (BHT)

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

Partition coefficient(Koc): > 5000 Estimated.

Diethylene glycol monomethyl ether

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

Partition coefficient(Koc): < 1 Estimated.

Sodium hydroxide

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

Partition coefficient(Koc): 14 Estimated.

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.

Treatment and disposal methods of used packaging: Empty containers should be recycled or otherwise disposed of by an approved waste management facility. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. Do not re-use containers for any purpose.

14. TRANSPORT INFORMATION

DOT

Not regulated for transport

Classification for SEA transport (IMO-IMDG):

Not regulated for transport

**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):

Not regulated for transport

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

OSHA Hazard Communication Standard

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

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

Acute Health Hazard

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

Components	CASRN
Triethylene glycol monomethyl ether	112-35-6
Triethylene glycol monobutyl ether	143-22-6

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

This material does not contain any components with a CERCLA RQ.

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

WARNING: This product contains a chemical(s) known to the State of California to cause cancer.

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

WARNING: This product contains a chemical(s) known to the State of California to cause birth defects or other reproductive harm.

Pennsylvania Worker and Community Right-To-Know Act:

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

Components	CASRN
Triethylene glycol monomethyl ether	112-35-6
Triethylene glycol monobutyl ether	143-22-6
Triethylene glycol	112-27-6
Diisopropanolamine	110-97-4

United States TSCA Inventory (TSCA)

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

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16. OTHER INFORMATION

Product Literature

Additional information on this product may be obtained by calling your sales or customer service contact.

Hazard Rating System

NFPA

Health	Fire	Reactivity
2	1	0

Revision

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

Legend

ACGIH	USA. ACGIH Threshold Limit Values (TLV)
C	Ceiling limit
Dow IHG	Dow Industrial Hygiene Guideline
OSHA Z-1	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
TWA	8-hour time weighted average
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.

CARTEL PRODUCTS 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.