

# FLEETGUARD PREMIUM PGPLUS ENGINE COOLANT PREMIX

Chemwatch Material Safety Data Sheet

Issue Date: 10-Jan-2008

NA317EC

CHEMWATCH 47692

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## Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

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### PRODUCT NAME

FLEETGUARD PREMIUM PGPLUS ENGINE COOLANT PREMIX

### SYNONYMS

"Formerly Compleat PG Premix", "Part No: CC 2866 (2000L), CC 2867 (1000L), ", "CC 2868 (208L), CC 2869 (20L), ", "CC 2870 (4L), CC 2871 (10L)", "pre-mixed propylene glycol based coolant", "TEC PGXL - 4L, 10L, 20L, 205L 1000L, Bulk"

### PRODUCT USE

Premixed propylene glycol based coolant.

### SUPPLIER

Company: Fleetguard

Address:

31 Garden Street

Kilsyth

VIC, 3137

AUS

Telephone: +61 3 9721 9100

Emergency Tel: 1800 039 008 (24 hours)

Emergency Tel: +61 3 9573 3112

Fax: +61 3 9721 9148

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## Section 2 - HAZARDS IDENTIFICATION

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### STATEMENT OF HAZARDOUS NATURE

NON-HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS. According to the Criteria of NOHSC, and the ADG Code.

### POISONS SCHEDULE

None

### RISK

Inhalation and/or ingestion may produce health damage\*.

May produce discomfort of the eyes and skin\*.

Possible skin sensitiser\*.

Vapours potentially cause drowsiness and dizziness\*.

\* (limited evidence).

### SAFETY

Do not breathe gas/fumes/vapour/spray.

Wear eye/face protection.

Use only in well ventilated areas.

Keep container in a well ventilated place.

Keep container tightly closed.

Take off immediately all contaminated clothing.

In case of contact with eyes rinse with plenty of water and contact Doctor or Poisons Information Centre.

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## Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

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NAME	CAS RN	%
propylene glycol	57-55-6	40-60
water	7732-18-5	30-60

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## Section 4 - FIRST AID MEASURES

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### SWALLOWED

- If swallowed do NOT induce vomiting.
- If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.
- Observe the patient carefully.
- Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.
- Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.
- Seek medical advice.

### EYE

If this product comes in contact with the eyes:

- Wash out immediately with fresh running water.
- Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
- If pain persists or recurs seek medical attention.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

### SKIN

If skin contact occurs:

- Immediately remove all contaminated clothing, including footwear.
- Flush skin and hair with running water (and soap if available).
- Seek medical attention in event of irritation.

### INHALED

- If fumes or combustion products are inhaled remove from contaminated area.
- Lay patient down. Keep warm and rested.
- Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
- Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.
- Transport to hospital, or doctor.

### NOTES TO PHYSICIAN

Treat symptomatically.

To treat poisoning by the higher aliphatic alcohols:

- Gastric lavage with copious amounts of water.
- It may be beneficial to instill 60 ml of mineral oil into the stomach.
- Oxygen and artificial respiration as needed.
- Electrolyte balance: it may be useful to start 500 ml. M/6 sodium bicarbonate intravenously but maintain a cautious and conservative attitude toward electrolyte replacement unless shock or severe acidosis threatens.
- To protect the liver, maintain carbohydrate intake by intravenous infusions of glucose.
- Haemodialysis if coma is deep and persistent. [GOSSELIN, SMITH HODGE: Clinical Toxicology of Commercial Products, Ed 5)

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BASIC TREATMENT

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Section 4 - FIRST AID MEASURES

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- Establish a patent airway with suction where necessary.
  - Watch for signs of respiratory insufficiency and assist ventilation as necessary.
  - Administer oxygen by non-rebreather mask at 10 to 15 l/min.
  - Monitor and treat, where necessary, for shock.
  - Monitor and treat, where necessary, for pulmonary oedema.
  - Anticipate and treat, where necessary, for seizures.
  - DO NOT use emetics. Where ingestion is suspected rinse mouth and give up to 200 ml water (5 ml/kg recommended) for dilution where patient is able to swallow, has a strong gag reflex and does not drool.
  - Give activated charcoal.

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## ADVANCED TREATMENT

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- Consider orotracheal or nasotracheal intubation for airway control in unconscious patient or where respiratory arrest has occurred.
  - Positive-pressure ventilation using a bag-valve mask might be of use.
  - Monitor and treat, where necessary, for arrhythmias.
  - Start an IV D5W TKO. If signs of hypovolaemia are present use lactated Ringers solution. Fluid overload might create complications.
  - If the patient is hypoglycaemic (decreased or loss of consciousness, tachycardia, pallor, dilated pupils, diaphoresis and/or dextrose strip or glucometer readings below 50 mg), give 50% dextrose.
  - Hypotension with signs of hypovolaemia requires the cautious administration of fluids. Fluid overload might create complications.
  - Drug therapy should be considered for pulmonary oedema.
  - Treat seizures with diazepam.
  - Proparacaine hydrochloride should be used to assist eye irrigation.

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## EMERGENCY DEPARTMENT

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- Laboratory analysis of complete blood count, serum electrolytes, BUN, creatinine, glucose, urinalysis, baseline for serum aminotransferases (ALT and AST), calcium, phosphorus and magnesium, may assist in establishing a treatment regime. Other useful analyses include anion and osmolar gaps, arterial blood gases (ABGs), chest radiographs and electrocardiograph.
  - Positive end-expiratory pressure (PEEP)-assisted ventilation may be required for acute parenchymal injury or adult respiratory distress syndrome.
  - Acidosis may respond to hyperventilation and bicarbonate therapy.
  - Haemodialysis might be considered in patients with severe intoxication.
  - Consult a toxicologist as necessary. BRONSTEIN, A.C. and CURRANCE, P.L. EMERGENCY CARE FOR HAZARDOUS MATERIALS EXPOSURE: 2nd Ed. 1994.
- Propylene glycol is primarily a CNS depressant in large doses and may cause hypoglycaemia, lactic acidosis and seizures.
- The usual measures are supportive care and decontamination (Ipecac/ lavage/ activated charcoal/ cathartics), within 2 hours of exposure should suffice.
  - Check the anion gap, arterial pH, renal function and glucose levels.
- Ellenhorn and Barceloux: Medical Toxicology.

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## Section 5 - FIRE FIGHTING MEASURES

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### EXTINGUISHING MEDIA

The product contains a substantial proportion of water, therefore there are no restrictions on the type of extinguishing media which may be used. Choice of extinguishing media should take into account surrounding areas.

Though the material is non-combustible, evaporation of water from the mixture, caused by

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Section 5 - FIRE FIGHTING MEASURES

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the heat of nearby fire, may produce floating layers of combustible substances.

In such an event consider:

- foam.
- dry chemical powder.
- carbon dioxide.

## FIRE FIGHTING

- Alert Fire Brigade and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves for fire only.
- Prevent, by any means available, spillage from entering drains or water courses.
- Use fire fighting procedures suitable for surrounding area.
- DO NOT approach containers suspected to be hot.
- Cool fire exposed containers with water spray from a protected location.
- If safe to do so, remove containers from path of fire.
- Equipment should be thoroughly decontaminated after use.

## FIRE/EXPLOSION HAZARD

- The material is not readily combustible under normal conditions.
- However, it will break down under fire conditions and the organic component may burn.
- Not considered to be a significant fire risk.
- Heat may cause expansion or decomposition with violent rupture of containers.
- Decomposes on heating and may produce toxic fumes of carbon monoxide (CO).
- May emit acrid smoke.

Decomposes on heating and produces toxic fumes of: carbon dioxide (CO<sub>2</sub>), other pyrolysis products typical of burning organic material.

May emit poisonous fumes.

May emit corrosive fumes.

## FIRE INCOMPATIBILITY

None known.

HAZCHEM: None

## Personal Protective Equipment

Gas tight chemical resistant suit.

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## Section 6 - ACCIDENTAL RELEASE MEASURES

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## EMERGENCY PROCEDURES

### MINOR SPILLS

- Clean up all spills immediately.
- Avoid breathing vapours and contact with skin and eyes.
- Control personal contact by using protective equipment.
- Contain and absorb spill with sand, earth, inert material or vermiculite.
- Wipe up.
- Place in a suitable labelled container for waste disposal.

### MAJOR SPILLS

Moderate hazard.

- Clear area of personnel and move upwind.
- Alert Fire Brigade and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves.
- Prevent, by any means available, spillage from entering drains or water course.
- Stop leak if safe to do so.
- Contain spill with sand, earth or vermiculite.
- Collect recoverable product into labelled containers for recycling.

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## Section 6 - ACCIDENTAL RELEASE MEASURES

- Neutralise/decontaminate residue.
- Collect solid residues and seal in labelled drums for disposal.
- Wash area and prevent runoff into drains.
- After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using.
- If contamination of drains or waterways occurs, advise emergency services.

**Personal Protective Equipment advice is contained in Section 8 of the MSDS.**

## Section 7 - HANDLING AND STORAGE

### PROCEDURE FOR HANDLING

DO NOT allow clothing wet with material to stay in contact with skin.

- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Prevent concentration in hollows and sumps.
- DO NOT enter confined spaces until atmosphere has been checked.
- DO NOT allow material to contact humans, exposed food or food utensils.
- Avoid contact with incompatible materials.
- When handling, DO NOT eat, drink or smoke.
- Keep containers securely sealed when not in use.
- Avoid physical damage to containers.
- Always wash hands with soap and water after handling.
- Work clothes should be laundered separately. Launder contaminated clothing before re-use.
- Use good occupational work practice.
- Observe manufacturer's storing and handling recommendations.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

### SUITABLE CONTAINER

- Polyethylene or polypropylene container.
- Packing as recommended by manufacturer.
- Check all containers are clearly labelled and free from leaks.

### STORAGE INCOMPATIBILITY

Avoid storage with strong acids, acid chlorides, acid anhydrides, oxidising agents.  
Incompatible with aluminium. DO NOT heat above 49 deg. C. in aluminium equipment.

### STORAGE REQUIREMENTS

- Store in original containers.
- Keep containers securely sealed.
- Store in a cool, dry, well-ventilated area.
- Store away from incompatible materials and foodstuff containers.
- Protect containers against physical damage and check regularly for leaks.
- Observe manufacturer's storing and handling recommendations.

## Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

### EXPOSURE CONTROLS

Source	Material	TWA ppm	TWA mg/m <sup>3</sup>
Australia Exposure Standards	propylene glycol (Propane- 1, 2-diol: particulates only)		10

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## Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Source	Material	TWA ppm	TWA mg/m <sup>3</sup>
Australia Exposure Standards	propylene glycol (Propane- 1, 2-diol total: (vapour & particulates))	150	474

The following materials had no OELs on our records

- water: CAS:7732- 18- 5

### MATERIAL DATA

Sensory irritants are chemicals that produce temporary and undesirable side-effects on the eyes, nose or throat. Historically occupational exposure standards for these irritants have been based on observation of workers' responses to various airborne concentrations. Present day expectations require that nearly every individual should be protected against even minor sensory irritation and exposure standards are established using uncertainty factors or safety factors of 5 to 10 or more. On occasion animal no-observable-effect-levels (NOEL) are used to determine these limits where human results are unavailable. An additional approach, typically used by the TLV committee (USA) in determining respiratory standards for this group of chemicals, has been to assign ceiling values (TLV C) to rapidly acting irritants and to assign short-term exposure limits (TLV STELs) when the weight of evidence from irritation, bioaccumulation and other endpoints combine to warrant such a limit. In contrast the MAK Commission (Germany) uses a five-category system based on intensive odour, local irritation, and elimination half-life. However this system is being replaced to be consistent with the European Union (EU) Scientific Committee for Occupational Exposure Limits (SCOEL); this is more closely allied to that of the USA.

OSHA (USA) concluded that exposure to sensory irritants can:

- cause inflammation
- cause increased susceptibility to other irritants and infectious agents
- lead to permanent injury or dysfunction
- permit greater absorption of hazardous substances and
- acclimate the worker to the irritant warning properties of these substances thus increasing the risk of overexposure.

for propylene glycol:

Saturated vapour concentration @ 20 deg C.= 65.8 ppm, 204.6 mg/m<sup>3</sup>; i.e higher concentrations can only occur as aerosols or at higher temperatures.

Odour Threshold: Practically odourless.

A small number of individuals show skin irritation or sensitisation from repeated or prolonged exposure to propylene glycol. A workplace environmental exposure limit (WEEL) has been established by AIHA and is thought to be protective against systemic effects.

### INGREDIENT DATA

PROPYLENE GLYCOL:

Saturated vapour concentration @ 20 deg C.= 65.8 ppm, 204.6 mg/m<sup>3</sup>; i.e higher concentrations can only occur as aerosols or at higher temperatures.

Odour Threshold: Practically odourless.

A small number of individuals show skin irritation or sensitisation from repeated or prolonged exposure to propylene glycol. A workplace environmental exposure limit (WEEL) has been established by AIHA and is thought to be protective against systemic effects.

WATER:

No exposure limits set by NOHSC or ACGIH.

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## Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

### PERSONAL PROTECTION

#### EYE

- Safety glasses with side shields.
- Chemical goggles.
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59].

#### HANDS/FEET

Wear chemical protective gloves, eg. PVC.

Wear safety footwear or safety gumboots, eg. Rubber.

NOTE: The material may produce skin sensitisation in predisposed individuals. Care must be taken, when removing gloves and other protective equipment, to avoid all possible skin contact.

Suitability and durability of glove type is dependent on usage. Factors such as:

- frequency and duration of contact,
- chemical resistance of glove material,
- glove thickness and
- dexterity,

are important in the selection of gloves.

#### OTHER

- Overalls.
- P.V.C. apron.
- Barrier cream.
- Skin cleansing cream.
- Eye wash unit.

#### RESPIRATOR

Selection of the Class and Type of respirator will depend upon the level of breathing zone contaminant and the chemical nature of the contaminant. Protection Factors (defined as the ratio of contaminant outside and inside the mask) may also be important.

Breathing Zone Level ppm (volume)	Maximum Protection Factor	Half- face Respirator	Full- Face Respirator
1000	10	A- AUS P	-
1000	50	-	A- AUS P
5000	50	Airline *	-
5000	100	-	A- 2 P
10000	100	-	A- 3 P
	100+		Airline**

\* - Continuous Flow

\*\* - Continuous-flow or positive pressure demand.

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required.

For further information consult site specific CHEMWATCH data (if available), or your Occupational Health and Safety Advisor.

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## Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

### ENGINEERING CONTROLS

Local exhaust ventilation usually required. If risk of overexposure exists, wear approved respirator. Correct fit is essential to obtain adequate protection. Supplied-air type respirator may be required in special circumstances. Correct fit is essential to ensure adequate protection.

An approved self contained breathing apparatus (SCBA) may be required in some situations. Provide adequate ventilation in warehouse or closed storage area.

## Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

### APPEARANCE

Royal blue coloured alkaline liquid with a mild odour; mixes with water.

### PHYSICAL PROPERTIES

Liquid.

Mixes with water.

Molecular Weight: Not Applicable

Melting Range (°C): Not Available

Solubility in water (g/L): Miscible

pH (1% solution): Not Available

Volatile Component (%vol): Not Available

Relative Vapour Density (air=1): Not Available

Lower Explosive Limit (%): Not Applicable

Autoignition Temp (°C): Not Available

State: Liquid

Boiling Range (°C): Not Available

Specific Gravity (water= 1): 1.03- 1.05

pH (as supplied): 10.2- 10.8

Vapour Pressure (kPa): Not Available

Evaporation Rate: Not Available

Flash Point (°C): Not Applicable

Upper Explosive Limit (%): Not Applicable

Decomposition Temp (°C): Not Available

Viscosity: Not Available

## Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

### CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerisation will not occur.

## Section 11 - TOXICOLOGICAL INFORMATION

### POTENTIAL HEALTH EFFECTS

#### ACUTE HEALTH EFFECTS

##### SWALLOWED

Accidental ingestion of the material may be damaging to the health of the individual.

Effects on the nervous system characterise over-exposure to higher aliphatic alcohols.

These include headache, muscle weakness, giddiness, ataxia, (loss of muscle coordination)

, confusion, delirium and coma. Gastrointestinal effects may include nausea, vomiting and

diarrhoea. In the absence of effective treatment, respiratory arrest is the most common

cause of death in animals acutely poisoned by the higher alcohols. Aspiration of liquid

alcohols produces an especially toxic response as they are able to penetrate deeply in

the lung where they are absorbed and may produce pulmonary injury. Those possessing lower

viscosity elicit a greater response. The result is a high blood level and prompt death at

doses otherwise tolerated by ingestion without aspiration. As a general observation,

alcohols are more powerful central nervous system depressants than their aliphatic

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## Section 11 - TOXICOLOGICAL INFORMATION

analogues. In sequence of decreasing depressant potential, tertiary alcohols with multiple substituent OH groups are more potent than secondary alcohols, which, in turn, are more potent than primary alcohols. The potential for overall systemic toxicity increases with molecular weight, principally because the water solubility is diminished and lipophilicity is increased.

Ingestion of propylene glycol produced reversible central nervous system depression in humans following ingestion of 60 ml. Symptoms included increased heart-rate (tachycardia), excessive sweating (diaphoresis) and grand mal seizures in a 15 month child who ingested large doses (7.5 ml/day for 8 days) as an ingredient of vitamin preparation. Excessive repeated ingestions may cause hypoglycaemia (low levels of glucose in the blood stream) among susceptible individuals; this may result in muscular weakness, incoordination and mental confusion.

Very high doses given during feeding studies to rats and dogs produce central nervous system depression (although one-third of that produced by ethanol), haemolysis and insignificant kidney changes.

In humans propylene glycol is partly excreted unchanged in the urine and partly metabolised as lactic and pyruvic acid. Lactic acidosis may result.

### EYE

Limited evidence or practical experience suggests, that the material may cause eye irritation in a substantial number of individuals. Repeated or prolonged eye contact may cause inflammation characterised by temporary redness (similar to windburn) of the conjunctiva (conjunctivitis); temporary impairment of vision and/or other transient eye damage/ulceration may occur.

Irritation of the eyes may produce a heavy secretion of tears (lachrymation).

### SKIN

The material may produce moderate skin irritation; limited evidence or practical experience suggests, that the material either:

- produces moderate inflammation of the skin in a substantial number of individuals following direct contact and/or
- produces significant, but moderate, inflammation when applied to the healthy intact skin of animals (for up to four hours), such inflammation being present twenty-four hours or more after the end of the exposure period.

Skin irritation may also be present after prolonged or repeated exposure; this may result in a form of contact dermatitis (nonallergic). The dermatitis is often characterised by skin redness (erythema) and swelling (oedema) which may progress to blistering (vesiculation), scaling and thickening of the epidermis. At the microscopic level there may be intercellular oedema of the spongy layer of the skin (spongiosis) and intracellular oedema of the epidermis.

A single prolonged exposure is not likely to result in the material being absorbed in harmful amounts. However the material may be absorbed in potentially harmful amounts when applied in large quantities to severe burns (second or third degree) over large areas of the body as part of a cream, other topical application or by prolonged contact with clothing accidentally wetted by the material. Absorption under such circumstances can elevate serum osmolality and may result in osmotic shock.

Most liquid alcohols appear to act as primary skin irritants in humans. Significant percutaneous absorption occurs in rabbits but not apparently in man.

Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

### INHALED

Inhalation of vapours may cause drowsiness and dizziness. This may be accompanied by narcosis, reduced alertness, loss of reflexes, lack of coordination and vertigo.

Inhalation of vapours or aerosols (mists, fumes), generated by the material during the course of normal handling, may be damaging to the health of the individual.

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## Section 11 - TOXICOLOGICAL INFORMATION

Inhalation hazard is increased at higher temperatures.

Exposure to aliphatic alcohols with more than 3 carbons may produce central nervous system effects such as headache, dizziness, drowsiness, muscle weakness, delirium, CNS depression, coma, seizure, and neurobehavioural changes. Symptoms are more acute with higher alcohols. Respiratory tract involvement may produce irritation of the mucosa, respiratory insufficiency, respiratory depression secondary to CNS depression, pulmonary oedema, chemical pneumonitis and bronchitis. Cardiovascular involvement may result in arrhythmias and hypotension. Gastrointestinal effects may include nausea and vomiting. Kidney and liver damage may result following massive exposures. The alcohols are potential irritants being, generally, stronger irritants than similar organic structures that lack functional groups (e.g. alkanes) but are much less irritating than the corresponding amines, aldehydes or ketones. Alcohols and glycols (diols) rarely represent serious hazards in the workplace, because their vapour concentrations are usually less than the levels which produce significant irritation which, in turn, produce significant central nervous system effects as well.

### CHRONIC HEALTH EFFECTS

There exists limited evidence that shows that skin contact with the material is capable either of inducing a sensitisation reaction in a significant number of individuals, and/or of producing positive response in experimental animals.

Propylene glycol is thought, by some, to be a sensitising principal following the regular use of topical creams by eczema patients. A study of 866 persons using a formulation containing propylene glycol in a patch test indicated that propylene glycol caused primary irritation in 16% of exposed individuals probably caused by dehydration. Undiluted propylene glycol was tested on 1556 persons in a 24 hour patch test. 12.5% showed reactions which were largely toxic (70%) or allergic in nature (30%). Reaction responses reached their maximum on the second day or later. Reactions were seasonal in nature ranging from 17.8% in winter to 9.2% in other seasons. In a patch-test using 25 standard allergens conducted on 500 individuals, propylene glycol ranked fourth in sensitising response. 84 subjects were patch tested using 100% propylene glycol, as well as 2% and 5% in water. With undiluted material, 15% demonstrated a reaction, with 40% of the reactions being allergic in nature and 60% being irritant. In dilute solutions 5 of 248 subjects exhibited a reaction.

Undiluted propylene glycol tested on the skin of man produced no irritation under open conditions but when applied under occlusive conditions, for 2 weeks, it produced severe erythema, oedema and vesicles, probably due to sweat retention and weak primary irritation.

Predictive contact skin sensitisation tests indicate that propylene glycol is an intermediate grade sensitiser with an index of 1% of tested subjects.

Groups of cats fed 5 gm/kg/day of propylene glycol for 14 weeks showed a significant dose-related increase in red blood cell Heinz body formation without any marked signs of haemolytic anaemia. The no-effect-level for cats without formation of Heinz bodies is 100-500 ml/kg. There is no evidence of anaemia or degenerative change. Groups of rats dosed orally with 0.5 or 10 mg/kg/day for 12 weeks had lowered food intake but no adverse effects on body weights. Erythrocytes were more fragile. Heinz bodies were not apparent.

### TOXICITY AND IRRITATION

unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

The material may be irritating to the eye, with prolonged contact causing inflammation.

Repeated or prolonged exposure to irritants may produce conjunctivitis.

The material may cause skin irritation after prolonged or repeated exposure and may produce a contact dermatitis (nonallergic). This form of dermatitis is often characterised by skin redness (erythema) and swelling the epidermis. Histologically there may be intercellular oedema of the spongy layer (spongiosis) and intracellular oedema of the epidermis.

PROPYLENE GLYCOL:

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## Section 11 - TOXICOLOGICAL INFORMATION

unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

### TOXICITY

Oral (rat) LD50: 20000 mg/kg

Dermal (rabbit) LD50: 20800 mg/kg

Dermal (rabbit) LD50: 11890 mg/kg

### IRRITATION

Skin(human) :500 mg/7days Mild

Skin(human) :104 mg/3d Intermit Moderate

Eye (rabbit): 100 mg - Mild

Eye (rabbit): 500 mg/24h - Mild

The material may cause skin irritation after prolonged or repeated exposure and may produce a contact dermatitis (nonallergic). This form of dermatitis is often characterised by skin redness (erythema) and swelling the epidermis. Histologically there may be intercellular oedema of the spongy layer (spongiosis) and intracellular oedema of the epidermis.

### WATER:

unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

No significant acute toxicological data identified in literature search.

## Section 12 - ECOLOGICAL INFORMATION

DO NOT discharge into sewer or waterways.

Refer to data for ingredients, which follows:

### PROPYLENE GLYCOL:

log Kow (Prager 1995): - 0.92

log Kow (Sangster 1997): - 0.92

log Pow (Verschuereen 1983): 4.7

BOD5: 0.955 (2.2)

BOD20: 1.225

ThOD: 1.685

DO NOT discharge into sewer or waterways.

log Kow: -1.41- -0.3

Half-life (hr) air: 32

Henry's atm m<sup>3</sup> /mol: 1.20E-08

BOD 5 if unstated: 0.995,2.2%

ThOD: 1.685

BCF: <1

Bioaccumulation: not sig

processes Abiotic: photoxid

## Section 13 - DISPOSAL CONSIDERATIONS

Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.

A Hierarchy of Controls seems to be common - the user should investigate:

- Reduction,
- Reuse
- Recycling
- Disposal (if all else fails)

This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. If it has been contaminated, it may be possible to reclaim the product by filtration, distillation or some other means. Shelf life considerations should also be applied in making decisions of this type. Note that

continued...

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## Section 13 - DISPOSAL CONSIDERATIONS

properties of a material may change in use, and recycling or reuse may not always be appropriate.

DO NOT allow wash water from cleaning or process equipment to enter drains.

It may be necessary to collect all wash water for treatment before disposal.

In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first. Where in doubt contact the responsible authority.

- Recycle wherever possible.
- Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified.
- Dispose of by: Burial in a licenced land-fill or incineration in a licenced apparatus (after admixture with suitable combustible material).
- Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.

## Section 14 - TRANSPORTATION INFORMATION

HAZCHEM: None

NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS:UN, IATA, IMDG

## Section 15 - REGULATORY INFORMATION

**POISONS SCHEDULE: None**

### REGULATIONS

Fleetguard Premium PGPlus Engine Coolant Premix (CAS: None):

No regulations applicable

propylene glycol (CAS: 57-55-6) is found on the following regulatory lists;

- Australia - Australian Capital Territory - Environment Protection Regulation: Ambient environmental standards (Domestic water supply - inorganic chemicals)
- Australia - Australian Capital Territory Environment Protection Regulation Pollutants entering waterways - Agricultural uses (Stock)
- Australia - Australian Capital Territory Environment Protection Regulation Pollutants entering waterways - Domestic water quality
- Australia Exposure Standards
- Australia High Volume Industrial Chemical List (HVICL)
- Australia Inventory of Chemical Substances (AICS)
- IMO IBC Code Chapter 18: List of products to which the Code does not apply
- IMO MARPOL 73/78 (Annex II) - List of Other Liquid Substances
- International Council of Chemical Associations (ICCA) - High Production Volume List
- OECD Representative List of High Production Volume (HPV) Chemicals

water (CAS: 7732-18-5) is found on the following regulatory lists;

- Australia Inventory of Chemical Substances (AICS)
- Australia Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP) - Appendix F (Part 3)
- IMO IBC Code Chapter 18: List of products to which the Code does not apply
- OECD Representative List of High Production Volume (HPV) Chemicals
- United Nations Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances - Table II

## Section 16 - OTHER INFORMATION

### EXPOSURE STANDARD FOR MIXTURES

"Worst Case" computer-aided prediction of spray/ mist or fume/ dust components and concentration:

Composite Exposure Standard for Mixture (TWA) :100 mg/m<sup>3</sup>.

### MSDS SECTION CHANGES

*The following table displays the version number of and date on which each section was last changed.*

Section Name	Version	Date	Section Name	Version	Date	Section Name	Version	Date
Advice to Doctor	4	10- Jan- 2008	Handling Procedure	4	10- Jan- 2008	Acute Health (eye)	4	10- Jan- 2008

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Section 16 - OTHER INFORMATION

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First Aid (inhaled)	4	10- Jan- 2008	Storage (storage incompatibility)	4	10- Jan- 2008	Acute Health (inhaled)	4	10- Jan- 2008
First Aid (swallowed)	4	10- Jan- 2008	Storage (storage requirement)	4	10- Jan- 2008	Acute Health (skin)	4	10- Jan- 2008
Fire Fighter (fire/explosion hazard)	4	10- Jan- 2008	Engineering Control	4	10- Jan- 2008	Acute Health (swallowed)	4	10- Jan- 2008
Spills (major)	4	10- Jan- 2008	Exposure Standard	4	10- Jan- 2008	Toxicity and Irritation (Other)	4	10- Jan- 2008
Spills (minor)	4	10- Jan- 2008	Personal Protection (hands/feet)	4	10- Jan- 2008	Disposal	4	10- Jan- 2008

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

A list of reference resources used to assist the committee may be found at:  
[www.chemwatch.net/references](http://www.chemwatch.net/references).

The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

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