

Date Prepared: 10/05/01  
Date Printed: 10/14/02  
MSDS No: 503.0296767-004.004

**BMW AFC 6/1 GA**

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**1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**

**Material Identity**

Product Name: BMW AFC 6/1 GA  
SAP Material No: BM001  
General or Generic ID: GLYCOL

**Company**

The Valvoline Company  
P.O. Box 14000  
Lexington, KY 40512

**Telephone Numbers**

Emergency: 1-800-274-5263  
Information: 1-859-357-7206

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**2. COMPOSITION/INFORMATION ON INGREDIENTS**

Ingredient(s)	CAS Number	% (by weight)
ETHYLENE GLYCOL	107-21-1	88.0
DIETHYLENE GLYCOL	111-46-6	0.0- 10.0
ETHYLHEXANOIC ACID	149-57-5	0.0- 7.0
SODIUM HYDROXIDE	1310-73-2	0.0- 6.0

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**3. HAZARDS IDENTIFICATION**

**Potential Health Effects**

**Eye**

May cause mild eye irritation.

**Skin**

May cause mild skin irritation. Although rare, skin contact with ethylene glycol may cause allergic skin reaction (delayed skin rash which may be followed by blistering, scaling and other skin effects). Passage through the skin may add to toxic effects from breathing or swallowing.

**Swallowing**

Swallowing small amounts of this material during normal handling is not likely to cause harmful effects. Swallowing large amounts may be harmful.

**Inhalation**

Breathing of vapor or mist is possible.

**Symptoms of Exposure**

stomach or intestinal upset (nausea, vomiting, diarrhea), irritation (nose, throat, airways), central nervous system excitation (giddiness, liveliness, light-headed feeling) followed by central nervous system depression (dizziness, drowsiness, weakness, fatigue, nausea, headache, unconsciousness) and other central nervous system effects, involuntary eye movement, kidney damage.

**Target Organ Effects**

Overexposure to this material (or its components) has been suggested as a cause of the following effects in laboratory animals, and may aggravate preexisting disorders of these organs in humans: kidney damage, Overexposure to this material (or its components) has been suggested as a cause of the following effects in humans, and may aggravate preexisting disorders of these organs: central nervous system effects, liver abnormalities, kidney damage, liver damage.

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### Developmental Information

Ethylene glycol has caused birth defects in animal studies at high oral doses.

### Cancer Information

No data

### Other Health Effects

No data

### Primary Route(s) of Entry

Skin absorption.

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## 4. FIRST AID MEASURES

### Eyes

If symptoms develop, immediately move individual away from exposure and into fresh air. Flush eyes gently with water for at least 15 minutes while holding eyelids apart; seek immediate medical attention.

### Skin

Remove contaminated clothing. Wash exposed area with soap and water. If symptoms persist, seek medical attention. Launder clothing before reuse.

### Swallowing

Seek medical attention. If individual is drowsy or unconscious, do not give anything by mouth; place individual on the left side with the head down. Contact a physician, medical facility, or poison control center for advice about whether to induce vomiting. If possible, do not leave individual unattended.

### Inhalation

If symptoms develop, immediately move individual away from exposure and into fresh air. Seek immediate medical attention; keep person warm and quiet. If person is not breathing, begin artificial respiration. If breathing is difficult, administer oxygen.

### Note to Physicians

This product contains ethylene glycol. Ethanol decreases the metabolism of ethylene glycol to toxic metabolites. Ethanol should be administered as soon as possible in cases of severe poisoning since the elimination half-life of ethylene glycol is 3 hours. If medical care will be delayed several hours, give the patient three to four 1-ounce oral "shots" of 86-proof or higher whiskey before or during transport to the hospital. Fomepizole (4-methylpyrazole) is an effective antagonist of alcohol dehydrogenase, and as such, may be used as an antidote in the treatment of ethylene glycol poisoning. Hemodialysis effectively removes ethylene glycol and its metabolites from the body. Effects of acute ethylene glycol poisoning appear in three fairly distinct stages. The initial stage occurs shortly after exposure, lasts 6-12 hours, and is characterized by central nervous system effects (transient exhilaration, nausea, vomiting, and in severe cases, coma, convulsions, and possible death. The second stage lasts from 12-36 hours after exposure and is initiated by the onset of coma. This phase is characterized by tachypnea, tachycardia, mild hypotension, cyanosis, and in severe cases, pulmonary edema, bronchopneumonia, cardiac enlargement, and congestive failure. The final stage occurs 24-72 post-exposure and is characterized by renal failure ranging from a mild increase in blood urea nitrogen and creatinine followed by recovery to complete anuria with acute tubular necrosis that can lead to death. Oxaluria is found in most cases. The most significant laboratory finding in ethylene glycol intoxication is severe metabolic acidosis.

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### 5. FIRE FIGHTING MEASURES

**Flash Point**

250.0 F (121.1 C)

**Explosive Limit**

No data

**Autoignition Temperature**

No data

**Hazardous Products of Combustion**

May form: carbon dioxide and carbon monoxide, various hydrocarbons.

**Fire and Explosion Hazards**

Never use welding or cutting torch on or near drum (even empty) because product (even just residue) can ignite explosively.

**Extinguishing Media**

alcohol foam, carbon dioxide, dry chemical.

**Fire Fighting Instructions**

Wear a self-contained breathing apparatus with a full facepiece operated in the positive pressure demand mode with appropriate turn-out gear and chemical resistant personal protective equipment. Refer to the personal protective equipment section of this MSDS.

**NFPA Rating**

Health - 1, Flammability - 1, Reactivity - 0

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### 6. ACCIDENTAL RELEASE MEASURES

**Small Spill**

Absorb liquid on vermiculite, floor absorbent or other absorbent material.

**Large Spill**

Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed. Stop spill at source, dike area of spill to prevent spreading, pump liquid to salvage tank. Remaining liquid may be taken up on sand, clay, earth, floor absorbent, or other absorbent material and shoveled into containers.

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### 7. HANDLING AND STORAGE

**Handling**

Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in the data sheet must be observed.

**Storage**

Not applicable

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### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

#### Eye Protection

Chemical splash goggles in compliance with OSHA regulations are advised; however, OSHA regulations also permit other type safety glasses. Consult your safety representative.

#### Skin Protection

Wear resistant gloves such as: neoprene, nitrile rubber, polyvinyl chloride, To prevent repeated or prolonged skin contact, wear impervious clothing and boots..

#### Respiratory Protections

If workplace exposure limit(s) of product or any component is exceeded (See Exposure Guidelines), a NIOSH/MSHA approved air supplied respirator is advised in absence of proper environmental control. OSHA regulations also permit other NIOSH/MSHA respirators (negative pressure type) under specified conditions (consult your industrial hygienist). Engineering or administrative controls should be implemented to reduce exposure.

#### Engineering Controls

Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below TLV(s).

#### Exposure Guidelines

Component

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ETHYLENE GLYCOL (107-21-1)  
OSHA VPEL 50.000 ppm - Ceiling  
ACGIH TLV 100.000 mg/m<sup>3</sup> - Ceiling as an aerosol

DIETHYLENE GLYCOL (111-46-6)  
No exposure limits established

ETHYLHEXANOIC ACID (149-57-5)  
No exposure limits established

SODIUM HYDROXIDE (1310-73-2)  
OSHA VPEL 2.000 mg/m<sup>3</sup> - Ceiling  
ACGIH TLV 0.000 C 2 mg/m<sup>3</sup>  
ACGIH TLV 2.000 mg/m<sup>3</sup> - Ceiling

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### 9. PHYSICAL AND CHEMICAL PROPERTIES

#### Boiling Point

(for product) 330.0 F (165.5 C) @ 760.00 mmHg

#### Vapor Pressure

(for product) 1.100 mmHg @ 68.00 F

#### Specific Vapor Density

No data

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**Specific Gravity**  
1.127 @ 77.00 F

**Liquid Density**  
9.382 lbs/gal @ 77.00 F  
1.127 kg/l @ 25.00 C

**Percent Volatiles (Including Water)**  
No data

**Evaporation Rate**  
No data

**Appearance**  
CLEAR

**State**  
LIQUID

**Physical Form**  
No data

**Color**  
DYED VARIOUS COLORS

**Odor**  
MILD GLYCOL

**pH**  
No data

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### 10. STABILITY AND REACTIVITY

**Hazardous Polymerization**  
Product will not undergo hazardous polymerization.

**Hazardous Decomposition**  
May form: carbon dioxide and carbon monoxide, various hydrocarbons.

**Chemical Stability**  
Stable.

**Incompatibility**  
Avoid contact with: strong oxidizing agents.

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### 11. TOXICOLOGICAL INFORMATION

No data

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12. ECOLOGICAL INFORMATION

No data

13. DISPOSAL CONSIDERATION

Waste Management Information

Destroy by liquid incineration. Dispose of in accordance with all applicable local, state and federal regulations.

14. TRANSPORT INFORMATION

DOT Information - 49 CFR 172.101

DOT Description:  
Not Regulated

Container/Mode:  
CASES/SURFACE - NO EXCEPTIONS

NOS Component:  
ETHYLENE GLYCOL

RQ (Reportable Quantity) - 49 CFR 172.101

Product Quantity (lbs)	Component
5661	ETHYLENE GLYCOL

15. REGULATORY INFORMATION

US Federal Regulations

TSCA (Toxic Substances Control Act) Status

TSCA (UNITED STATES) The intentional ingredients of this product are listed.

CERCLA RQ - 40 CFR 302.4

Component	Component
ETHYLENE GLYCOL	5000
SODIUM HYDROXIDE	1000

SARA 302 Components - 40 CFR 355 Appendix A

None

Section 311/312 Hazard Class - 40 CFR 370.2

Immediate(X) Delayed(X) Fire( ) Reactive( ) Sudden Release of Pressure( )

SARA 313 Components - 40 CFR 372.65

Section 313 Component(s)	CAS Number
ETHYLENE GLYCOL	107-21-1

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## International Regulations

### Inventory Status

Not determined

## State and Local Regulations

### California Proposition 65

None

### New Jersey RTK Label Information

ETHYLENE GLYCOL  
SODIUM HYDROXIDE

107-21-1  
1310-73-2

### Pennsylvania RTK Label Information

1,2-ETHANEDIOL  
ETHANOL, 2,2'-OXYBIS-  
SODIUM HYDROXIDE (NA(OH))

107-21-1  
111-46-6  
1310-73-2

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## 16. OTHER INFORMATION

The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances.