

Prepared to OSHA, ACC, ANSI, NOHSC, WHMIS &amp; 2001/58 EC Standards

MSDS Revision: 2.0

MSDS Revision Date: 06/01/2007

## 1. PRODUCT IDENTIFICATION

**CHEMICAL RESPONSE CARD: 99**

1.1	Product Name:	<b>BMW AFC</b>	RESPONSE TEAM PPE:					
1.2	Chemical Name:	Ethylene Glycol						
1.3	Synonyms:	Antifreeze, Coolant	WHMIS:					
1.4	Trade Names:	P/N G001100						
1.5	Product Use:	Engine Coolant	<b>HEALTH:</b>				<b>1</b>	
1.6	Manufacturer's Name:	Deutsche-Pentolin Werke GmbH	<b>FLAMMABILITY:</b>				<b>1</b>	
1.7	Manufacturer's Address:	39-43, Industriestraße, D-2000 Wedel, Germany	<b>REACTIVITY:</b>				<b>0</b>	
1.8	Business Phone:	+1 (800) 526-4066	<b>PERSONAL PROTECTION:</b>				<b>B</b>	
1.9	Emergency Phone:	<b>CHEMTREC +1 (800) 424-9300/+1 (703) 527-3887</b>						

## 2. IDENTIFICATION OF RISKS

2.1	Hazard Identification: <b>This product is classified as a hazardous substance but not as dangerous goods according to the classification criteria of NOHSC and ADG Code(Australia). Warning! Contains ethylene glycol! Harmful or fatal if swallowed! May cause damage to brain, kidney, or liver. Avoid breathing vapor or mist. For industrial use only. Keep away from children.</b>							
2.2	Routes of Entry:	Inhalation:	YES	Absorption:	YES	Ingestion:	YES	
2.3	Effects of Exposure: <b>EYES:</b> Possible irritation. <b>SKIN:</b> 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. <b>INGESTION:</b> Swallowing small amounts of this materials during normal handling is not likely to cause harmful effects. Swallowing large amounts may be harmful or fatal. <b>INHALATION:</b> Breathing of vapor or mist is possible and may cause respiratory tract irritation. Possible adverse effects on the nervous system and blood-forming system.							
2.4	Symptoms of Exposure: <b>EYES:</b> Stinging or burning sensation, redness, and watering. <b>SKIN:</b> Possible irritation and dermatitis (rash), characterized by red, dry, itching skin. <b>INGESTION:</b> Gastrointestinal discomfort, nausea, vomiting, and headache. <b>INHALATION:</b> Upper respiratory irritation, coughing, sneezing, staggering gait, giddiness, drowsiness, slurred speech, involuntary eye movement, kidney damage, weakness, fatigue, nausea, and possible nervous system depression.							
2.5	Acute Health Effects: <b>EYES:</b> Possible irritation. <b>SKIN:</b> Possible irritation and dermatitis (rash). <b>INGESTION:</b> Possible toxic effects. Harmful if swallowed. <b>INHALATION:</b> Upper respiratory irritation, possible nervous system depression.							
2.6	Chronic Health Effects: <b>SKIN:</b> Possible irritation and dermatitis (rash).							
2.7	Target Organs: <b>Overexposure o this material (or its components) has been suggested as a cause of the following effects in laboratory animals, and may aggravate pre-existing disorders of the organs in humans: kidneys, liver. May cause central nervous system effects, liver abnormalities, kidney damage or liver damage.</b>							
2.8	Toxicological Properties: <b>None reported by the manufacturer.</b>							

## 3. COMPOSITION & INGREDIENTS

CHEMICAL NAME(S)	CAS No.	RTECS No.	EINECS No.	%	EXPOSURE LIMITS IN AIR (mg/m <sup>3</sup> )					
					ACGIH - ppm		OSHA - ppm			OTHER
					TLV	STEL	PEL	STEL	IDLH	
ETHYLENE GLYCOL	107-21-1	KW2975000	203-473-3	≤ 95.0	(100)	NA	50	NA	NA	

NA ≡ Not Available; ND ≡ Not Determined; NE ≡ Not Established; C ≡ Ceiling Limit; See Section 16 for Additional Definitions of Terms Used  
 NOTE: all WHMIS required information is included. It is located in appropriate sections based on the ANSI Z400.1-2004 format.



Prepared to OSHA, ACC, ANSI, NOHSC, WHMIS & 2001/58 EC Standards

MSDS Revision: 2.0

MSDS Revision Date: 06/01/2007

## 9. PHYSICAL & CHEMICAL PROPERTIES

9.1	Density:	1.127 @ 77 °F
9.2	Boiling Point:	165.5 °C (330 °F)
9.3	Melting Point:	NA
9.4	Evaporation Rate:	< 1.0
9.5	Vapor Pressure @ 20 °C:	1.10 mm Hg @ 20 °C
9.6	Molecular Weight:	NA
9.7	Appearance & Colour:	Blue Liquid with Mild Odor
9.8	Odour Threshold:	NA
9.9	Solubility:	Soluble
9.10	pH:	NA
9.11	Viscosity:	NA
9.12	Coefficient Oil/Water Distribution:	NA
9.13	Additional Information:	NA

## 10. STABILITY & REACTIVITY

10.1	Stability:	<b>Stable under normal conditions.</b>
10.2	Decomposition Products:	<b>None reported by the manufacturer.</b>
10.3	Polymerization:	<b>Will not occur.</b>
10.4	Conditions to Avoid:	<b>Open flames, sparks, high heat, and close proximity to incompatible substances.</b>
10.5	Incompatible Substances:	<b>Strong oxidizing agents.</b>

## 11. TOXICOLOGICAL INFORMATION

11.1	Toxicity Data:	<b>The manufacturer has not reported any general or specific toxicity data other than the information presented in Section 3. However, good personal hygiene practices, such as washing any skin contact areas and removing contaminated clothing, are recommended.</b>
11.2	Acute Toxicity:	<b>See section 2.5</b>
11.3	Chronic Toxicity:	<b>See section 2.6</b>
11.4	Suspected Carcinogen:	<b>NO</b>
11.5	Reproductive Toxicity:	<b>Ethylene glycol has caused birth defects in animal studies at high oral doses.</b>
	Mutagenicity:	<b>This product is not expected to cause mutagenic effects in humans.</b>
	Embryotoxicity:	<b>This product is not expected to cause embryotoxic effects in humans.</b>
	Teratogenicity:	<b>This product is not expected to cause teratogenic effects in humans.</b>
	Reproductive Toxicity:	<b>This product is not expected to cause reproductive harm in humans.</b>
11.6	Irritancy of Product:	<b>NA</b>
11.7	Biological Exposure Indices:	<b>NA</b>
11.8	Medical Recommendations:	<b>This product contains ethylene glycol. Ethanol decrease the metabolism of ethylene glycol to toxic metabolites. Ethanol should be administered as soon possible in cases of severe poisoning since the elimination of the half-life of ethylene glycol is 3 hours. If medical care will be delayed several hours, give the patient three to four 1-ounce "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 hypertension, cyanosis, and in severe cases, pulmonary edema, bronchopneumonia, cardiac enlargement, and congestive failure. The final stage occurs 24-72 hours post exposure and is characterized by renal failure by 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.</b>

## 12. ECOLOGICAL INFORMATION

12.1	Environmental Stability: <b>The manufacturer has not reported any detailed studies on the environmental fate of the material. However, prudent practice would dictate the material not be allowed to enter the environment.</b>
12.2	Effect on Plants & Animals: <b>The manufacturer has not reported any plant or animal effects.</b>
12.3	Effect on Aquatic Life: <b>The manufacturer has not reported any aquatic life effects.</b>



## 13. DISPOSAL CONSIDERATIONS

13.1	Waste Disposal: <b>Dispose of in accordance with federal &amp; provincial hazardous waste laws.</b>
13.2	Special Considerations: <b>If the material is unsuitable for recycling or reclamation, enclosed-controlled incineration is recommended unless otherwise prohibited by local ordinance.</b>

## 14. TRANSPORTATION INFORMATION

14.1	49 CFR (GND): <b>NOT REGULATED</b>	
14.2	IATA (AIR): <b>NOT REGULATED</b>	
14.3	IMDG (OCN): <b>NOT REGULATED</b>	
14.4	TDGR (Canadian GND): <b>NOT REGULATED</b>	
14.5	ADR/RID (EU): <b>NOT REGULATED</b>	
14.6	MEXICO(SCT): <b>NOT REGULATED</b>	

## 15. REGULATORY INFORMATION







15.1	SARA Reporting Requirements: <b>This product contains ethylene glycol, a substance subject to SARA Title III reporting requirements.</b>	
15.2	SARA Threshold Planning Quantity: <b>NA</b>	
15.3	TSCA Inventory Status: <b>The components of this product are listed on the TSCA inventory.</b>	
15.4	CERCLA Reportable Quantity (RQ): <b>NA</b>	
15.5	Other Federal Requirements: <b>Section 313 (Toxic Release Inventory): Ethylene Glycol</b>	
15.6	Other Canadian Regulations <b>All chemical substances of this product are listed on the CEPA DSL/NDSL or are exempt from list requirements. This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.</b>	
15.7	State Regulatory Information: <b>NA</b>	
15.8	67/548/EEC (European Union) Requirements: <b>The primary components of this product is listed in Annex I of EU Directive 67/548/EEC: <u>Ethylene Glycol</u>: Harmful (Xn). R: 22 - Harmful if swallowed. S: 26-36/37-39-45-53 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Weaer suitable protective clothing and gloves. Wear eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label whenever possible.) Avoid exposure - obtain special instructions before use.</b>	

Prepared to OSHA, ACC, ANSI, NOHSC, WHMIS &amp; 2001/58 EC Standards

MSDS Revision: 2.0

MSDS Revision Date: 06/01/2007

## 16. OTHER INFORMATION

16.1	Other Information: <b>This product has been classified according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR. The components of this product are listed on the DSL/NDSL. None of the components of this product are listed on the Priority Substances List.</b>		
16.2	Terms & Definitions: <b>Please see last page of this Material Safety Data Sheet.</b>		
16.3	Disclaimer: This Material Safety Data Sheet complies with Health Canada's Workplace Hazardous Materials Information System (WHMIS) & U.S. OSHA's Hazard Communication Standard, 29 CFR §1910.1200. To the best of ShipMate's or Worldpac's knowledge, the information contained herein is reliable and accurate as of this date; however, accuracy, suitability or completeness are not guaranteed and no warranties of any type, either expressed or implied, are provided. The information contained herein relates only to the specific product. Contact the manufacturer for additional information.		
16.4	<table border="0"><tr><td data-bbox="89 600 571 785">Prepared for: <b>WorldPac, Inc.</b> 37137 Hickory Street Newark, CA 94560 510-608-5525 phone 510-742-9262 fax <a href="http://www.worldpac.com/">http://www.worldpac.com/</a></td><td data-bbox="571 600 1547 785" style="text-align: center;"> <small>World Wide Parts and Accessories Corporation</small></td></tr></table>	Prepared for: <b>WorldPac, Inc.</b> 37137 Hickory Street Newark, CA 94560 510-608-5525 phone 510-742-9262 fax <a href="http://www.worldpac.com/">http://www.worldpac.com/</a>	 <small>World Wide Parts and Accessories Corporation</small>
Prepared for: <b>WorldPac, Inc.</b> 37137 Hickory Street Newark, CA 94560 510-608-5525 phone 510-742-9262 fax <a href="http://www.worldpac.com/">http://www.worldpac.com/</a>	 <small>World Wide Parts and Accessories Corporation</small>		
16.5	<table border="0"><tr><td data-bbox="89 785 571 999">Prepared by: <b>Steven Charles Hunt</b> ShipMate, Inc. 18436 Hawthorne Blvd, Suite 201 Torrance, CA 90504 USA Phone: +1 (310) 370-3600 Fax: +1 (310) 370-5700 e-mail: <a href="mailto:shipmate@shipmate.com">shipmate@shipmate.com</a></td><td data-bbox="571 785 1547 999" style="text-align: center;"> <small>Dangerous Goods Training &amp; Consulting</small></td></tr></table>	Prepared by: <b>Steven Charles Hunt</b> ShipMate, Inc. 18436 Hawthorne Blvd, Suite 201 Torrance, CA 90504 USA Phone: +1 (310) 370-3600 Fax: +1 (310) 370-5700 e-mail: <a href="mailto:shipmate@shipmate.com">shipmate@shipmate.com</a>	 <small>Dangerous Goods Training &amp; Consulting</small>
Prepared by: <b>Steven Charles Hunt</b> ShipMate, Inc. 18436 Hawthorne Blvd, Suite 201 Torrance, CA 90504 USA Phone: +1 (310) 370-3600 Fax: +1 (310) 370-5700 e-mail: <a href="mailto:shipmate@shipmate.com">shipmate@shipmate.com</a>	 <small>Dangerous Goods Training &amp; Consulting</small>		

## DEFINITIONS OF TERMS

A large number of abbreviations and acronyms appear on a MSDS. Some of these that are commonly used include the following:

### GENERAL INFORMATION:

<b>CAS No.</b>	Chemical Abstract Service Number
----------------	----------------------------------

### EXPOSURE LIMITS IN AIR:

<b>ACGIH</b>	American Conference on Governmental Industrial Hygienists
<b>TLV</b>	Threshold Limit Value
<b>OSHA</b>	U.S. Occupational Safety and Health Administration
<b>PEL</b>	Permissible Exposure Limit
<b>IDLH</b>	Immediately Dangerous to Life and Health

### FIRST AID MEASURES:

<b>CPR</b>	Cardiopulmonary resuscitation - method in which a person whose heart has stopped receives manual chest compressions and breathing to circulate blood and provide oxygen to the body.
------------	--

### HAZARDOUS MATERIALS IDENTIFICATION SYSTEM: HMIS

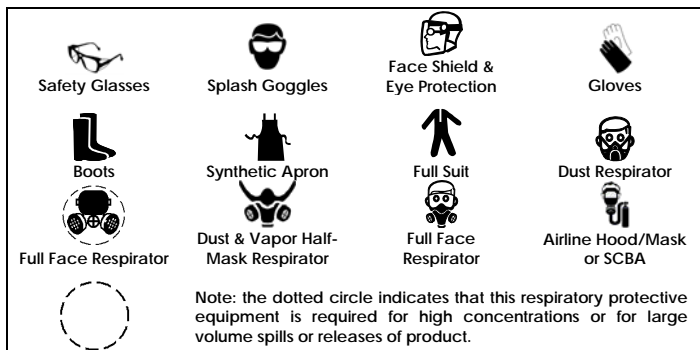
#### HEALTH, FLAMMABILITY & REACTIVITY RATINGS:

<b>0</b>	Minimal Hazard
<b>1</b>	Slight Hazard
<b>2</b>	Moderate Hazard
<b>3</b>	Severe Hazard
<b>4</b>	Extreme Hazard



#### PERSONAL PROTECTION RATINGS:

<b>A</b>		<b>G</b>	
<b>B</b>		<b>H</b>	
<b>C</b>		<b>I</b>	
<b>D</b>		<b>J</b>	
<b>E</b>		<b>K</b>	
<b>F</b>		<b>X</b>	Consult your supervisor or S.O.P. for special handling directions.



#### OTHER STANDARD ABBREVIATIONS:

<b>NA</b>	Not Available
<b>NR</b>	No Results
<b>NE</b>	Not Established
<b>ND</b>	Not Determined
<b>ML</b>	Maximum Limit
<b>SCBA</b>	Self-Contained Breathing Apparatus

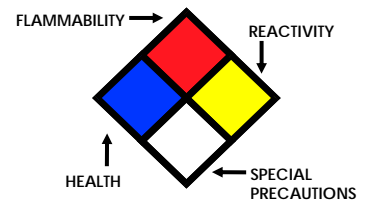
### NATIONAL FIRE PROTECTION ASSOCIATION: NFPA

#### FLAMMABILITY LIMITS IN AIR:

<b>Autoignition Temperature</b>	Minimum temperature required to initiate combustion in air with no other source of ignition
<b>LEL</b>	Lower Explosive Limit - lowest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source
<b>UEL</b>	Upper Explosive Limit - highest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source

#### HAZARD RATINGS:

<b>0</b>	Minimal Hazard
<b>1</b>	Slight Hazard
<b>2</b>	Moderate Hazard
<b>3</b>	Severe Hazard
<b>4</b>	Extreme Hazard
<b>ACD</b>	Acidic
<b>ALK</b>	Alkaline
<b>COR</b>	Corrosive
<b>-W</b>	Use No Water
<b>OX</b>	Oxidizer



#### TOXICOLOGICAL INFORMATION:

<b>LD<sub>50</sub></b>	Lethal Dose (solids & liquids) which kills 50% of the exposed animals
<b>LC<sub>50</sub></b>	Lethal concentration (gases) which kills 50% of the exposed animal
<b>ppm</b>	Concentration expressed in parts of material per million parts
<b>TD<sub>10</sub></b>	Lowest dose to cause a symptom
<b>TCLo</b>	Lowest concentration to cause a symptom
<b>TD<sub>10</sub>, LD<sub>10</sub>, &amp; LD<sub>01</sub> or TC, TC<sub>01</sub>, LC<sub>10</sub>, &amp; LC<sub>01</sub></b>	Lowest dose (or concentration) to cause lethal or toxic effects
<b>IARC</b>	International Agency for Research on Cancer
<b>NTP</b>	National Toxicology Program
<b>RTECS</b>	Registry of Toxic Effects of Chemical Substances
<b>BCF</b>	Bioconcentration Factor
<b>TL<sub>m</sub></b>	Median threshold limit
<b>log K<sub>ow</sub> or log K<sub>oc</sub></b>	Coefficient of Oil/Water Distribution

#### REGULATORY INFORMATION:

<b>WHMIS</b>	Canadian Workplace Hazardous Material Information System
<b>DOT</b>	U.S. Department of Transportation
<b>TC</b>	Transport Canada
<b>EPA</b>	U.S. Environmental Protection Agency
<b>DSL</b>	Canadian Domestic Substance List
<b>NDSL</b>	Canadian Non-Domestic Substance List
<b>PSL</b>	Canadian Priority Substances List
<b>TSCA</b>	U.S. Toxic Substance Control Act
<b>EU</b>	European Union (European Union Directive 67/548/EEC)

#### EC INFORMATION:

<b>C</b>	<b>E</b>	<b>F</b>	<b>N</b>	<b>O</b>	<b>T+</b>	<b>Xi</b>	<b>Xn</b>
Corrosive	Explosive	Flammable	Harmful	Oxidizing	Toxic	Irritant	Harmful