



# MATERIAL SAFETY DATA SHEET

## ZAK DOT 4 BRAKE FLUID

**PRODUCT CODE: BK200**

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** ZAK DOT 4 Brake Fluid  
**Chemical Family:** Glycol Ethers and Alkyl Ethers  
**Synonyms:** Dow 460 Brake Fluid  
**Supplier:** ZAK Products, 720 Industrial Blvd. #400, Grapevine, TX, 76051  
**Emergency Telephone (24 hr.):** CHEMTREC 1-800-424-9300  
**Information Telephone:** ZAK Products 1-800-514-6011 During normal business hours CST 817-645-6088

**Date Printed:** 7/26/07

### 2. COMPOSITION/INFORMATION ON INGREDIENTS

Component	Weight %	OSHA TWA	OSHA STEL	OSHA SKIN
Alkyl Ester proprietary	30-50	Not Listed	Not Listed	Not Listed
Triethylene glycol monobutyl ether 143-22-6	10-40	Not Listed	Not Listed	Not Listed
Polyethylene glycol monomethyl ether 9004-74-4	0-20	Not Listed	Not Listed	Not Listed
Polyethylene glycol monobutyl ether 9004-77-7	0-20	Not Listed	Not Listed	Not Listed
Triethylene glycol monomethyl ether 112-35-6	0-20	Not Listed	Not Listed	Not Listed
Poly(ethylene oxide) 25322-68-3	5-15	Not Listed	Not Listed	Not Listed
Inhibitor Package proprietary	1-3	Not Listed	Not Listed	Not Listed

Component	Weight %	OSHA Z PEL	OSHA Z TWA	OSHA Z Ceiling
Alkyl Ester proprietary	30-50	Not Listed	Not Listed	Not Listed
Triethylene glycol monobutyl ether 143-22-6	10-40	Not Listed	Not Listed	Not Listed
Polyethylene glycol monomethyl ether 9004-74-4	0-20	Not Listed	Not Listed	Not Listed
Polyethylene glycol monobutyl ether 9004-77-7	0-20	Not Listed	Not Listed	Not Listed
Triethylene glycol monomethyl ether 112-35-6	0-20	Not Listed	Not Listed	Not Listed
Poly(ethylene oxide) 25322-68-3	5-15	Not Listed	Not Listed	Not Listed
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Component	ACGIH TLV TWA	ACGIH TLV STEL	ACGIH TLV Ceiling
Alkyl Ester proprietary	Not Listed	Not Listed	Not Listed
Triethylene glycol monobutyl ether 143-22-6	Not Listed	Not Listed	Not Listed
Polyethylene glycol monomethyl ether 9004-74-4	Not Listed	Not Listed	Not Listed
Polyethylene glycol monobutyl ether 9004-77-7	Not Listed	Not Listed	Not Listed
Triethylene glycol monomethyl ether 112-35-6	Not Listed	Not Listed	Not Listed
Poly(ethylene oxide) 25322-68-3	Not Listed	Not Listed	Not Listed
Inhibitor Package proprietary	Not Listed	Not Listed	Not Listed

## 3. HAZARDS IDENTIFICATION

**Emergency Overview:** This material is irritating to skin, eyes and mucous membranes. Absorption through skin or inhalation of heated vapor and mist may result in central nervous system and adverse reproductive effects. Animal studies indicate high doses may cause adverse reproductive effects.

**HMIS Classification:** Health: 2 Flammability: 1 Physical Hazard: 0  
**NFPA Rating:** Health: 2 Flammability: 1 Reactivity: 0

## 4. FIRST AID MEASURES

**Eye Contact:** In case of contact, immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower lids. Seek medical attention if irritation persists.

**Ingestion:** If swallowed, induce vomiting immediately by giving two glasses of water and sticking fingers down throat; never give anything to an unconscious person. Get medical attention.

**Inhalation:** If inhaled, remove to fresh air. If not breathing give artificial respiration, preferably mouth-to-mouth. If breathing is difficult give oxygen. Get medical attention. Vapors or mists from this material can irritate the nose, throat and lungs, and cause signs and symptoms of central nervous system depression, depending on the concentration and duration of exposure.

**Skin Contact:** Remove contaminated clothing and shoes, and launder before reuse. Flush with copious amounts of water. If irritation persists or signs of toxicity occur, seek medical attention.

## 5. FIRE FIGHTING MEASURES

### Flammable Properties

**Flash Point °F(°C):** 135 C. (275 F.)  
**Flash Point Method:** PMCC  
**Flammable Limits in Air - Lower (%):** Not Determined  
**Flammable Limits in Air - Upper (%):** Not Determined  
**Autoignition Temperature °F(°C):** Not Determined  
**Extinguishing Media:** Alcohol foam. Dry chemical. Halon. Carbon dioxide. Water fog. Water. Water fog and foam may cause frothing and spattering.

### Protection Of Fire-Fighters:

**Special Fire-Fighting Procedures:** Wear approved positive-pressure self-contained breathing apparatus and protective clothing.  
**Hazardous Combustion Products:** Carbon Dioxide. Carbon Monoxide.  
**Aerosol Comments:** Not Applicable

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### 6. ACCIDENTAL RELEASE MEASURES

**Personal Precautions:** Wear appropriate protective clothing and equipment to prevent skin and eye contact.  
**Spill Procedures:** Avoid all sources of ignition; heat, sparks and open flames. Contain any liquid from leaking containers. Wear protective equipment specified. Ventilate spill area. Soak up material with absorbent and place in chemical waste container.  
**Action to be taken if material is released or spilled:** If clean-up is not immediate, cover spill with plastic or canvas to keep dry.  
**Environmental Precautions:** Do not allow to enter sanitary drains, sewer or surface and subsurface waters.

### 7. HANDLING AND STORAGE

**Handling and Storage:** Do Not Swallow. Store in a cool, dry place. Use only in a well ventilated area. Keep container closed when not in use to prevent contact with acidic, basic or oxidizing materials. Avoid open heating or agitation, this may generate vapors or mists.

### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Engineering Controls:** Exhaust ventilation. Eyewash stations. Showers.  
**Eyes:** Chemical goggles; also wear a face shield if splashing hazard exists.  
**Skin Protection:** Avoid skin contact. Wear protective clothing and gloves. Rubber, Neoprene or Vinyl. Wash hands and other exposed areas with mild soap and water before eating, drinking, smoking and when leaving work.  
**Respiratory Protection:** An approved respirator (i.e. NIOSH, etc.) should be worn when exposures are expected to exceed the applicable limits.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance:** Transparent pale yellow  
**Odor:** MILD, ETHEREAL  
**pH Value:** Not Applicable  
**Vapor Pressure:** <0.01 mm Hg @ 20C  
**Vapor Density (Air=1):** 9  
**Boiling Point (°F):** 470 F  
**Melting/Freezing Point:** Pour Point -59C (-75F)  
**Solubility in Water:** <0.5%  
**Bulk Density at 20°C:** Not Determined  
**Molecular Weight:** Mixture  
**Specific Gravity (H2O=1):** 1.047 20C/20C  
**Viscosity:** Not Determined.  
**Evaporation Rate:** <0.01 (Butyl Acetate = 1)  
**VOC Content(%):** 0.5 wt%  
**Decomposition Temperature:** Not Known

### 10. STABILITY AND REACTIVITY

**Chemical Stability:** STABLE.  
**Conditions to Avoid:** Keep away from heat, sparks and flame. Avoid open heating or agitation, this may generate vapors or mists.  
**Materials to Avoid:** Contact with oxidizing agents. May form peroxides if in contact with air for long periods and these can explode spontaneously or when heated.  
**Hazardous Decomposition Products:** Oxides of carbon and nitrogen  
**Hazardous Polymerization:** WILL NOT OCCUR

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### 11. TOXICOLOGICAL INFORMATION

**Toxicological Data:**

Component	Route	Species	Dose
Alkyl Ester proprietary	Inhalation	Rats	Not known.
Triethylene glycol monobutyl ether 143-22-6	Oral	Rats	LD50 5300 mg/kg
Polyethylene glycol monomethyl ether 9004-74-4	Oral	Rats	LD50 39800 uL/kg
Polyethylene glycol monobutyl ether 9004-77-7	NA	NA	NA
Triethylene glycol monomethyl ether 112-35-6	Oral	Rats	LD50 11300 uL/kg
Poly(ethylene oxide) 25322-68-3	Inhalation	Rats	Not known.
Inhibitor Package proprietary	Inhalation	Rats	Not known.

**Carcinogenicity:**

Component	IARC	NTP	OSHA
Alkyl Ester proprietary	Not Listed	Not Listed	Not Listed
Triethylene glycol monobutyl ether 143-22-6	Not Listed	Not Listed	Not Listed
Polyethylene glycol monomethyl ether 9004-74-4	Not Listed	Not Listed	Not Listed
Polyethylene glycol monobutyl ether 9004-77-7	Not Listed	Not Listed	Not Listed
Triethylene glycol monomethyl ether 112-35-6	Not Listed	Not Listed	Not Listed
Poly(ethylene oxide) 25322-68-3	Not Listed	Not Listed	Not Listed
Inhibitor Package proprietary	Not Listed	Not Listed	Not Listed

**Comments:** Some minor components have been shown not to interfere with reproduction, although slightly toxic to the offspring or decreased pup weights were observed in the animal studies. This substance appears to be of low toxicity, except for possible mild irritant effects in humans. A high dose may produce central nervous system depression, but there are no reports of adverse health effects from occupational exposure.

### 12. ECOLOGICAL INFORMATION

**Remarks:**

Low to moderate toxicity is expected to aquatic and terrestrial organisms. There is limited information available on environmental fate and effects. Due caution should be exercised to avoid the accidental release of this material to aquatic and terrestrial environments. This mixture is not expected to bioconcentrate in significant amounts.

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### 13. DISPOSAL CONSIDERATION

**Waste Classification:** Not determined.  
**Waste Management:** Not determined.  
**Disposal Method:** Disposal should be made in accordance with federal, state and local regulations.

### 14. TRANSPORTATION INFORMATION

**U.S. DOT:**

**Proper Shipping Name:** Not Applicable  
**Hazard Class:** Not Regulated  
**UN/NA Number:** Not Applicable  
**DOT Packing Group:** Not Applicable

**IMDG:**

**Proper Shipping Name:** Not Applicable  
**Hazard Class:** Not Regulated  
**Hazard Subclass:** Not Applicable  
**UN No.:** Not Applicable  
**Packing Group:** Not Applicable  
**Marine Pollutant:** No

### 15. REGULATORY INFORMATION

**US Federal Regulations:**

Component	SARA 313	SARA 302	TPQ	RQ
Alkyl Ester proprietary	Not Listed	Not Listed	Not Listed	Not Listed
Triethylene glycol monobutyl ether 143-22-6	Listed.	Not Listed	Not Listed	Not Listed
Polyethylene glycol monomethyl ether 9004-74-4	Not Listed	Not Listed	Not Listed	Not Listed
Polyethylene glycol monobutyl ether 9004-77-7	Not Listed	Not Listed	Not Listed	Not Listed
Triethylene glycol monomethyl ether 112-35-6	Listed.	Not Listed	Not Listed	Not Listed
Poly(ethylene oxide) 25322-68-3	Not Listed	Not Listed	Not Listed	Not Listed
Inhibitor Package proprietary	Not Listed	Not Listed	Not Listed	Not Listed

**US OSHA HEALTH CLASSIFICATION:**

No specific component of this material is listed as a Hazardous Substance CERCLA (40 CFR 261). However, this product contains various ethylene glycols and glycol ethers which are each included as a broad category on the CERCLA Hazardous substances list.

**SARA 311/312 Hazard Categories:**

Immediate Health: Yes, Delayed Health: Yes, Fire: No, Reactive: No, Pressure: No.

**State Regulations:**

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Component	California Prop. 65 Cancer list	California - Prop 65 Developmental Toxicity	California Prop. 65 Reproductive Female	California Prop. 65 Reproductive Male
Alkyl Ester proprietary	Not Listed	Not Listed	Not Listed	Not Listed
Triethylene glycol monobutyl ether 143-22-6	Not Listed	Not Listed	Not Listed	Not Listed
Polyethylene glycol monomethyl ether 9004-74-4	Not Listed	Not Listed	Not Listed	Not Listed
Polyethylene glycol monobutyl ether 9004-77-7	Not Listed	Not Listed	Not Listed	Not Listed
Triethylene glycol monomethyl ether 112-35-6	Not Listed	Not Listed	Not Listed	Not Listed
Poly(ethylene oxide) 25322-68-3	Not Listed	Not Listed	Not Listed	Not Listed
Inhibitor Package proprietary	Not Listed	Not Listed	Not Listed	Not Listed

Component	New Jersey Right-to-Know List:
Triethylene glycol monobutyl ether 143-22-6	Substance no. 2265
Triethylene glycol monomethyl ether 112-35-6	Substance no. 2265

**U.S. TSCA:** One or more components of this product is not listed on the TSCA Inventory.  
**Canadian Inventory:** One or more components of this product is not listed on the Canadian DSL or NDSL Inventory.  
**Carcinogenicity:** This product contains the following chemical known to the State of California to cause birth defects and/or other reproductive harm: Ethylene glycol monomethyl ether (cas#109-86-4; Present at less than 0.01%).

### 16. OTHER INFORMATION

**General Notes:**  
**Disclaimer:** Do not allow undiluted material or large quantities to reach groundwater, bodies of water or sewer system. The information and recommendations contained herein are based upon tests believed to be reliable. However, the manufacturer/distributor of this product does not guarantee their accuracy or completeness NOR SHALL ANY OF THIS INFORMATION CONSTITUTE A WARRANTY, WHETHER EXPRESSED OR IMPLIED, AS TO THE SAFETY OF THE GOODS, THE MERCHANTABILITY OF THE GOODS, OR THE FITNESS OF THE GOODS FOR A PARTICULAR PURPOSE. Adjustment to conform to actual conditions of usage may be required. The manufacturer/distributor assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied.