

309124

Rev. E MAY 15, 2009

# MATERIAL SAFETY DATA SHEET

## PUMP ARMOR

Lubrication Technologies, Inc.  
900 Mendelssohn Avenue North  
Golden Valley, MN 55427

**24-HOUR EMERGENCY CONTACTS**  
**Health Emergency (RMPC):** 303-623-5716  
**Chemical Spills (Chemtrec):** 800-424-9300  
**General Information:** 763-545-0707  
**Facsimile:** 763-545-9256

### SECTION 1 CHEMICAL PRODUCT IDENTIFICATION

**Product:** Graco Pump Armor  
**Synonyms/Other:** Not Applicable  
**Item Number(s):** 243103, 245133, 243104, 244168, 248566, 253574  
**MSDS Number:** 0189  
**Product Type:** Corrosion Inhibitor/lubricant  
**Preparation/Revision Date:** 05/15/2009

### SECTION 2 COMPOSITION INFORMATION

INGREDIENTS	CAS #	%	OSHA TWA	OSHA STEL	ACGIH TWA	SKIN
Ethylene glycol	107-21-1	45-60	50 ppm (aerosol)	--	127 mg/m <sup>3</sup> (ceiling)	NO
Water	7732-18-4	40-49	--	--	--	NO
Proprietary additives	Mixture	Balance	--	--	--	NO

**Comments:** Not applicable.  
TWA – Time Weighted Average is the employee’s average airborne exposure in any 8-hour work shift of a 40-hour work week which shall not be exceeded.  
STEL – Short Term Exposure Limit is the employee’s 15-minute time weighted average exposure which shall not be exceeded at any time during a work day unless another time limit is specified.

### SECTION 3 HAZARDOUS IDENTIFICATION

**WARNING:** - HARMFUL IF SWALLOWED  
- MAY CAUSE DIZZINESS AND DROWSINESS  
- MAY CAUSE EYE IRRITATION  
- ASPIRATION HAZARD IF SWALLOWED, CAN ENTER LUNGS  
- CAN CAUSE KIDNEY DAMAGE IF SWALLOWED

**Eye contact:** Direct contact may cause irritation, redness, tearing and blurred vision.  
**Skin contact:** Brief contact may cause slight irritation. Prolonged contact, as with clothing wetted with material, may cause more severe irritation and discomfort, seen as local redness and swelling.  
Other than the potential skin irritation effects noted above, acute (short term) adverse effects are not expected from brief skin contact.

**Inhalation:** Vapors or mist, in excess of permissible concentrations, or in unusually high concentrations generated from spraying, heating the material or from exposure in poorly ventilated areas or confined spaces, may cause irritation of the nose and throat, headache, nausea and drowsiness.

**Ingestion:** Contains ethylene glycol, which is toxic when swallowed. A lethal dose for an adult is 1-2 mL per kilogram, or about 4 ounces (1/2 cup). Symptoms include headache, weakness, confusion, dizziness, staggering, slurred speech, loss of coordination, faintness, nausea and vomiting, increased heart rate, decreased blood pressure, difficulty in breathing and seeing, pulmonary edema, unconsciousness, convulsions, collapse, and coma. Symptoms may be delayed. Decreased urine output and kidney failure may also occur. Severe poisoning may cause death.

**Other:** Aspiration may occur during swallowing or vomiting, resulting in lung damage.

**SECTION 4 FIRST AID MEASURES**

<b>Eye contact:</b>	Immediately flush eyes with plenty of water for at least 15 minutes. Hold eyelids apart while flushing to rinse entire surface of eye and lids with water. Get medical attention.
<b>Skin contact:</b>	Wash skin with plenty of soap and water for several minutes. Get medical attention if skin irritation develops or persists.
<b>Inhalation:</b>	If irritation, headache, nausea, or drowsiness occurs, remove to fresh air. Get medical attention if breathing becomes difficult or respiratory irritation persists.
<b>Ingestion:</b>	If person is conscious and can swallow, immediately give two glasses (16 ounces) of water. Induce vomiting as directed by medical personnel. Get medical attention. Never give anything by mouth to an unconscious or convulsing person.
<b>Other:</b>	Ethylene glycol (EG) intoxication may initially produce behavioral changes, drowsiness, vomiting, diarrhea, thirst, and convulsions. EG is nephrotoxic (kidney damaging). End stages of poisoning may include renal damage or failure with acidosis. Supportive measures, supplemented with hemodialysis if indicated, may limit the progression and severity of toxic effects. For ethylene glycol poisoning intravenous ethanol is a recognized antidotal treatment; other antidotal treatments also exist for EG poisoning. Aspiration of this product during induced emesis may result in severe lung injury. If evacuation of stomach is necessary, use method least likely to cause aspiration - such as gastric lavage after endotracheal intubation. Contact a poison center for additional treatment information.

**SECTION 5 FIRE FIGHTING MEASURES**

<b>Flash point:</b>	118°C (244°F) typical by ASTM D 92 (COC) for ethylene glycol. If material contains water from addition - flash will not occur until water has boiled off.
<b>Flammable limits:</b>	Not determined.
<b>Extinguishing media:</b>	Use water spray, dry chemical, alcohol foam, all purpose AFFF or carbon dioxide to extinguish fire.
<b>Special firefighting procedures:</b>	Evacuate area and fight fire from a safe distance. If leak or spill has not ignited, ventilate area and use water spray to disperse gas or vapor and to protect personnel attempting to stop a leak.  Use water spray to cool adjacent structures and to protect personnel. Shut off source of flow if possible (safely). Stay away from storage tank ends. Withdraw immediately in case of rising sound from venting safety device or any discoloration of storage tank due to fire.  Fire fighters must wear MSHA/NIOSH approved positive pressure breathing apparatus (SCBA) with full face mask and full protective equipment.
<b>Unusual fire &amp; explosion hazards:</b>	Dense smoke may be generated while burning. Toxic fumes, gases or vapors may evolve on burning. Heavy flammable vapors may settle along ground level and low spots to create an invisible fire hazard. The vapors may extend to sources of ignition and flash back.
<b>Byproducts of combustion:</b>	Fires involving this product may release COx, NOx, SOx, reactive hydrocarbons and irritating vapors.
<b>Autoignition temperature:</b>	Not determined.
<b>Explosion data:</b>	Not determined. Care should always be exercised in dust/mist areas.
<b>Other:</b>	Not applicable.

**SECTION 6****ACCIDENTAL RELEASE MEASURES****Spill control procedures (land):**

Immediately turn off or isolate any source of ignition (pilot lights, electrical equipment, flames, heaters, etc.). Evacuate area and ventilate. Personnel wearing proper protective equipment should contain spill immediately with inert materials (sand, earth, chemical spill pads of cotton) by forming dikes. Dikes should be placed to contain spill in a manner that will prevent material from entering sewers and waterways. Large spill, once contained, may be picked up using explosion proof, non-sparking vacuum pumps, shovels, or buckets, and disposed of in suitable containers for disposal. If a large spill (5,000 pounds or ~500 gallons) occurs notify appropriate authorities according to SARA 304 and/or CERCLA 102(a) requirements. In the case of accident or road spill contact Chemtrec at 800-424-9300.

**Spill control procedures (water):**

Material will readily mix with water. If a large spill occurs notify appropriate authorities (normally the National Response Center or Coast Guard at 800-424-8802).

**Waste disposal method:**

This product has been evaluated for RCRA characteristics and does not meet the criteria of a hazardous waste if discarded in its purchased form. Under RCRA, it is the responsibility of the user of the product to determine at the time of disposal, whether the product meets RCRA criteria for hazardous waste. This is because product uses, transformations, mixtures, processes, etc. may render the resulting materials hazardous. All disposals must comply with federal, state, and local regulations. The material, if spilled or discarded may be a regulated waste. Refer to state and local regulations. Department of Transportation (DOT) regulations may apply for transporting this material when spilled. See Section 14.

**Other:**

To prevent contamination of drinking water supplies, and poisoning of children, aquatic life, wildlife, and farm and domestic animals, ethylene glycol products should never be discarded onto the ground, into surface waters, or into storm sewers.

Product spills into the environment of one pound (~1 pint) or more must be reported because of ethylene glycol listing in the 1990 Clean Air Act. For information on reporting requirements for a spill located in a specific location, call the EPA's Chemical Preparedness Program Hotline (800-535-0202).

**SECTION 7****HANDLING AND STORAGE****Handling procedures:**

Keep containers closed when not in use. Do not transfer to unmarked containers. Empty containers retain product residue which may exhibit hazards of material, therefore do not pressurize, cut, glaze, weld, or use for any other purposes. Return drums to reclamation centers for proper cleaning and reuse.

**Storage procedures:**

Periods of exposure to high temperatures should be minimized. Water contamination should be avoided.

**Additional information:**

No additional information.

**SECTION 8****EXPOSURE CONTROLS / PERSONAL PROTECTION****Personal protection:**

Applicable mainly to persons in repeated contact situations such as packaging of product, service/maintenance, and cleanup/spill control personnel.

**Respiratory protection:**

None required if airborne concentrations are maintained below threshold limits listed on page one. Otherwise a respiratory protection program meeting OSHA 1910.134 and ANSI Z88.2 requirements must be followed. Where misting may occur, wear an MSHA/NIOSH approved (or equivalent) half-mask form dust/mist air purifying respirator.

**Eye protection:**

Eye protection is strongly recommended. If material is handled such that it could be splashed into the eyes, wear safety glasses with side shields or vented/splash proof goggles (ANSI Z87.1 or approved equivalent).

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<b>Hand protection:</b>	Impervious gloves such as neoprene or nitrile rubber to avoid skin sensitization and absorption.
<b>Other protection:</b>	Use of an apron and overboots of chemically impervious materials such as neoprene or nitrile rubber is recommended to avoid skin sensitization and absorption. If handling hot material use insulated protective equipment. Launder soiled clothes. Properly dispose of contaminated leather articles and other materials which cannot be decontaminated.
<b>Local control measures:</b>	Use adequate ventilation when working with material in an enclosed area. Mechanical methods such as fume hoods or area fans may be used to reduce localized vapor/mist areas. If vapor or mist is generated when the material handled, adequate ventilation in accordance with good engineering practice must be provided to maintain concentrations below the specified exposure. Eyewash stations and showers should be available in areas where this material is used and stored.
<b>Other:</b>	Consumption of food and drink should be avoided in work areas where product is present. Always wash hands and face with soap and water before eating, drinking or smoking.

## SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

<b>Vapor pressure:</b>	<0.1 mm Hg at 20°C (68°F) for all grades.
<b>API gravity:</b>	0.0
<b>Density:</b>	8.96 lbs/gal at 15.6°C (60.0°F).
<b>Specific gravity:</b>	1.08 at 15.6°C (60.0°F).
<b>Solubility:</b>	Fully miscible with water, immiscible in most petroleum solvents.
<b>Percent volatile:</b>	Not determined.
<b>Vapor density (air=1):</b>	>1.
<b>Evaporation rate (n-Butyl Acetate=1):</b>	Not determined.
<b>Odor:</b>	Mild, sweet odor.
<b>Appearance:</b>	Clear blue fluid
<b>Viscosity:</b>	< 5 cSt @ 40°C
<b>Boiling point:</b>	Not determined
<b>Pour/Freeze point:</b>	- 30 °F
<b>Other:</b>	pH ~ 10 - 11.

## SECTION 10 STABILITY AND REACTIVITY

<b>Stability:</b>	Material is stable at room temperatures and pressure.
<b>Conditions to avoid:</b>	Avoid high temperatures and product contamination.
<b>Incompatibility with other materials:</b>	Avoid contact with acids and oxidizing materials.
<b>Decomposition products:</b>	Smoke, carbon monoxide and dioxide, and other aldehydes of incomplete combustion. Oxides of COx, NOx, SOx, reactive hydrocarbons and irritating vapors.
<b>Hazardous polymerization:</b>	Will not occur.
<b>Other:</b>	Not applicable.

## SECTION 11 TOXICOLOGICAL INFORMATION

<b>Oral toxicity:</b>	LD50 (rates) is 4.0 to 4.5 g/kg. Animal data does not reflect human toxicity (see Sections 3 and 4 also). This material meets requirements to be classified as an EPA toxin.
<b>Dermal toxicity:</b>	LD50 believed to be <1.00 - 2.00 g/kg (rabbit), slightly toxic.
<b>Inhalation toxicity:</b>	Not determined.
<b>Dermal sensitization:</b>	Skin (Draize) Believed to be >0.50 - 3.00 / 8.0 (rabbit), slightly irritating. Eyes (Draize) Believed to be >15.00 - 25.00 / 110 (rabbit), slightly irritating.
<b>Chronic toxicity:</b>	Not determined.

<b>Carcinogenicity:</b>	This material does not contain items listed by OSHA, IARC or NTP.
<b>Mutagenicity:</b>	Not determined.
<b>Reproductive toxicity:</b>	Oral administration of ethylene glycol to pregnant experimental animals has been shown to cause birth defects in offspring. These effects were not seen when ethylene glycol was administered by dermal application or by inhalation.
<b>Other:</b>	Continuous ingestion of a diet containing 1 or 2% ethylene glycol for two years produced liver and kidney damage, and bladder stones in rats.

## SECTION 12 ECOLOGICAL INFORMATION

<b>Environmental toxicity:</b>	This material may be toxic to aquatic organisms and should be kept out of sewage and drainage systems and all bodies of water.
<b>Environmental fate:</b>	Not determined.
<b>Other:</b>	These materials are estimated to have a moderate ( $\geq 30\%$ ) rate of biodegradation in a test for ready biodegradation. Materials are estimated to have a low potential to bioconcentrate.

## SECTION 13 DISPOSAL CONSIDERATIONS

<b>Waste disposal:</b>	See Section 6. Under RCRA it is the responsibility of the user of the product to determine at the time of disposal whether the product meets RCRA criteria for hazardous waste. This product unadulterated by other materials may be classified as a non-regulated waste in some areas - but still needs to be disposed of at approved facilities. Waste management should be in full compliance with federal, state, and local laws.
<b>Disposal consideration:</b>	See Section 6. Under RCRA it is the responsibility of the user of the product to determine at the time of disposal whether the product meets RCRA criteria for hazardous waste. This product unadulterated by other materials may be classified as a non-regulated waste in some areas - but still needs to be disposed of at approved facilities. Waste management should be in full compliance with federal, state, and local laws.
<b>Other:</b>	The transportation, storage, treatment and disposal of RCRA waste material must be conducted in compliance with 40 CFR 262, 263, 264, 268 and 270. Disposal can only occur in properly permitted facilities. Check state and local regulations for any additional requirements as these may be more restrictive than federal laws and regulations. Chemical additions, processing or otherwise altering this material may make the waste management information presented in this MSDS incomplete, inaccurate or otherwise inappropriate. Disposal of this material must be conducted in compliance with all federal, state, and local regulations.

## SECTION 14 TRANSPORT INFORMATION

<b>U.S. DOT shipping description (bulk):</b>	Other Regulated Substance, Liquid, n.o.s. (ethylene glycol).
<b>U.S. DOT identification number (bulk):</b>	NA3082.
<b>U.S. DOT hazard classification:</b>	Environmentally Hazardous for quantities greater than 5000 pounds (bulk - class 9).
<b>Packaging class:</b>	III.
<b>Other:</b>	These materials are exempt from DOT regulations unless quantities greater than 5000 pounds are transported. This exclusion applies to consumer packaging up to DOT shipping drums (515 pounds) and small totes. Shipping notification occurs at 5000 pounds, or approximately 531 gallons.
	Information according to 49 CFR 172.101 for materials predominantly composed of ethylene glycol and glycol suppliers.

**SECTION 15 REGULATORY INFORMATION**

**Clean water act/oil pollution act:**

Contact the National Response Center at 800-424-8802 in the case of a spill that enters waterways.

**TSCA:**

All components of this material are listed in the U.S. TSCA Inventory.

**Other TSCA:**

Not applicable.

**SARA Title III:**

Section 302/304 extremely hazardous substances:

None.

Section 311, 312 hazard categorization:

Acute (immediate health effects):	YES
Chronic (delayed health effects):	YES
Fire (hazard):	NO
Reactivity (hazard):	NO
Pressure (sudden release hazard):	NO

Section 313 toxic chemicals:

1,2 ethanediol (CAS 107-21-1) < 60%.

**CERCLA:**

For stationary/moving sources – reportable quantity (due to):  
5000 pounds due to ethylene glycol.

**Other:**

Recommend contacting the local authorities in the event of any type of spill to determine local reporting requirements and also to aid in the cleanup.

Clean Air Act of 1990: Spills of one pound (~1 pint) or more must be reported. For location specific information contact the EPA's Chemical Emergency Preparedness Program Hotline (800-535-0202).

EPA Toxin: This material is an EPA toxin (ethylene glycol).

WHMIS Classification:

- Class D, Div 1, Subdiv B: Toxic.
- Class D, Div 2, Subdiv A: Teratogenic.
- Class D, Div 2, Subdiv B: Chronic toxic effects.

Ethylene glycol appears on the following State list(s):

- Florida Toxic Substance.
- Massachusetts Hazardous Substances.
- Minnesota Hazardous Substances.
- Pennsylvania Hazardous Substances (environmental hazard).

Diethylene glycol appears on the following State list(s):

- Minnesota Hazardous Substances.
- Pennsylvania Hazardous Substances.

**SECTION 16 OTHER INFORMATION**

	<b>NFPA 704</b>	<b>NPCA-HMIS</b>	<b>KEY</b>
<b>HEALTH:</b>	2	2	0 = Minimal
<b>FIRE:</b>	1	1	1 = Slight
<b>REACTIVITY:</b>	0	0	2 = Moderate
<b>SPECIFIC HAZARD:</b>	NONE	N/A	3 = Serious
<b>PROTECTION INDEX:</b>	N/A	B	4 = Severe

Precautionary labels:

- HARMFUL IF SWALLOWED
- MAY CAUSE DIZZINESS AND DROWSINESS
- MAY CAUSE EYE IRRITATION
- ASPIRATION HAZARD IF SWALLOWED, CAN ENTER LUNGS
- CAN CAUSE KIDNEY DAMAGE IF SWALLOWED

<b>Prepared By</b>	Graco, Inc.
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This Material Safety Data Sheet and the information it contains is offered to you in good faith as accurate. We have reviewed any information contained in this data sheet which we have received from sources outside our company. We believe that information to be correct, but cannot guarantee its accuracy or completeness. Health and safety precautions in this Data Sheet may not be adequate for all individuals and/or situations. It is the users' obligation to evaluate and use this product safely and to comply with all applicable laws and regulations. No statement made in this data sheet shall be construed as a permission or recommendation for the use of any product in a manner that might infringe existing patents. No warranty is made, either express or implied.

**NOTES:** NA = Not Applicable; NE = Not Established; UN = Unavailable

*All written and visual data contained in this document reflects the latest product information available at the time of publication.*

*Graco reserves the right to make changes at any time without notice.*

**Sales Offices:** Minneapolis, Detroit,

**International Offices:** Belgium, Korea, Hong Kong, Japan

**GRACO INC. P.O. BOX 1441 MINNEAPOLIS, MN 55440-1441**

**www.graco.com**

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