**Material Safety Data Sheet****PRO SOL**

HEALTH	2
FLAMMABILITY	2
PHYSICAL HAZARD	0
PERSONAL PROTECTION	B

**1. Product and Company Identification**

**Material name** PRO SOL  
**Version #** 10  
**Issue date** December-13-2012  
**Revision date** January-08-2013  
**Supersedes date** December-14-2012  
**CAS #** 111-76-2  
**Product use** Solvent  
**Manufacturer information** Weatherford®  
2000 St. James Place  
Houston, TX 77056 United States  
Email: productsafety.compliance@weatherford.com  
Weatherford Information Line: 713-836-4000

**Supplier information** Producers Service Corp.  
109 South Graham St.  
Zanesville, OH 43701 US  
**Supplier emergency telephone number(s)** 24hr customer Service 740-454-6253

**2. Hazards Identification**

**Emergency overview** WARNING TOXIC.  
Combustible liquid and vapor. Harmful if swallowed, inhaled or absorbed through skin. Irritating to eyes, respiratory system and skin. May cause central nervous system effects. Prolonged exposure may cause chronic effects. Possible cancer hazard - may cause cancer based on animal data.

**OSHA regulatory status** This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).

**Potential health effects**

**Routes of exposure** Inhalation. Ingestion. Skin contact. Eye contact.

**Eyes** May cause severe eye irritation. Eye contact may result in corneal injury. Symptoms include pain, redness and tearing. Effects may be slow to heal. Do not get this material in contact with eyes.

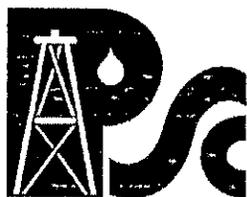
**Skin** Irritating to skin. Harmful if absorbed through skin. 2-Butoxyethanol may be absorbed through the skin in toxic amounts if contact is repeated and prolonged. Prolonged or repeated contact can result in defatting and drying of the skin which may result in skin irritation and dermatitis (rash). Do not get this material in contact with skin.

**Inhalation** Harmful if inhaled. May cause irritation of respiratory tract. Inhalation of vapors may cause central nervous system (CNS) effects with symptoms such as headache, dizziness, nausea and vomiting. Do not breathe gas/fumes/vapor/spray.



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<b>Ingestion</b>	Harmful if swallowed. Do not ingest.
<b>Target organs</b>	Kidney. Blood. Central nervous system. Eyes. Liver. Respiratory system. Skin.
<b>Chronic effects</b>	2-Butoxyethanol has caused blood (hematotoxic) effects in experimental animals following inhalation, dermal and oral exposure. However, humans are considered much less sensitive to the observed effects. Liver and kidney injuries may occur.
<b>Signs and symptoms</b>	Irritation. Narcosis. Decrease in motor functions. headache dizziness nausea

### 3. Composition / Information on Ingredients

Components	CAS #	Percent
2-Butoxyethanol	111-76-2	90 - 100

### 4. First Aid Measures

#### First aid procedures

<b>Eye contact</b>	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention immediately.
<b>Skin contact</b>	Immediately flush skin with plenty of water. Remove contaminated clothing, including shoes, after flushing has begun. Get medical attention immediately. Thoroughly wash (or discard) clothing and shoes before reuse. If breathing stopped, trained personnel should begin artificial respiration immediately; and if the heart has stopped, trained personnel should begin cardiopulmonary resuscitation (CPR) immediately.
<b>Inhalation</b>	Call a physician or Poison Control Center immediately. If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If breathing stopped, trained personnel should begin artificial respiration immediately; and if the heart has stopped, trained personnel should begin cardiopulmonary resuscitation (CPR) immediately.
<b>Ingestion</b>	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Do not induce vomiting without medical advice. Never give anything by mouth to a victim who is unconscious or is having convulsions. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Do not use mouth-to-mouth method if victim ingested the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If breathing stopped, trained personnel should begin artificial respiration immediately; and if the heart has stopped, trained personnel should begin cardiopulmonary resuscitation (CPR) immediately.

<b>General advice</b>	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. If you feel unwell, seek medical advice (show the label where possible). Show this safety data sheet to the doctor in attendance.
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### 5. Fire Fighting Measures

<b>Flammable properties</b>	Combustible by OSHA criteria. Containers may explode when heated. Runoff to sewer may cause fire or explosion hazard.
<b>Extinguishing media</b>	
<b>Suitable extinguishing media</b>	Alcohol foam. Dry chemical. Carbon dioxide (CO <sub>2</sub> ). Water spray. Water fog.
<b>Unsuitable extinguishing media</b>	Do not use a solid water stream as it may scatter and spread fire.



**Protection of firefighters****Protective equipment and precautions for firefighters**

Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.

**Fire fighting equipment/instructions**

In the event of fire and/or explosion do not breathe fumes. If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also consider initial evacuation for 800 meters (1/2 mile) in all directions. ALWAYS stay away from tanks engulfed in flame. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Withdraw immediately in case of rising sound from venting safety devices or any discoloration of tanks due to fire. Move containers from fire area if you can do it without risk. Use water spray to cool unopened containers. Cool containers with flooding quantities of water until well after fire is out.

**Specific methods**

In the event of fire and/or explosion do not breathe fumes. In the event of fire, cool tanks with water spray. Use water spray to cool unopened containers.

**Hazardous combustion products**

May include oxides of carbon.

**6. Accidental Release Measures****Personal precautions**

Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Keep people away from and upwind of spill/leak. Keep out of low areas. Vapors are heavier than air and may travel along the ground to some distant source of ignition and flash back. Ensure adequate ventilation. Ventilate closed spaces before entering them.

**Environmental precautions**

Prevent further leakage or spillage if safe to do so. Do not contaminate water.

**Methods for containment**

ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop leak if you can do so without risk. Prevent entry into waterways, sewer, basements or confined areas. Should not be released into the environment.

**Methods for cleaning up**

Eliminate ignition sources including sources of electrical, static or frictional sparks. Extinguish all flames in the vicinity.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Clean contaminated surface thoroughly.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills in original containers for re-use. For waste disposal, see section 13 of the MSDS.

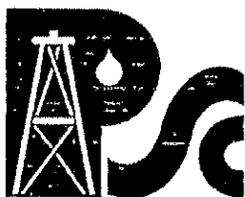
**Other information**

Clean up in accordance with all applicable regulations.

**7. Handling and Storage****Handling**

DO NOT handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Vapors may travel to a source of ignition and flash back. All equipment used when handling the product must be grounded. When using, do not eat, drink or smoke. Do not use in areas without adequate ventilation. Wash thoroughly after handling. Wear personal protective equipment. Avoid release to the environment. Do not empty into drains. Do not breathe mist or vapor. Do not get this material in contact with eyes. Do not taste or swallow. Do not get on skin and clothing.



**Storage**

The pressure in sealed containers can increase under the influence of heat. Keep away from heat and sources of ignition. This material can accumulate static charge which may cause spark and become an ignition source. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store in a closed container away from incompatible materials. Keep away from food and drink. Store in a well-ventilated place. Keep container tightly closed. Store in accordance with local/regional/national/international regulation.

**8. Exposure Controls / Personal Protection****Occupational exposure limits****US. ACGIH Threshold Limit Values**

Components	Type	Value
2-Butoxyethanol (111-76-2)	TWA	20 ppm

**US. ACGIH. BEIs. Biological Exposure Indices**

Components	Type	Value
2-Butoxyethanol (111-76-2)	BEI	200 mg/g

**US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)**

Components	Type	Value
2-Butoxyethanol (111-76-2)	PEL	240 mg/m <sup>3</sup> 50 ppm

**Exposure guidelines****US OSHA Table Z-1: Skin designation**

2-Butoxyethanol (CAS 111-76-2)

Can be absorbed through the skin.

**Engineering controls**

Ensure adequate ventilation, especially in confined areas. Eye wash fountain and emergency showers are recommended.

**Personal protective equipment****Eye / face protection**

Do not get this material in contact with eyes. Wear safety glasses with side shields (or goggles) and a face shield.

**Skin protection**

Do not get this material in contact with skin. Wear protective gloves. Wear suitable protective clothing. Normal work clothing (long sleeved shirts and long pants) is recommended. Closed-toe shoes recommended.  
The suitability for a specific workplace should be discussed with the producers of the protective gloves. The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other.

**Respiratory protection**

If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Use a positive-pressure air-supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air-purifying respirators may not provide adequate protection.

**General hygiene considerations**

Do not get in eyes, on skin, on clothing. Wash hands before breaks and immediately after handling the product. Handle in accordance with good industrial hygiene and safety practice. When using, do not eat, drink or smoke.

**9. Physical & Chemical Properties**

Appearance	Clear.
Physical state	Liquid.
Form	Liquid.
Color	Colorless.





<b>Odor</b>	Ether-like.
<b>Odor threshold</b>	Not available.
<b>pH</b>	Not available.
<b>Vapor pressure</b>	0.4 mm Hg @ 20°C / 68°F
<b>Vapor density</b>	Not available.
<b>Boiling point</b>	339.8 °F (171 °C)
<b>Melting point/Freezing point</b>	-106.6 °F (-77 °C)
<b>Solubility (water)</b>	Soluble
<b>Specific gravity</b>	0.90
<b>Relative density</b>	Not available.
<b>Flash point</b>	149.00 °F (65.00 °C) Tag Closed Cup
<b>Flammability limits in air, upper, % by volume</b>	10.6
<b>Flammability limits in air, lower, % by volume</b>	1.3
<b>Auto-ignition temperature</b>	471.00 °F (243.89 °C)
<b>Evaporation rate</b>	0.1
<b>Molecular formula</b>	O(CCCC)CCO
<b>Other data</b>	
<b>Flammability class</b>	Combustible IIIA
<b>Partition coefficient (oil/water)</b>	Not available

## 10. Chemical Stability & Reactivity Information

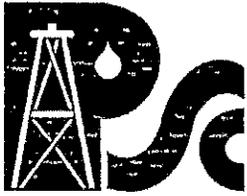
<b>Chemical stability</b>	Stable at normal conditions.
<b>Conditions to avoid</b>	Heat, flames and sparks. Avoid temperatures exceeding the flash point.
<b>Incompatible materials</b>	Strong oxidizing agents. Strong acids. Strong bases
<b>Hazardous decomposition products</b>	May include oxides of carbon.
<b>Possibility of hazardous reactions</b>	Hazardous polymerization does not occur.

## 11. Toxicological Information

### Toxicological data

Components	Species	Test Results
2-Butoxyethanol (111-76-2)		
<b>Acute</b>		
<i>Dermal</i>		
LD50	Rabbit	400 mg/kg
<i>Inhalation</i>		
LC50	Rat	450 mg/l, 4 Hours





Components	Species	Test Results
Oral LD50	Rat	> 250 mg/kg
<b>Local effects</b>	Irritating to eyes, respiratory system and skin.	
<b>Chronic effects</b>	Hazardous by OSHA criteria. 2-Butoxyethanol has caused blood (hematotoxic) effects in experimental animals following inhalation, dermal and oral exposure. However, humans are considered much less sensitive to the observed effects. 2-Butoxyethanol may be absorbed through the skin in toxic amounts if contact is repeated and prolonged. Prolonged or repeated exposure may cause liver and kidney damage.	
<b>Carcinogenicity</b>	Possible cancer hazard - may cause cancer based on animal data.	
<b>ACGIH Carcinogens</b>		
2-Butoxyethanol (CAS 111-76-2)	A3 Confirmed animal carcinogen with unknown relevance to humans.	
<b>IARC Monographs. Overall Evaluation of Carcinogenicity</b>		
2-Butoxyethanol (CAS 111-76-2)	3 Not classifiable as to carcinogenicity to humans.	
<b>Skin corrosion/irritation</b>	Irritating to eyes and skin.	
<b>Mutagenicity</b>	Not expected to be hazardous by OSHA criteria.	
<b>Neurological effects</b>	Hazardous by OSHA criteria. Inhalation of vapors may cause central nervous system (CNS) effects with symptoms such as headache, dizziness, nausea and vomiting.	
<b>Reproductive effects</b>	Not expected to be hazardous by OSHA criteria.	
<b>Teratogenicity</b>	Not expected to be hazardous by OSHA criteria.	
<b>Further information</b>	Symptoms may be delayed.	

## 12. Ecological Information

### Ecotoxicological data

Product	Species	Test Results
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PRO SOL (111-76-2)

Fish	LC50	Fish	1490 mg/L, 96 Hours
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Components	Species	Test Results
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2-Butoxyethanol (111-76-2)

Fish	LC50	Fish	1490 mg/L, 96 Hours
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#### Aquatic

Fish	LC50	Inland silverside (Menidia beryllina)	1250 mg/l, 96 hours
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**Environmental effects** An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

**Persistence and degradability** Not available.

### Bioaccumulation / Accumulation

#### Bioaccumulative potential

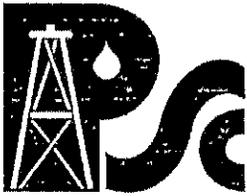
#### Octanol/water partition coefficient log Kow

2-Butoxyethanol	0.83
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#### Partition coefficient

2-Butoxyethanol	0.83
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### 13. Disposal Considerations

- Disposal instructions** Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. 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. Dispose in accordance with all applicable regulations.
- Contaminated packaging** Empty containers should be taken to an approved waste handling site for recycling or disposal.

### 14. Transport Information

**DOT**

Not regulated as dangerous goods.

**DOT****BULK****Basic shipping requirements:**

<b>UN number</b>	NA1993
<b>Proper shipping name</b>	Combustible liquid, n.o.s. (2-BUTOXY ETHANOL)
<b>Hazard class</b>	Comb liq
<b>Subsidiary hazard class</b>	None
<b>Packing group</b>	III
<b>Additional information:</b>	
<b>Special provisions</b>	IB3, T1, T4, TP1
<b>Packaging exceptions</b>	150
<b>Packaging non bulk</b>	203
<b>Packaging bulk</b>	241

**TDG**

Not regulated as dangerous goods.

**IATA**

Not regulated as dangerous goods.

**IMDG**

Not regulated as dangerous goods.

### 15. Regulatory Information

- US federal regulations** This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.  
All components are on the U.S. EPA TSCA Inventory List.

**Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2))**

Not regulated.

**DEA Essential Chemical Code Number**

Not regulated.

**Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))**

Not regulated.

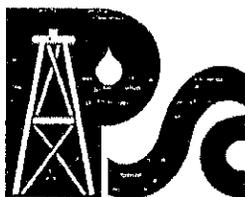
**DEA Exempt Chemical Mixtures Code Number**

Not regulated.

**CERCLA (Superfund) reportable quantity**

None



**Superfund Amendments and Reauthorization Act of 1986 (SARA)**

<b>Hazard categories</b>	Immediate Hazard - Yes Delayed Hazard - Yes Fire Hazard - Yes Pressure Hazard - No Reactivity Hazard - No
<b>Section 302 extremely hazardous substance</b>	No
<b>Section 311 hazardous chemical</b>	No
<b>Clean Air Act (CAA)</b>	HAPS list
<b>Food and Drug Administration (FDA)</b>	Total food additive Direct food additive Indirect food additive

**Inventory status**

<b>Country(s) or region</b>	<b>Inventory name</b>	<b>On inventory (yes/no)*</b>
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

\*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

**State regulations** This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

**US - New Jersey RTK - Substances: Listed substance**

2-Butoxyethanol (CAS 111-76-2) Listed.

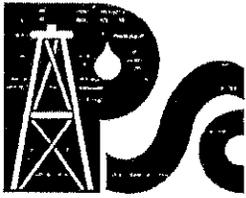
**US - Pennsylvania RTK - Hazardous Substances: Listed substance**

2-Butoxyethanol (CAS 111-76-2) Listed.

**16. Other Information**

**HMIS® ratings** Health: 2  
Flammability: 2  
Physical hazard: 0  
Personal protection: B

**NFPA ratings** Health: 2  
Flammability: 2  
Instability: 0



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**This data sheet contains changes from the previous version in section(s):**

Product and Company Identification: Product and Company Identification



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