

# TRICAN MATERIAL SAFETY DATA SHEET

SECTION 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION			
<b>Product Name</b>	<b>GBO-1</b>	<b>Code</b>	
<b>Supplier</b>	Trican Well Service Ltd. 2900, 645 – 7 <sup>th</sup> Ave S.W. Calgary, Alberta, T2P 4G8 For Product Information/MSDS Call: 403-266-0202 or 403-723-3688 (8:00 AM-5:00 PM MST, Monday – Friday)	<b>Revision Date</b>	
<b>Product Uses</b>	Oilfield Fracturing Fluid Breaker	<b>Supersedes Date</b>	New issue
<b>24 Hour Emergency Numbers</b>	CANUTEC 613-996-6666 (Canada 24 hours)	<b>Original Creation</b>	March 23, 2010
<b>WHMIS (Pictograms)</b>		<b>WHMIS (Classification)</b>	
		<b>D2B</b> – Toxic material causing other toxic effects	
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the Material Safety Data Sheet contains all information required by the CPR.			

SECTION 2. HAZARDS IDENTIFICATION	
<b>Hazard Summary</b>	Causes eye irritation. May cause skin irritation. Inhalation of dust may be irritating. Avoid contact with eyes, skin and clothing. Minimize generation and accumulation of dust. Releases oxygen at high temperatures. Avoid temperatures >60°C, direct sunlight, water, moisture, combustible materials, reducing agents, strong acids and bases, and metals.
<b>Routes of Exposure</b>	Eyes, skin, inhalation and ingestion.
<b>Potential Acute Health Effects</b>	
<b>Eyes Contact</b>	Causes eye irritation.
<b>Skin Contact/Absorption</b>	May cause skin irritation.
<b>Inhalation</b>	Dust may be irritating.
<b>Ingestion</b>	May be harmful if swallowed. May be slightly toxic.
<b>Medical Conditions Aggravated by Exposure</b>	Not available
<b>See also Toxicological Information (Section 11)</b>	
<b>Additional Remarks</b>	Not available.

SECTION 3. COMPOSITION AND INFORMATION ON INGREDIENTS			
<b>Name</b>	<b>CAS #</b>	<b>% (wt)</b>	<b>TLV</b>
Sodium perborate tetrahydrate	10486-00-7	96-100	Not established
Please consult with local authorities for acceptable provincial exposure limits since values can vary from jurisdiction to jurisdiction.			

SECTION 4. FIRST AID MEASURES	
<b>Eye Contact</b>	Immediately flush eyes with flowing water for at least 15 minutes holding eye lids open as much as possible. If wearing contact lenses, do NOT delay irrigation by trying to remove lens. Seek medical attention immediately after flushing.
<b>Skin Contact</b>	Wash thoroughly with soap and water. Remove contaminated clothing and laundry before reuse. If symptoms develop and persist, seek medical attention.
<b>Inhalation</b>	Remove the victim to fresh air. If breathing stopped, administer artificial respiration. If breathing is difficult get immediate medical attention.
<b>Ingestion</b>	DO NOT induce vomiting. Seek immediate medical attention. Never give anything by mouth to an unconscious or convulsing person. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into lungs.
<b>Notes to Physician</b>	Treat symptomatically.

<b>Additional Remarks</b>	Not available
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### SECTION 5. FIRE FIGHTING MEASURES

<b>Conditions of Flammability</b>	None
<b>Extinguishing Media</b>	Do not use CO2 extinguisher on this material. Use only water spray or appropriate foam. Do not use organic compounds on this material.
<b>Protective Clothing (Fire)</b>	As in any fire, wear full fire fighting gear including NIOSH-approved positive pressure self-contained breathing apparatus.
<b>Hazardous Combustion Products</b>	Oxygen.
<b>Sensitivity to Mechanical Impact</b>	Not expected
<b>Sensitivity to Static Discharge</b>	Not expected
<b>Additional Remarks</b>	Releases oxygen at high temperatures. Fight fire from a safe distance and from a protected location. Containers exposed to intense heat from fires should be cooled with water to prevent vapour pressure build-up which could rupture containers. Spilled material may cause slippery surfaces.

### SECTION 6. ACCIDENTAL RELEASE MEASURES

<b>Leak and Spill Procedures</b>	Use appropriate protective equipment. Avoid raising dust. Scoop up or vacuum and place in appropriate closed container. Flush area with water to remove trace residue. Spilled material may cause slippery surfaces.
<b>Additional Remarks</b>	Prevent entry into sewers or streams. Dike if necessary. Consult local authorities.

### SECTION 7. HANDLING AND STORAGE

<b>Handling Procedure and Equipment</b>	Use with adequate ventilation. Avoid breathing vapours, mists, fume or dust. Practice good housekeeping to minimize dust generation or accumulation. Maintain good personal hygiene. Avoid contact with skin, eyes or clothing. Do not smoke, eat or drink when using this product. Wash thoroughly after handling product.
<b>Storage Requirements</b>	Store in a cool, dry, well-ventilated area away from incompatible materials. Keep container tightly closed. Store in clean stainless steel or plastic containers. Protect against moisture, water and physical damage. Store in clean stainless steel or plastic containers.
<b>Additional Remarks</b>	Not available

### SECTION 8. EXPOSURE CONTROL/PERSONAL PROTECTION

<b>Engineering Controls</b>	If user operations generate dust, fume or mist, use mechanical ventilation to keep exposure to airborne contaminants below the allowable exposure limit.
<b>Personal Protection</b>	
Personal Protective Equipment recommendations are based on anticipated known manufacturing and use conditions. These conditions are expected to result in only incidental exposure. A thorough review of the job tasks and conditions by a safety professional is recommended, however, to determine the level of personal protective equipment appropriate for these job tasks and conditions.	
<b>Respirator</b>	Respirator use is not expected to be necessary under normal conditions of use. In poorly ventilated areas, emergency situations or in dusty conditions, use a NIOSH-approved air-purifying respirator with N95 filters.
<b>Hands</b>	Wear gloves to prevent skin contact. For aqueous solutions, wear gloves made of butyl rubber, neoprene or nitrile.
<b>Eyes</b>	Safety glasses with side-shields or chemical goggles.
<b>Body</b>	Wear long sleeves to prevent repeated or prolonged skin contact.
<b>Feet</b>	Steed toed, chemical resistant boots.
<b>Other</b>	Emergency eyewash fountains and safety showers should be in the immediate vicinity of any potential exposure. Remove contaminated clothing and launder before reuse.

#### Protective Clothing (Pictograms)



<b>Additional Remarks</b>	Do not eat, drink or smoke when working with this product.
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**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

<b>Physical State</b>	Solid powder
<b>Odour and Appearance</b>	White
<b>Odour Threshold</b>	Odourless
<b>Specific Gravity</b>	Not available
<b>Flashpoint</b>	none
<b>Upper Flammable Limit (% by volume)</b>	Not applicable
<b>Lower Flammable Limit (% by volume)</b>	Not applicable
<b>Autoignition Temperature</b>	Not applicable
<b>Vapour Density (air=1)</b>	Not available
<b>Vapour Pressure</b>	Not available
<b>Evaporation Rate</b>	Not available
<b>Boiling Point</b>	Not available
<b>Freezing Point</b>	Decomposes at > 60 °C
<b>Pour Point</b>	Not applicable
<b>pH</b>	10.1 to 10.4 (1.5% aqueous solution)
<b>Viscosity</b>	Not available
<b>Solubility in Water</b>	23 g/L @20 °C
<b>Coefficient of Water/Oil</b>	Not available
<b>Additional Remarks</b>	Molecular weight 153.88 g/mol; Bulk density 700-900 kg/m <sup>3</sup>

**SECTION 10. STABILITY AND REACTIVITY DATA**

<b>Chemical Stability</b>	Stable
<b>Conditions of Instability</b>	Not available
<b>Incompatible Material</b>	. Combustible material.
<b>Conditions of Reactivity</b>	Avoid excessive heat (>60 °C), open flames and all ignition sources. Avoid direct sunlight. Avoid moisture.
<b>Hazardous Decomposition Products</b>	Not available.
<b>Hazardous Polymerization</b>	Will not occur.
<b>Additional Remarks</b>	Not available.

**SECTION 11. TOXICOLOGICAL INFORMATION**

<b>Component Toxicological Information</b>	
<b>Acute Toxicity</b>	
Sodium perborate tetrahydrate (10486-00-7)	Acute LD50 (rat, oral): 1200 mg/kg Acute LD50 (rabbit, dermal): >2000 mg/kg Acute LC50 (rat, inhalation): not available
<b>Effects of Acute Exposure</b>	<i>See Hazards Identification (Section 2)</i>
<b>Effects of Chronic Exposure</b>	Not available
<b>Irritancy of Product</b>	<i>See Hazards Identification (Section 2)</i>
<b>Skin Sensitization</b>	Not available
<b>Respiratory Sensitization</b>	Not available
<b>Carcinogenicity</b>	Not listed by IARC or ACGIH as carcinogenic.
<b>Reproductive Toxicity</b>	May damage the male reproductive system. Effects on reproduction have been observed in high dose ingestion animal studies with sodium borate. No specific data available for sodium perborate. However in a recent epidemiological investigation under conditions of normal occupational exposure, no reproductive effect was shown in humans.
<b>Teratogenicity</b>	Not available
<b>Embryotoxicity</b>	Not available
<b>Mutagenicity</b>	In vitro mutagenic effects without metabolic activation.
<b>Synergistic Products/Effects</b>	Not available
<b>Additional Remarks</b>	Not available

## SECTION 12. ECOLOGICAL INFORMATION

### Ecotoxicity

Sodium perborate tetrahydrate  
(10486-00-7)

#### Ecotoxicity – Fish Species Data

LC50 51 mg/L @96hr  
(Fish)

#### Acute Crustaceans Toxicity

EC50 11 mg/L @48 hr  
(Daphnia)

#### Ecotoxicity – Freshwater Algae Data

Not available

### BOD5 and COD

Not available

### Biodegradable/OECD

Not available

### Toxicity of the Products of Biodegradation

Not available

### Additional Remarks

Very toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment. Do not allow product or run-off to enter storm or sanitary sewers, lakes, rivers, streams or public waterways. Block off drains and ditches.

## SECTION 13. DISPOSAL CONSIDERATIONS

Responsibility for proper waste disposal rests with the generator of the waste. Dispose of any waste material in accordance with all applicable federal, provincial and local regulations.

### Additional Remarks

Note that these regulations may also apply to empty containers, liners and rinsate.

## SECTION 14. TRANSPORT INFORMATION

### TDG Classification

Not regulated by Canadian TDG regulations.  
Not regulated by US DOT regulation.



### Marine Pollutant

Not applicable.

### Additional TDG Information

Not applicable.

### Emergency Response Guide

Not applicable.

## SECTION 15. REGULATORY INFORMATION

### Canadian Regulations



#### WHMIS

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all information required by the CPR.  
WHMIS Class D2B: Toxic material causing other toxic effects.

#### Environmental Regulations DSL Inventory

Not available

All components of this product are either on the Domestic Substances List (DSL), the Non-Domestic Substances List (NDSL) or exempt.

### U.S. Regulations

#### TSCA Inventory Status

All components are included or are exempted from listing on the US Toxic Substances Control Act Inventory.

This product contains the following components that are subject to the reporting requirements of TSCA Section 12(b) if exported from the United States. None

#### CERCLA/SARA Section 302 SARA (311,312) Hazard Class

Not listed

#### CERCLA/SARA Section 313

Not listed

#### California Proposition 65

Not listed

#### MA Right to Know List

Not listed

#### New Jersey Right-to-Know List

Not listed

#### Pennsylvania Right to Know List

Not listed

### International Regulations

#### European Union

Not available

#### ILO Risk and Safety Phrases

Not available

### Other Regulatory Information

No further regulatory information is available.

## SECTION 16. OTHER INFORMATION

**Other Special Considerations**      New Issue

### **Trican Well Service Ltd. Disclaimer**

*NOTE: The information on this MSDS is based on data which is considered to be accurate. Trican Well Service Ltd., however, makes no guarantees or warranty, either expressed or implied of the accuracy or completeness of this information.*

*The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of this product.*

*This MSDS was prepared and is to be used for this product. If the product is used as a component in another product, this MSDS information may not be applicable.*

END OF MATERIAL SAFETY DATA