



Montréal, le 15 août 2012

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Lauzon Bélanger Lespérance inc.
286, rue Saint-Paul Ouest
Bureau 100
Montréal (Québec) H2Y 2A3

V/Réf. :
N/Réf. : CM-2012-000396

Objet : Centre québécois du droit de l'environnement c. ministère du
Développement durable, de l'Environnement et des Parcs
Cause : 10 24 93

Cher confrère,

Afin de compléter notre envoi du 23 juillet dernier, veuillez trouver ci-joint copie des deux documents visés par le point 5 de votre demande suite au consentement obtenu de Me Landry le 27 juillet dernier, de rendre accessibles ces deux autres documents.

Espérant le tout conforme, veuillez agréer, cher confrère, l'expression de nos sentiments les meilleurs.

Bernard, Roy (Justice - Québec)

Marie-Josée Bourgeault, avocate
MJB/ jh

c. c. M^e Marc-André Landry, Blakes
Me Fabienne Coulombe (CAI)

Titre du projet : Demande d'autorisation pour l'utilisation d'une torchère en vertu de l'article 48 de la Loi sur la qualité de l'environnement

Annexe 3 : Confection et gestion du fluide de fracturation

Afin de répondre aux exigences du MDDEP en matière de gestion des matières premières et des eaux usées (sections 6.2.1 et 8.1 du formulaire général de demande d'autorisation pour un projet industriel), il importe de détailler le mode de confection et de gestion du fluide qui sera utilisé lors des travaux de fracturation hydraulique dans le puits *Leclercville # 1*.

À la fin février 2009, trois opérations de fracturation hydraulique seront réalisées successivement dans le puits *Leclercville # 1*. Chaque opération nécessitera l'injection dans le puits d'environ 2 000 m³ de fluide de fracturation.

Le fluide de fracturation sera essentiellement composé d'eau (95 %) et d'additifs (5 %), c'est-à-dire un surfactant (FAC-3W), des «breakers» (Breaker AB et Breaker V) et du sable. Ces additifs seront ajoutés à l'eau avant chaque opération de fracturation. Les fiches signalétiques de ces additifs ont été jointes à la présente annexe. Mentionnons que les additifs seront entreposés sur le site de forage pendant une durée maximale de trois jours dans les contenants de manutention du fournisseur.

L'eau nécessaire à la confection du fluide de fracturation proviendra de la rivière du Chêne ou du site alternatif de pompage (*voir annexe 2*). L'eau pompée sera acheminée vers le site de forage du puits *Leclercville # 1* à l'aide de camions citernes. L'eau sera par la suite entreposée dans un bassin *C-Ring* de la compagnie *Weststeel*. Ce bassin hors-terre a un diamètre de 41,83 m, une hauteur de 2,26 m et une capacité de rétention de 3 000 m³ (*voir figure 1*). Il est muni d'une toile imperméable du manufacturier *LG Chem America*. Cette toile a une épaisseur de 0,86 mm. Le bassin *C-Ring* sera situé dans le coin ouest du site de forage du puits *Leclercville # 1* (*voir figure 2*).

À la suite de chaque opération de fracturation hydraulique, ce sont environ 1 000 m³ de fluide de fracturation qui remonteront à la surface du puits, soit 50 % du volume total de fluide injecté initialement (50 % de 2000 m³). Le fluide de fracturation remontant vers la surface («flow-back») sera entreposé dans le bassin *C-Ring* afin d'être réutilisé pour l'opération de fracturation subséquente. Un total de 1 000 m³ d'eau douce devra toutefois être ajouté dans le *C-Ring* afin de compléter le volume requis de fluide de fracturation

(2 000 m³). Les additifs mentionnés précédemment devront également être ajoutés afin qu'ils représentent 5 % du volume total du fluide de fracturation (100 m³).

Ainsi, à la suite des opérations de fracturation dans le puits *Leclercville # 1*, ce sont environ 1 000 m³ de fluide (dernier «flow-back») qui devront être disposés à la station d'épuration des eaux usées de la Ville de Drummondville. L'entente de service de la Ville de Drummondville a été jointe à la présente annexe.

Puisqu'aucun pré-traitement ne sera réalisé sur le site du puits *Leclercville # 1*, Talisman Energy Inc. ne sollicite pas d'autorisation en vertu de l'article 32 de la *Loi sur la qualité de l'environnement*. À titre d'information complémentaire, un certificat d'analyse précisant les propriétés physico-chimiques du fluide de fracturation remontant à la surface du puits *Gentilly # 1* («flow-back») a également été joint à la présente annexe.

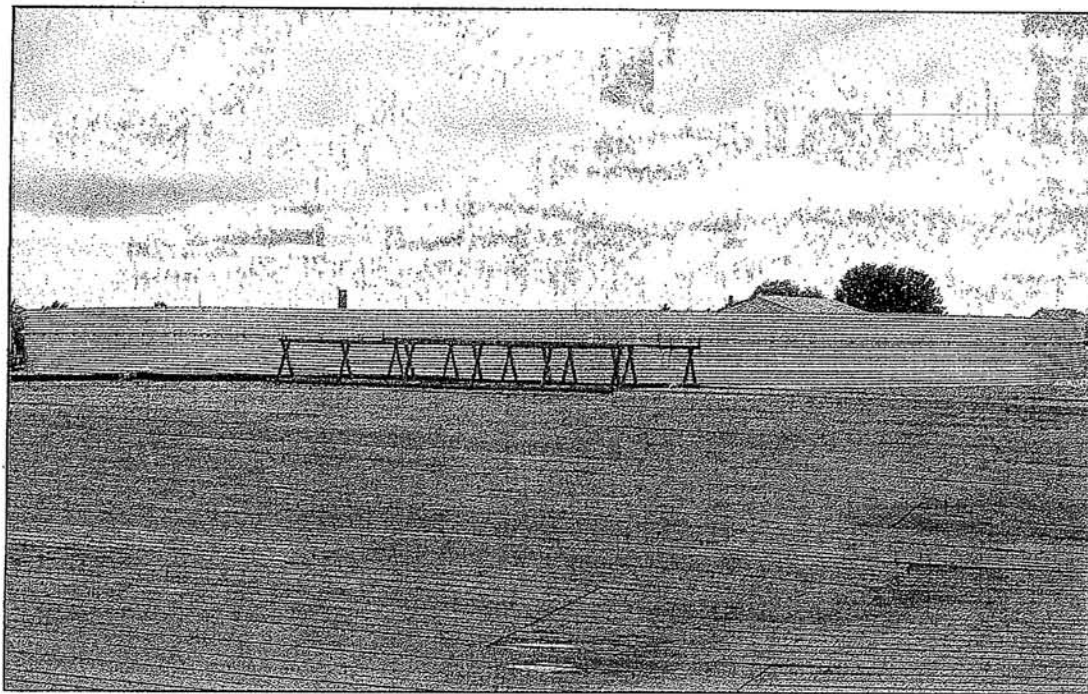


Figure 1. Bassin C-Ring érigé sur le site de forage du puits *St-David # 1*. Source : Prospeco inc., 2008.

Objet FAC-3W MSDS
 De "Ko, Steve" <SKO@talisman-energy.com>
 Date Mardi, 28 Octobre 2008, 17:51
 À vincent.perron@videotron.ca

Here is a new fluid we may run on La Visitation.

Steven Ko

Completions Engineer

Talisman Energy, Inc.

O: (403)237-1202

M: (403)804-6324

TALISMAN
ENERGY

	BJ SERVICES COMPANY CANADA MATERIAL SAFETY DATA SHEET	Region Canada
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1 PRODUCT AND COMPANY IDENTIFICATION

Product Name: **FAC-3W**
 Product Use: Gellant - Surfactant
 Chemical Family: Surfactant mixture

Supplier:
 BJ Services Company Canada
 1300, 801 - 6th Avenue SW
 Calgary, Alberta, Canada T2P 4E1
 Phone: (403) 531-5151

IN CASE OF EMERGENCY CALL: (403) 531-5151 (24 hrs)

2 COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient CAS#	%	ACGIH TWA	ACGIH STEL
Isopropanol 000067-63-0	10-30	200 ppm	400 ppm
Trimethyloctadecylammonium chloride	15-40	NA	NA

000112-03-8			
Sodium xylene sulphonate 001300-72-7	15-40	NA	NA

3 HAZARDS IDENTIFICATION

PRIMARY ROUTES OF EXPOSURE: Inhalation. Eye contact. Skin contact.

ACUTE OVEREXPOSURE EFFECTS:

INHALATION: Inhalation of solution vapor or mist may cause respiratory tract irritation. Excessive inhalation may cause headache, dizziness and nausea.

INGESTION: Ingestion may cause irritation to the mouth, throat and esophagus. May cause nausea, vomiting and diarrhea.

EYE CONTACT: May cause moderate to severe eye irritation. May cause burns with prolonged contact.

SKIN CONTACT: May cause skin irritation or burns with prolonged contact.

ACUTE TOXICITY:

Ingredient CAS#	%	LC50 (inhalation)	LD50 (oral)
Isopropanol 000067-63-0	10-30	16000 ppm/8 rat	5045 mg/kg rat
Trimethyloctadecylammonium chloride 000112-03-8	15-40	NA	536 mg/kg mouse

4 FIRST AID MEASURES**INHALATION:**

If inhaled, remove to fresh air. If not breathing give artificial respiration, preferably mouth-to-mouth. If breathing is difficult give oxygen. Only trained personnel should administer oxygen. Get medical attention.

INGESTION:

Rinse mouth with water several times. DO NOT induce vomiting. Give victim plenty of water. Obtain medical assistance immediately. If vomiting occurs naturally, keep head lower than hips to prevent aspiration.

EYES:

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention.

SKIN:

In case of contact, immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and laundry before reuse. Seek medical attention.

5 FIRE FIGHTING MEASURES

FLASHPOINT (METHOD): 25°C (PMCC)

LOWER EXPLOSION LIMIT (% v/v): 2 (isopropanol)

UPPER EXPLOSION LIMIT (% v/v): 12 (isopropanol)

AUTO-IGNITION TEMPERATURE: 399°C (isopropanol)

SPECIAL HAZARDS:

Flammable. May form flammable vapour-air mixture. This product or a component there of can flow along surfaces to reach a distant ignition source and flash back.

EXTINGUISHING MEDIA:

Water fog, carbon dioxide, alcohol foam, dry chemical.

SPECIAL FIREFIGHTING PROCEDURES:

Fire-fighters should wear self-contained breathing apparatus and full protective clothing when fighting chemical fires. Cool exposed containers with water spray.

HAZARDOUS COMBUSTION PRODUCTS:

Oxides of carbon, nitrogen and sulphur.

SENSITIVITY TO STATIC DISCHARGE: Yes (vapor)

SENSITIVITY TO MECHANICAL IMPACT: No

6 ACCIDENTAL RELEASE MEASURES

Wear specified protective equipment. Remove sources of ignition. Small spills - Cover spill with absorbent material. Scoop absorbed material into a suitable container for disposal. Large spills - Dike to contain. Prevent from entering sewers or waterways. Recover product to suitable containers or vessel for reuse, if possible, or for disposal. Use only explosion proof transfer equipment.

7 HANDLING AND STORAGE

HANDLING:

Wear specified protective equipment. Use only in a well ventilated area. Use only spark-proof and explosion-proof tools and equipment.

STORAGE REQUIREMENTS:

Keep container tightly closed, in a cool, well ventilated place. Keep away from heat. Keep away from ignition sources. Keep away from incompatible materials. Protect from freezing.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

SPECIFIC ENGINEERING CONTROLS:

Use only in a well ventilated area. Adequate ventilation should be provided to keep concentrations below acceptable exposure limits.

PERSONAL PROTECTIVE EQUIPMENT:

Appropriate respiratory protection shall be worn when applied engineering controls are not adequate to protect against inhalation exposure. Chemical resistant goggles or face shield. Nitrile gloves. Neoprene gloves. Coveralls.

9 PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: Liquid

COLOR: Clear, pale yellow

ODOR: Alcohol

ODOR THRESHOLD: Not available

SPECIFIC GRAVITY: 1.04

VAPOR PRESSURE: Not available

VAPOR DENSITY (air = 1): Not available

EVAPORATION RATE: Not available

BOILING POINT: Not available

FREEZING POINT: -10°C

pH: Not available

VISCOSITY (C): 450 cps @ 45°C

SOLUBILITY IN WATER: Partial

COEFFICIENT OF WATER/OIL DISTRIBUTION: Not available

10 STABILITY AND REACTIVITY

STABILITY:

Stable under normal conditions of use.

INCOMPATIBILITY/CONDITIONS OF REACTIVITY:

Strong oxidizers.

HAZARDOUS THERMAL DECOMPOSITION PRODUCTS:

Oxides of carbon, nitrogen and sulphur.

HAZARDOUS POLYMERIZATION:
Will not occur.

11 TOXICOLOGICAL PROPERTIES

CHRONIC EFFECTS:
Not determined.

SENSITIZATION:
Not known.

CARCINOGENICITY:
None of the components of this product have been listed as carcinogenic by IARC, NTP or OSHA. (IARC - International Agency for Research on Cancer) (NTP - National Toxicology Program) (OSHA - Occupational Safety & Health Administration (US))

MUTAGENICITY:
Not known.

REPRODUCTIVE TOXICITY:
Not known.

12 ECOLOGICAL INFORMATION

No specific information available

13 DISPOSAL CONSIDERATIONS

WASTE DISPOSAL:
Disposal should be made in accordance with national and local regulations. Consult local waste authorities for direction and/or approvals prior to disposal.

14 TRANSPORT INFORMATION

TDG

Proper Shipping Name: FLAMMABLE LIQUID, N.O.S.
Technical Name(s): Isopropanol
UN No.: UN 1993
Hazard Class - Primary: 3
Hazard Class - Secondary:
Packing Group: III

AIR TRANSPORT (ICAO/IATA)

Proper Shipping Name: FLAMMABLE LIQUID, N.O.S.
Technical Name(s): Isopropanol
UN No.: UN 1993
Hazard Class - Primary: 3
Hazard Class - Secondary:
Packing Group: III

MARINE TRANSPORT (IMDG/IMO)

Proper Shipping Name: FLAMMABLE LIQUID, N.O.S.
Technical Name(s): Isopropanol
UN No.: UN 1993
Hazard Class - Primary: 3
Hazard Class - Secondary:
Packing Group: III
EmS: F-E, S-E

15 REGULATORY INFORMATION

WHMIS:

B-2 (Flammable liquid)
D-2B (Eye/skin irritant)

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

16 OTHER INFORMATION

ISSUE DATE: 18/07/2006

REVISIONS: Sections 5, 8, 9 and 10

PREPARED BY: Chemical Technology Centre

REFERENCES:

Supplier's Literature.

CCINFO Web Information Service, Canadian Centre for Occupational Health and Safety, 2006.

International Marine Dangerous Goods Code, 2002 Edition, International Maritime Organisation, 2002.

Dangerous Goods Regulations, 47th ed., International Air Transport Association, 2006.

TDG Clear Language Regulations, as published in the Canada Gazette Part II, August 2001.

Guide to Occupational Exposure Values - 2006, American Conference of Governmental Industrial Hygienists, 2006.

The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding the accuracy of these data or the results to be obtained from the use thereof. Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in his use of the material.

Revision: 6 Status: Approved & Released MSDS

Revision History:

Revision:	Sec/Para Changed	Change Made:	Date
1	N/A	Initial Issue of Document	10/01/01
2	IV and IX	Updated flashpoint and dangerous goods packing group.	16/01/01
3	IX	Corrected WHMIS classification.	13/06/01
4	2	Reformat/updated exposure limit.	05/07/04
5	5	Removed hydrogen cyanide statement from hazardous combustion products.	04/07/06
6	5, 8, 9 and 10	Change flashpoint. Remove hydrogen chloride and hydrogen cyanide from haz comb products. Change PPE. Add viscosity value. Remove olefins and tertiary amine salts from haz therm decomp products.	18/07/06

Name: Jim G Greenwood	Approved - 24/07/2006 by Jim G Greenwood
Title: QSE Manager	
Name:	
Title:	
MSDS revised by Anita Jerat - 18/07/2006	
MSDS submitted for Final Approval by Anita Jerat - 19/07/2006	
Final Approval by Jim G Greenwood - 24/07/2006	

**** This e-mail was Virus Scanned when sent ****

Objet Breaker AB MSDS
De "Ko, Steve" <SKO@talisman-energy.com>
Date Mardi, 28 Octobre 2008, 17:52
A vincent.perron@videotron.ca

Steven Ko

Completions Engineer

Talisman Energy, Inc.

O: (403)237-1202

M: (403)804-6324

TALISMAN
ENERGY

	BJ SERVICES COMPANY CANADA MATERIAL SAFETY DATA SHEET	Region Canada
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1 PRODUCT AND COMPANY IDENTIFICATION

Product Name: **Breaker AB**
Product Use: Breaker
Chemical Family: Hydrocarbon

Supplier:
BJ Services Company Canada
1300, 801 - 6th Avenue SW
Calgary, Alberta, Canada T2P 4E1
Phone: (403) 531-5151

IN CASE OF EMERGENCY CALL: (403) 531-5151 (24 hrs)

2 COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient CAS#	%	ACGIH TWA	ACGIH STEL
Low-toxicity-base oils NA	60-100	5 mg/m3, oil-mist	10 mg/m3, oil-mist

3 HAZARDS IDENTIFICATION

PRIMARY ROUTES OF EXPOSURE: Eye contact. Skin contact.

ACUTE OVEREXPOSURE EFFECTS:

INHALATION: Not a likely exposure route, unless product is heated or misted. Prolonged inhalation of mist may cause respiratory tract irritation.

INGESTION: Product has low oral toxicity. Ingestion of significant quantities may cause abdominal pain and diarrhea. Minute amounts aspirated into the lungs during ingestion or vomiting may cause severe pulmonary injury.

EYE CONTACT: May cause mild eye irritation.

SKIN CONTACT: Prolonged contact may cause mild irritation.

4 FIRST AID MEASURES

INHALATION:

If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

INGESTION:

Rinse mouth out with water. Drink plenty of water. Seek medical advice. DO NOT induce vomiting. If vomiting occurs naturally, keep head lower than hips to prevent aspiration.

EYES:

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

SKIN:

Wash with soap and water. Remove contaminated clothing and launder before reuse. Get medical attention if irritation persists.

5 FIRE FIGHTING MEASURES

FLASHPOINT (METHOD): > 104°C (PMCC)

LOWER EXPLOSION LIMIT (% v/v): Not available

UPPER EXPLOSION LIMIT (% v/v): Not available

AUTO-IGNITION TEMPERATURE: Not available

SPECIAL HAZARDS:

Product will burn if strongly heated.

EXTINGUISHING MEDIA:

Water fog, carbon dioxide, foam, dry chemical.

SPECIAL FIREFIGHTING PROCEDURES:

Fire-fighters should wear self-contained breathing apparatus and full protective clothing when fighting chemical fires. Cool exposed containers with water spray.

HAZARDOUS COMBUSTION PRODUCTS:

Oxides of carbon and nitrogen. Smoke and fumes.

SENSITIVITY TO STATIC DISCHARGE: No

SENSITIVITY TO MECHANICAL IMPACT: No

6 ACCIDENTAL RELEASE MEASURES

Wear specified protective equipment. Remove sources of ignition. Small spills - Cover spill with absorbent material. Scoop absorbed material into a suitable container for disposal. Large spills - Dike to contain. Prevent from entering sewers or waterways. Recover product to suitable containers or vessel for reuse, if possible, or for disposal. Use only explosion proof transfer equipment.

7 HANDLING AND STORAGE

HANDLING:

Wear specified protective equipment. Use only in a well ventilated area.

STORAGE REQUIREMENTS:

Keep container tightly closed, in a cool, well ventilated place. Keep away from heat. Keep away from incompatible materials.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

SPECIFIC ENGINEERING CONTROLS:

Use only in a well ventilated area. Adequate ventilation should be provided to keep concentrations below acceptable exposure limits.

PERSONAL PROTECTIVE EQUIPMENT:

Appropriate respiratory protection shall be worn when applied engineering controls are not adequate to protect against inhalation exposure. Chemical resistant goggles. Rubber gloves. Coveralls.

9 PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: Liquid

COLOR: Clear/colorless

ODOR: None

ODOR THRESHOLD: Not available

SPECIFIC GRAVITY: 0.845 @ 15°C

VAPOR PRESSURE: Not available

VAPOR DENSITY (air = 1): Not available

EVAPORATION RATE: Not available

BOILING POINT: Not available

FREEZING POINT: -33°C

pH: Not applicable

SOLUBILITY IN WATER: Insoluble

COEFFICIENT OF WATER/OIL DISTRIBUTION: < 1

10 STABILITY AND REACTIVITY

STABILITY:

Stable under normal conditions of use.

INCOMPATIBILITY/CONDITIONS OF REACTIVITY:

Strong oxidizers.

HAZARDOUS THERMAL DECOMPOSITION PRODUCTS:

Carbon monoxide. Carbon dioxide. Oxides of nitrogen.

HAZARDOUS POLYMERIZATION:

Will not occur.

11 TOXICOLOGICAL PROPERTIES

CHRONIC EFFECTS:

Dermatitis.

SENSITIZATION:

Not known.

CARCINOGENICITY:

None of the components of this product have been listed as carcinogenic by IARC, NTP or OSHA. (IARC- International Agency for Research on Cancer) (NTP - National Toxicology Program) (OSHA - Occupational Safety & Health Administration (US))

MUTAGENICITY:

Not known.

REPRODUCTIVE TOXICITY:

Not known.

12 ECOLOGICAL INFORMATION

No specific information available

13 DISPOSAL CONSIDERATIONS

WASTE DISPOSAL:

Disposal should be made in accordance with national and local regulations. Consult local waste authorities for direction and/or approvals prior to disposal.

14. TRANSPORT INFORMATION

TDG

Proper Shipping Name: NOT RESTRICTED

UN-No.: NA

Hazard Class - Primary:

Hazard Class - Secondary:

Packing Group:

AIR TRANSPORT (ICAO/IATA)

Proper Shipping Name: NOT RESTRICTED

UN No.: NA

Hazard Class - Primary:

Hazard Class - Secondary:

Packing Group:

MARINE TRANSPORT (IMDG/IMO)

Proper Shipping Name: NOT RESTRICTED

UN No.: NA

Hazard Class - Primary:

Hazard Class - Secondary:

Packing Group:

EmS:

15 REGULATORY INFORMATION

WHMIS:

Not controlled

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

16 OTHER INFORMATION

ISSUE DATE: 14/01/2007

REVISIONS: Reformat / (Sections 2, 3, 5 and 10)

PREPARED BY: Chemical Technology Centre

REFERENCES:

Supplier's Literature.

CCINFO Web Information Service, Canadian Centre for Occupational Health and Safety, 2006.

International-Marine Dangerous Goods Code, 2002 Edition , International Maritime Organisation, 2002.

Dangerous Goods Regulations, 47th ed., International Air Transport Association, 2006.

TDG Clear Language Regulations, as published in the Canada Gazette Part II, August 2001.

Guide to Occupational Exposure Values - 2006, American Conference of Governmental Industrial Hygienists, 2006.

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Revision: 2 Status: Approved & Released MSDS

Revision History:

[illegible]

Revision:	Sec/Para Changed	Change Made:	Date
1	N/A	Initial Issue of Document	12/01/04
2	2, 3, 5 and 10	Reformat/Review. Add STEL value. Remove LC50 value. Change flashpoint. Add oxides of nitrogen under haz. comb. products and haz. therm. decomp. products.	14/01/07

Name: Jim Greenwood
Title: QSE Manager

Approved - 26/01/2007 by Jim Greenwood

Name:
Title:

MSDS submitted for Final Approval by Anita Jerat -- 14/01/2007
Final Approval by Jim Greenwood -- 26/01/2007

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Objet BREAKER V MSDS
 De "Ko, Steve" <SKO@talisman-energy.com>
 Date Mardi, 28 Octobre 2008, 17:52
 À vincent.perron@videotron.ca

Steven Ko

Completions Engineer

Talisman Energy, Inc.

O: (403)237-1202

M: (403)804-6324

TALISMAN
 ENERGY

	BJ SERVICES COMPANY CANADA MATERIAL SAFETY DATA SHEET	Region Canada
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1 PRODUCT AND COMPANY IDENTIFICATION

Product Name: **Breaker V**
 Product Use: Breaker
 Chemical Family: Acid salt.

Supplier:
 BJ Services Company Canada
 1300, 801 - 6th Avenue SW
 Calgary, Alberta, Canada T2P 4E1
 Phone: (403) 531-5151

IN CASE OF EMERGENCY CALL: (403) 531-5151 (24 hrs)

2 COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient CAS#	%	ACGIH TWA	ACGIH STEL
Sodium hypochlorite 007681-52-9	10-15	NA	NA

3 HAZARDS IDENTIFICATION

PRIMARY ROUTES OF EXPOSURE: Inhalation. Eye contact. Skin contact.

ACUTE OVEREXPOSURE EFFECTS:

INHALATION: Inhalation of solution vapor or mist may cause respiratory tract irritation. Vapors that are toxic as well as irritating to the respiratory tract may be produced upon heating this material.

INGESTION: Causes burns of the mouth, throat and stomach. May cause abdominal pain, nausea and vomiting.

EYE CONTACT: Vapors are irritating to eyes. May cause severe irritation or burns to the eyes.

SKIN CONTACT: May cause severe skin irritation. May cause skin burns.

ACUTE TOXICITY:

Ingredient CAS#	%	LC50 (inhalation)	LD50 (oral)
Sodium hypochlorite 007681-52-9	10-15	NA	5800 mg/kg mouse

4 FIRST AID MEASURES**INHALATION:**

If inhaled, remove to fresh air. If not breathing give artificial respiration, preferably mouth-to-mouth. If breathing is difficult give oxygen. Only trained personnel should administer oxygen. Get medical attention.

INGESTION:

Rinse mouth with water several times. DO NOT induce vomiting. Give victim plenty of water. Obtain medical assistance immediately.

EYES:

In case of contact, or suspected contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention immediately.

SKIN:

In case of contact, immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and laundry before reuse. Get medical attention if irritation persists.

5 FIRE FIGHTING MEASURES

FLASHPOINT (METHOD): None

LOWER EXPLOSION LIMIT (% v/v): Not applicable

UPPER EXPLOSION LIMIT (% v/v): Not applicable

AUTO-IGNITION TEMPERATURE: Not applicable

SPECIAL HAZARDS:

This product is not flammable, but upon decomposition will liberate oxygen, contributing to the combustion of other materials. Containers can build up pressure if exposed to heat (fire).

EXTINGUISHING MEDIA:

Water fog. Carbon dioxide. Foam.

SPECIAL FIREFIGHTING PROCEDURES:

Fire-fighters should wear self-contained breathing apparatus and full protective clothing when fighting chemical fires. Cool exposed containers with water spray.

HAZARDOUS COMBUSTION PRODUCTS:

See Hazardous Thermal Decomposition Products.

SENSITIVITY TO STATIC DISCHARGE: No

SENSITIVITY TO MECHANICAL IMPACT: No

6 ACCIDENTAL RELEASE MEASURES

Wear specified protective equipment. Small spills - Cover spill with absorbent material. Scoop absorbed material

into a suitable container for disposal. Large spills - Dike to contain. Prevent from entering sewers or waterways. Recover product to suitable containers or vessel for reuse, if possible, or for disposal.

7 HANDLING AND STORAGE

HANDLING:

Wear specified protective equipment. Use in a well ventilated area to prevent irritation by vapors.

STORAGE REQUIREMENTS:

Keep container tightly closed, in a cool, well ventilated place. Keep away from incompatible materials. Keep away from heat. Store away from sunlight.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

SPECIFIC ENGINEERING CONTROLS:

Use only in a well ventilated area.

PERSONAL PROTECTIVE EQUIPMENT:

Cartridge respirator. Chemical resistant goggles. Face shield. Rubber gloves. Rubber apron. Rubber boots. Coveralls.

9 PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: Liquid

COLOR: Greenish-yellow

ODOR: Chlorine

ODOR THRESHOLD: Not available

SPECIFIC GRAVITY: ~ 1.2

VAPOR PRESSURE: Not available

VAPOR DENSITY (air = 1): Not available

EVAPORATION RATE: Not available

BOILING POINT: Decomposes @ 40°C

FREEZING POINT: -15 to -20°C

pH: > 11.5

VISCOSITY (C): Not available

SOLUBILITY IN WATER: Complete

COEFFICIENT OF WATER/OIL DISTRIBUTION: Not available

10 STABILITY AND REACTIVITY

STABILITY:

Decomposes slowly in air. Exposure to heat or light accelerates decomposition.

INCOMPATIBILITY/CONDITIONS OF REACTIVITY:

Amines, ammonium salts, methanol, metals and acids.

HAZARDOUS THERMAL DECOMPOSITION PRODUCTS:

Chlorine. Oxygen. Sodium chlorate.

HAZARDOUS POLYMERIZATION:

Will not occur.

11 TOXICOLOGICAL PROPERTIES

CHRONIC EFFECTS:

Dermatitis.

SENSITIZATION:

Not known.

CARCINOGENICITY:

None of the components of this product have been listed as carcinogenic by IARC, NTP or OSHA. (IARC - International Agency for Research on Cancer) (NTP - National Toxicology Program) (OSHA - Occupational Safety

& Health Administration (US))

MUTAGENICITY:

Not known.

REPRODUCTIVE TOXICITY:

Not known.

12 ECOLOGICAL INFORMATION

No specific information available

13 DISPOSAL CONSIDERATIONS

WASTE DISPOSAL:

Consult local waste authorities for direction and/or approvals prior to disposal.

14 TRANSPORT INFORMATION

TDG

Proper Shipping Name: HYPOCHLORITE SOLUTION

UN No.: UN 1791

Hazard Class - Primary: 8

Hazard Class - Secondary:

Packing Group: III

AIR TRANSPORT (ICAO/IATA)

Proper Shipping Name: HYPOCHLORITE SOLUTION

UN No.: UN 1791

Hazard Class - Primary: 8

Hazard Class - Secondary:

Packing Group: III

MARINE TRANSPORT (IMDG/IMO)

Proper Shipping Name: HYPOCHLORITE SOLUTION

UN No.: UN 1791

Hazard Class - Primary: 8

Hazard Class - Secondary:

Packing Group: III

EmS: F-A, S-B

15 REGULATORY INFORMATION

WHMIS:

E (Corrosive liquid)

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

16 OTHER INFORMATION

ISSUE DATE: 19/11/2005

REVISIONS: Reformat/Sections 5, 9, 11 and 15

PREPARED BY: Chemical Technology Centre

REFERENCES:

Suppliers' Literature.

CCINFO Web Information Service, Canadian Centre for Occupational Health and Safety, 2005.

International Marine Dangerous Goods Code, 2002 Edition, International Maritime Organisation, 2002.

Dangerous Goods Regulations, 46th ed., International Air Transport Association, 2005.

TDG Clear Language Regulations, as published in the Canada Gazette Part II, August 2001.

Guide to Occupational Exposure Values - 2004, American Conference of Governmental Industrial Hygienists, 2004.

The information contained herein is based on data considered accurate. However, no warranty is expressed or

implied regarding the accuracy of these data or the results to be obtained from the use thereof. Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in his use of the material.

Revision: 1 Status: Approved & Released MSDS

Revision History:

Revision:	Sec/Para Changed	Change Made:	Date
1	N/A	Initial Issue of Document	01/11/95
2	N/A	General review/reformat	26/11/98
3	III	Physical properties; WHMIS three year review.	16/12/01
4	IX	Updated transport information	15/08/02
5	5, 9 and 15	Reformat; fire hazards/measures, physical properties, toxicological properties, WHMIS classification.	19/11/05

Name: Jim G Greenwood
Title: QSE Manager

Approved - 21/11/2005 by Jim G Greenwood

Name:
Title:

Final Approval by Jim G Greenwood – 21/11/2005

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Titre du projet : Demande d'autorisation pour l'utilisation d'une torchère en vertu de l'article 48 de la Loi sur la qualité de l'environnement

Annexe 3 : Confection et gestion du fluide de fracturation

Afin de répondre aux exigences du MDDEP en matière de gestion des matières premières et des eaux usées (sections 6.2.1 et 8.1 du formulaire général de demande d'autorisation pour un projet industriel), il importe de détailler le mode de confection et de gestion du fluide qui sera utilisé lors des travaux de fracturation hydraulique dans le puits *Saint-Édouard # 1*.

À la fin du mois de mars 2009, trois à quatre opérations de fracturation hydraulique seront réalisées successivement dans le puits *Saint-Édouard # 1*. Chaque opération nécessitera l'injection dans le puits d'environ 2 000 m³ de fluide de fracturation.

Le fluide de fracturation sera essentiellement composé d'eau (95 %) et d'additifs (5 %), c'est-à-dire un surfactant (FAC-3W), des «breakers» (Breaker AB et Breaker V) et du sable. Ces additifs seront ajoutés à l'eau avant chaque opération de fracturation. Les fiches signalétiques de ces additifs ont été jointes à la présente annexe. Mentionnons que les additifs seront entreposés sur le site de forage pendant une durée maximale de trois jours dans les contenants de manutention du fournisseur.

L'eau nécessaire à la confection du fluide de fracturation proviendra de la rivière Huron (voir *annexe 2*). L'eau pompée sera acheminée vers le site de forage du puits *Saint-Édouard # 1* à l'aide de camions citernes. L'eau sera par la suite entreposée dans un bassin C-Ring de la compagnie *Weststeel*. Ce bassin hors-terre a un diamètre de 41,83 m, une hauteur de 2,26 m et une capacité de rétention de 3 000 m³ (voir *figure 1*). Il est muni d'une toile imperméable du manufacturier *LG Chem America*. Cette toile a une épaisseur de 0,86 mm. Le bassin C-Ring sera situé dans le coin est du site de forage du puits *Saint-Édouard # 1* (voir *figure 2*).

À la suite de chaque opération de fracturation hydraulique, ce sont environ 1 000 m³ de fluide de fracturation qui remonteront à la surface du puits, soit 50 % du volume total du fluide injecté initialement (50 % de 2000 m³). Le fluide de fracturation remontant vers la surface («flow-back») sera entreposé dans le bassin C-Ring afin d'être réutilisé pour l'opération de fracturation subséquente. Un total de 1 000 m³ d'eau douce devra toutefois être ajouté dans le C-Ring afin de compléter le volume requis de fluide de fracturation

(2 000 m³). Les additifs mentionnés précédemment devront également être ajoutés afin qu'ils représentent 5 % du volume total du fluide de fracturation (100 m³).

Ainsi, à la suite des opérations de fracturation dans le puits *Saint-Édouard # 1*, ce sont environ 1 000 m³ de fluide (dernier flow-back) qui devront être disposés dans la station d'épuration des eaux usées de la Ville de Drummondville. L'entente de service de la Ville de Drummondville a été jointe à la présente annexe.

Puisqu'aucun pré-traitement ne sera réalisé sur le site du puits *Saint-Édouard # 1*, Talisman Energy Inc. ne sollicite pas d'autorisation en vertu de l'article 32 de la *Loi sur la qualité de l'environnement*. À titre d'information complémentaire, un certificat d'analyse précisant les propriétés physico-chimiques du fluide de fracturation remontant à la surface du puits *Gentilly # 1* («flow-back») a également été joint à la présente annexe.

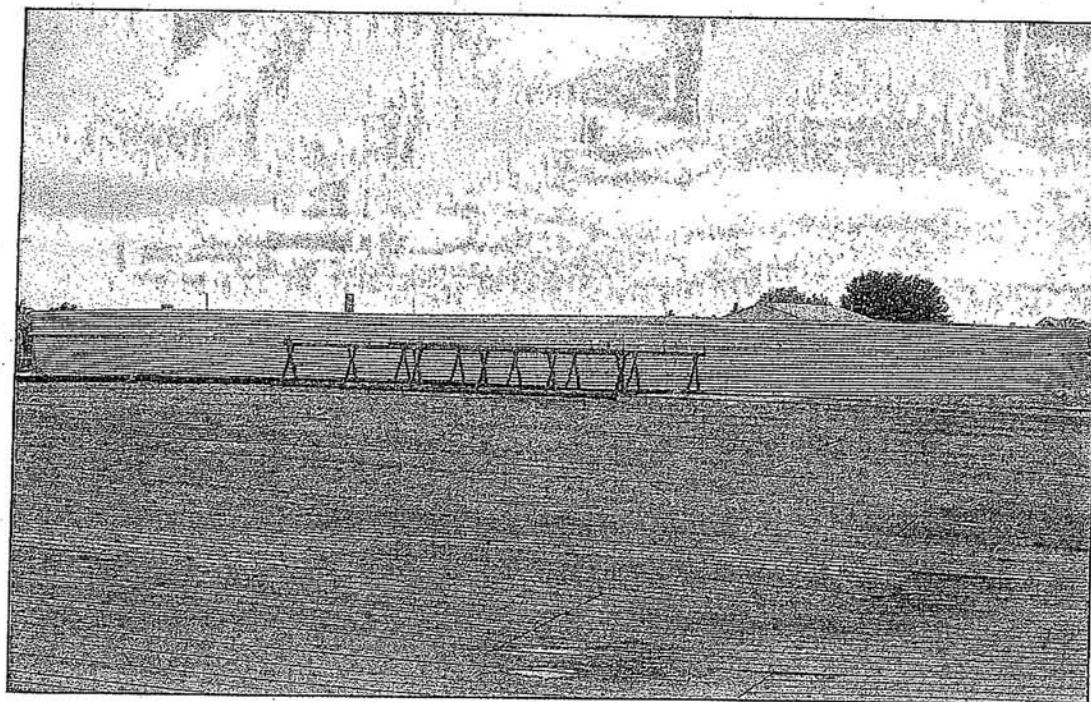


Figure 1. Bassin C-Ring érigé sur le site Saint-David # 1. Source : Prospeco inc, 2008.

Objet FAC-3W MSDS
De "Ko, Steve" <SKO@talisman-energy.com>
Date Mardi, 28 Octobre 2008, 17:51
À vincent.perron@videotron.ca

Here is a new fluid we may run on La Visitation.

Steven Ko

Completions Engineer

Talisman Energy, Inc.

O: (403)237-1202

M: (403)804-6324

TALISMAN
ENERGY

	BJ SERVICES COMPANY CANADA MATERIAL SAFETY DATA SHEET	Region Canada
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1 PRODUCT AND COMPANY IDENTIFICATION

Product Name: **FAC-3W**

Product Use: Gellant - Surfactant

Chemical Family: Surfactant mixture

Supplier:

BJ Services Company Canada
1300, 801 - 6th Avenue SW
Calgary, Alberta, Canada T2P 4E1
Phone: (403) 531-5151

IN CASE OF EMERGENCY CALL: (403) 531-5151 (24 hrs)

2 COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient CAS#	%	ACGIH TWA	ACGIH STEL
Isopropanol 000067-63-0	10-30	200 ppm	400 ppm
Trimethyloctadecylammonium chloride	15-40	NA	NA

000112-03-8			
Sodium xylene sulphonate 001300-72-7	15-40	NA	NA

3 HAZARDS IDENTIFICATION

PRIMARY ROUTES OF EXPOSURE: Inhalation. Eye contact. Skin contact.

ACUTE OVEREXPOSURE EFFECTS:

INHALATION: Inhalation of solution vapor or mist may cause respiratory tract irritation. Excessive inhalation may cause headache, dizziness and nausea.

INGESTION: Ingestion may cause irritation to the mouth, throat and esophagus. May cause nausea, vomiting and diarrhea.

EYE CONTACT: May cause moderate to severe eye irritation. May cause burns with prolonged contact.

SKIN CONTACT: May cause skin irritation or burns with prolonged contact.

ACUTE TOXICITY:

Ingredient CAS#	%	LC50 (inhalation)	LD50 (oral)
Isopropanol 000067-63-0	10-30	16000 ppm/8 rat	5045 mg/kg rat
Trimethyloctadecylammonium chloride 000112-03-8	15-40	NA	536 mg/kg mouse

4 FIRST AID MEASURES

INHALATION:

If inhaled, remove to fresh air. If not breathing give artificial respiration, preferably mouth-to-mouth. If breathing is difficult give oxygen. Only trained personnel should administer oxygen. Get medical attention.

INGESTION:

Rinse mouth with water several times. DO NOT induce vomiting. Give victim plenty of water. Obtain medical assistance immediately. If vomiting occurs naturally, keep head lower than hips to prevent aspiration.

EYES:

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention.

SKIN:

In case of contact, immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and laundry before reuse. Seek medical attention.

5 FIRE FIGHTING MEASURES

FLASHPOINT (METHOD): 25°C (PMCC)

LOWER EXPLOSION LIMIT (% v/v): 2 (isopropanol)

UPPER EXPLOSION LIMIT (% v/v): 12 (isopropanol)

AUTO-IGNITION TEMPERATURE: 399°C (isopropanol)

SPECIAL HAZARDS:

Flammable. May form flammable vapour-air mixture. This product or a component there of can flow along surfaces to reach a distant ignition source and flash back.

EXTINGUISHING MEDIA:

Water fog, carbon dioxide, alcohol foam, dry chemical.

SPECIAL FIREFIGHTING PROCEDURES:

Fire-fighters should wear self-contained breathing apparatus and full protective clothing when fighting chemical fires. Cool exposed containers with water spray.

HAZARDOUS COMBUSTION PRODUCTS:

Oxides of carbon, nitrogen and sulphur.

SENSITIVITY TO STATIC DISCHARGE: Yes (vapor)

SENSITIVITY TO MECHANICAL IMPACT: No

6 ACCIDENTAL RELEASE MEASURES

Wear specified protective equipment. Remove sources of ignition. Small spills - Cover spill with absorbent material. Scoop absorbed material into a suitable container for disposal. Large spills - Dike to contain. Prevent from entering sewers or waterways. Recover product to suitable containers or vessel for reuse, if possible, or for disposal. Use only explosion proof transfer equipment.

7 HANDLING AND STORAGE

HANDLING:

Wear specified protective equipment. Use only in a well ventilated area. Use only spark-proof and explosion-proof tools and equipment.

STORAGE REQUIREMENTS:

Keep container tightly closed, in a cool, well ventilated place. Keep away from heat. Keep away from ignition sources. Keep away from incompatible materials. Protect from freezing.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

SPECIFIC ENGINEERING CONTROLS:

Use only in a well ventilated area. Adequate ventilation should be provided to keep concentrations below acceptable exposure limits.

PERSONAL PROTECTIVE EQUIPMENT:

Appropriate respiratory protection shall be worn when applied engineering controls are not adequate to protect against inhalation exposure. Chemical resistant goggles or face shield Nitrile gloves. Neoprene gloves. Coveralls.

9 PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: Liquid

COLOR: Clear, pale yellow

ODOR: Alcohol

ODOR THRESHOLD: Not available

SPECIFIC GRAVITY: 1.04

VAPOR PRESSURE: Not available

VAPOR DENSITY (air = 1): Not available

EVAPORATION RATE: Not available

BOILING POINT: Not available

FREEZING POINT: -10°C

pH: Not available

VISCOSITY (C): 450 cps @ 45°C

SOLUBILITY IN WATER: Partial

COEFFICIENT OF WATER/OIL DISTRIBUTION: Not available

10 STABILITY AND REACTIVITY

STABILITY:

Stable under normal conditions of use.

INCOMPATIBILITY/CONDITIONS OF REACTIVITY:

Strong oxidizers.

HAZARDOUS THERMAL DECOMPOSITION PRODUCTS:

Oxides of carbon, nitrogen and sulphur.

HAZARDOUS POLYMERIZATION:
Will not occur.

11 TOXICOLOGICAL PROPERTIES

CHRONIC EFFECTS:
Not determined.

SENSITIZATION:
Not known.

CARCINOGENICITY:
None of the components of this product have been listed as carcinogenic by IARC, NTP or OSHA. (IARC - International Agency for Research on Cancer) (NTP - National Toxicology Program) (OSHA - Occupational Safety & Health Administration (US))

MUTAGENICITY:
Not known.

REPRODUCTIVE TOXICITY:
Not known.

12 ECOLOGICAL INFORMATION

No specific information available

13 DISPOSAL CONSIDERATIONS

WASTE DISPOSAL:

Disposal should be made in accordance with national and local regulations. Consult local waste authorities for direction and/or approvals prior to disposal.

14 TRANSPORT INFORMATION

TDG

Proper Shipping Name: FLAMMABLE LIQUID, N.O.S.
Technical Name(s): Isopropanol
UN No.: UN 1993
Hazard Class - Primary: 3
Hazard Class - Secondary:
Packing Group: III

AIR TRANSPORT (ICAO/IATA)

Proper Shipping Name: FLAMMABLE LIQUID, N.O.S.
Technical Name(s): Isopropanol
UN No.: UN 1993
Hazard Class - Primary: 3
Hazard Class - Secondary:
Packing Group: III

MARINE TRANSPORT (IMDG/IMO)

Proper Shipping Name: FLAMMABLE LIQUID, N.O.S.
Technical Name(s): Isopropanol
UN No.: UN 1993
Hazard Class - Primary: 3
Hazard Class - Secondary:
Packing Group: III
EmS: F-E, S-E

15 REGULATORY INFORMATION

WHMIS

B-2 (Flammable liquid)
 D2B (Eye/skin irritant)

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

16 OTHER INFORMATION

ISSUE DATE: 18/07/2006

REVISIONS: Sections 5, 8, 9 and 10

PREPARED BY: Chemical Technology Centre

REFERENCES:

Supplier's Literature.

CCINFO Web Information Service, Canadian Centre for Occupational Health and Safety, 2006.

International Marine Dangerous Goods Code, 2002 Edition, International Maritime Organisation, 2002.

Dangerous Goods Regulations, 47th ed., International Air Transport Association, 2006.

TDG Clear Language Regulations, as published in the Canada Gazette Part II, August 2001.

Guide to Occupational Exposure Values - 2006, American Conference of Governmental Industrial Hygienists, 2006.

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Revision: 6 Status: Approved & Released MSDS

Revision History:

Revision:	Sec/Para Changed	Change Made:	Date
1	N/A	Initial issue of Document	10/01/01
2	IV and IX	Updated flashpoint and dangerous goods packing group.	16/01/01
3	IX	Corrected WHMIS classification.	13/06/01
4	2	Reformat/updated exposure limit.	05/07/04
5	5	Removed hydrogen cyanide statement from hazardous combustion products.	04/07/06
6	5, 8, 9 and 10	Change flashpoint. Remove hydrogen chloride and hydrogen cyanide from haz comb products. Change PPE. Add viscosity value. Remove olefins and tertiary amine salts from haz therm decomp products.	18/07/06

Name: Jim G Greenwood	Approved - 24/07/2006 by Jim G Greenwood
Title: QSE Manager	
Name:	
Title:	
MSDS revised by Anita Jerat - 18/07/2006	
MSDS submitted for Final Approval by Anita Jerat - 19/07/2006	
Final Approval by Jim G Greenwood - 24/07/2006	

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Objet Breaker AB MSDS
 De "Ko, Steve" <SKO@talisman-energy.com>
 Date Mardi, 28 Octobre 2008, 17:52
 À vincent.perron@videotron.ca

Steven Ko

Completions Engineer

Talisman Energy, Inc.

O: (403)237-1202

M: (403)804-6324



BJ SERVICES COMPANY CANADA MATERIAL SAFETY DATA SHEET

Region
Canada

1 PRODUCT AND COMPANY IDENTIFICATION

Product Name: **Breaker AB**

Product Use: Breaker

Chemical Family: Hydrocarbon

Supplier:

BJ Services Company Canada

1300, 801 - 6th Avenue SW

Calgary, Alberta, Canada T2P 4E1

Phone: (403) 531-5151

IN CASE OF EMERGENCY CALL: (403) 531-5151 (24 hrs)

2 COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient CAS#	%	ACGIH TWA	ACGIH STEL
Low toxicity base oils	60-100	5 mg/m3, oil mist	10 mg/m3, oil mist
NA			

3 HAZARDS IDENTIFICATION

PRIMARY ROUTES OF EXPOSURE: Eye contact. Skin contact.

ACUTE OVEREXPOSURE EFFECTS:

INHALATION: Not a likely exposure route; unless product is heated or misted. Prolonged inhalation of mist may cause respiratory tract irritation.

INGESTION: Product has low oral toxicity. Ingestion of significant quantities may cause abdominal pain and diarrhea. Minute amounts aspirated into the lungs during ingestion or vomiting may cause severe pulmonary injury.

EYE CONTACT: May cause mild eye irritation.

SKIN CONTACT: Prolonged contact may cause mild irritation.

4 FIRST AID MEASURES

INHALATION:

If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

INGESTION:

Rinse mouth out with water. Drink plenty of water. Seek medical advice. DO NOT induce vomiting. If vomiting occurs naturally, keep head lower than hips to prevent aspiration.

EYES:

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

SKIN:

Wash with soap and water. Remove contaminated clothing and launder before reuse. Get medical attention if irritation persists.

5 FIRE FIGHTING MEASURES

FLASHPOINT (METHOD): > 104°C (PMCC)

LOWER EXPLOSION LIMIT (% v/v): Not available

UPPER EXPLOSION LIMIT (% v/v): Not available

AUTO-IGNITION TEMPERATURE: Not available

SPECIAL HAZARDS:

Product will burn if strongly heated.

EXTINGUISHING MEDIA:

Water fog, carbon dioxide, foam, dry chemical.

SPECIAL FIREFIGHTING PROCEDURES:

Fire-fighters should wear self-contained breathing apparatus and full protective clothing when fighting chemical fires. Cool exposed containers with water spray.

HAZARDOUS COMBUSTION PRODUCTS:

Oxides of carbon and nitrogen. Smoke and fumes.

SENSITIVITY TO STATIC DISCHARGE: No

SENSITIVITY TO MECHANICAL IMPACT: No

6 ACCIDENTAL RELEASE MEASURES

Wear specified protective equipment. Remove sources of ignition. Small spills - Cover spill with absorbent material. Scoop absorbed material into a suitable container for disposal. Large spills - Dike to contain. Prevent from entering sewers or waterways. Recover product to suitable containers or vessel for reuse, if possible, or for disposal. Use only explosion proof transfer equipment.

7 HANDLING AND STORAGE

HANDLING:

Wear specified protective equipment. Use only in a well ventilated area.

STORAGE REQUIREMENTS:

Keep container tightly closed, in a cool, well ventilated place. Keep away from heat. Keep away from incompatible materials.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

SPECIFIC ENGINEERING CONTROLS:

Use only in a well ventilated area. Adequate ventilation should be provided to keep concentrations below acceptable exposure limits.

PERSONAL PROTECTIVE EQUIPMENT:

Appropriate respiratory protection shall be worn when applied engineering controls are not adequate to protect against inhalation exposure. Chemical resistant goggles. Rubber gloves. Coveralls.

9 PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: Liquid

COLOR: Clear/colorless

ODOR: None

ODOR THRESHOLD: Not available

SPECIFIC GRAVITY: 0.845 @ 15°C

VAPOR PRESSURE: Not available

VAPOR DENSITY (air = 1): Not available

EVAPORATION RATE: Not available

BOILING POINT: Not available

FREEZING POINT: -33°C

pH: Not applicable

SOLUBILITY IN WATER: Insoluble

COEFFICIENT OF WATER/OIL DISTRIBUTION: < 1

10 STABILITY AND REACTIVITY

STABILITY:

Stable under normal conditions of use.

INCOMPATIBILITY/CONDITIONS OF REACTIVITY:

Strong oxidizers.

HAZARDOUS THERMAL DECOMPOSITION PRODUCTS:

Carbon monoxide. Carbon dioxide. Oxides of nitrogen.

HAZARDOUS POLYMERIZATION:

Will not occur.

11 TOXICOLOGICAL PROPERTIES

CHRONIC EFFECTS:

Dermatitis.

SENSITIZATION:

Not known.

CARCINOGENICITY:

None of the components of this product have been listed as carcinogenic by IARC, NTP or OSHA. (IARC - International Agency for Research on Cancer) (NTP - National Toxicology Program) (OSHA - Occupational Safety & Health Administration (US))

MUTAGENICITY:

Not known.

REPRODUCTIVE TOXICITY:

Not known.

12 ECOLOGICAL INFORMATION

No specific information available

13 DISPOSAL CONSIDERATIONS

WASTE DISPOSAL:

Disposal should be made in accordance with national and local regulations. Consult local waste authorities for direction and/or approvals prior to disposal.

14 TRANSPORT INFORMATION

TDG

Proper Shipping Name: NOT RESTRICTED

UN No.: NA

Hazard Class - Primary:

Hazard Class - Secondary:

Packing Group:

AIR TRANSPORT (ICAO/LATA)

Proper Shipping Name: NOT RESTRICTED

UN No.: NA

Hazard Class - Primary:

Hazard Class - Secondary:

Packing Group:

MARINE TRANSPORT (IMDG/IMO)

Proper Shipping Name: NOT RESTRICTED

UN No.: NA

Hazard Class - Primary:

Hazard Class - Secondary:

Packing Group:

EmS:

15 REGULATORY INFORMATION

WHMIS:

Not controlled

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

16 OTHER INFORMATION

ISSUE DATE: 14/01/2007

REVISIONS: Reformat / (Sections 2, 3, 5 and 10)

PREPARED BY: Chemical Technology Centre

REFERENCES:

Supplier's Literature.

CCINFO Web Information Service, Canadian Centre for Occupational Health and Safety, 2006.

International Marine Dangerous Goods Code, 2002 Edition , International Maritime Organisation, 2002.

Dangerous Goods Regulations, 47th ed., International Air Transport Association, 2006.

TDG Clear Language Regulations, as published in the Canada Gazette Part II, August 2001.

Guide to Occupational Exposure Values - 2006; American Conference of Governmental Industrial Hygienists, 2006.

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Revision: 2 Status: Approved & Released MSDS

Revision History:

[illegible]

Revision:	Sec/Para Changed	Change Made:	Date
1	N/A	Initial Issue of Document	12/01/04
2	2, 3, 5 and 10	Reformat/Review. Add STEL value. Remove LC50 value. Change flashpoint. Add oxides of nitrogen under haz. comb. products and haz. therm. decomp. products.	14/01/07

Name: Jim Greenwood
Title: QSE Manager

Approved - 26/01/2007 by Jim Greenwood

Name:
Title:

MSDS submitted for Final Approval by Anita Jerat - 14/01/2007
Final Approval by Jim Greenwood - 26/01/2007

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Objet BREAKER V MSDS
 De "Ko, Steve" <SKO@talisman-energy.com>
 Date Mardi, 28 Octobre 2008, 17:52
 À vincent.perron@videotron.ca

Steven Ko

Completions Engineer

Talisman Energy, Inc.

O: (403)237-1202

M: (403)804-6324

TALISMAN
 ENERGY

	BJ SERVICES COMPANY CANADA MATERIAL SAFETY DATA SHEET	Region Canada
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1 PRODUCT AND COMPANY IDENTIFICATION

Product Name: **Breaker V**
 Product Use: Breaker
 Chemical Family: Acid salt.

Supplier:
 BJ Services Company Canada
 1300, 801 - 6th Avenue SW
 Calgary, Alberta, Canada T2P 4E1
 Phone: (403) 531-5151

IN CASE OF EMERGENCY CALL: (403) 531-5151 (24 hrs)

2 COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient CAS#	%	ACGIH TWA	ACGIH STEL
Sodium hypochlorite 007681-52-9	10-15	NA	NA

3 HAZARDS IDENTIFICATION

PRIMARY ROUTES OF EXPOSURE: Inhalation. Eye contact. Skin contact.

ACUTE OVEREXPOSURE EFFECTS:

INHALATION: Inhalation of solution vapor or mist may cause respiratory tract irritation. Vapors that are toxic as well as irritating to the respiratory tract may be produced upon heating this material.

INGESTION: Causes burns of the mouth, throat and stomach. May cause abdominal pain, nausea and vomiting.

EYE CONTACT: Vapors are irritating to eyes. May cause severe irritation or burns to the eyes.

SKIN CONTACT: May cause severe skin irritation. May cause skin burns.

ACUTE TOXICITY:

Ingredient CAS#	%	LC50 (inhalation)	LD50 (oral)
Sodium hypochlorite 007681-52-9	10-15	NA	5800-mg/kg mouse

4 FIRST AID MEASURES**INHALATION:**

If inhaled, remove to fresh air. If not breathing give artificial respiration, preferably mouth-to-mouth. If breathing is difficult give oxygen. Only trained personnel should administer oxygen. Get medical attention.

INGESTION:

Rinse mouth with water several times. DO NOT induce vomiting. Give victim plenty of water. Obtain medical assistance immediately.

EYES:

In case of contact, or suspected contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention immediately.

SKIN:

In case of contact, immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and laundry before reuse. Get medical attention if irritation persists.

5 FIRE FIGHTING MEASURES

FLASHPOINT (METHOD): None

LOWER EXPLOSION LIMIT (% v/v): Not applicable

UPPER EXPLOSION LIMIT (% v/v): Not applicable

AUTO-IGNITION TEMPERATURE: Not applicable

SPECIAL HAZARDS:

This product is not flammable, but upon decomposition will liberate oxygen, contributing to the combustion of other materials. Containers can build up pressure if exposed to heat (fire).

EXTINGUISHING MEDIA:

Water fog. Carbon dioxide. Foam.

SPECIAL FIREFIGHTING PROCEDURES:

Fire-fighters should wear self-contained breathing apparatus and full protective clothing when fighting chemical fires. Cool exposed containers with water spray.

HAZARDOUS COMBUSTION PRODUCTS:

See Hazardous Thermal Decomposition Products.

SENSITIVITY TO STATIC DISCHARGE: No

SENSITIVITY TO MECHANICAL IMPACT: No

6 ACCIDENTAL RELEASE MEASURES

Wear specified protective equipment. Small spills - Cover spill with absorbent material. Scoop absorbed material

into a suitable container for disposal. Large spills - Dike to contain. Prevent from entering sewers or waterways. Recover product to suitable containers or vessel for reuse, if possible, or for disposal.

7 HANDLING AND STORAGE

HANDLING:

Wear specified protective equipment. Use in a well ventilated area to prevent irritation by vapors.

STORAGE REQUIREMENTS:

Keep container tightly closed, in a cool, well ventilated place. Keep away from incompatible materials. Keep away from heat. Store away from sunlight.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

SPECIFIC ENGINEERING CONTROLS:

Use only in a well ventilated area.

PERSONAL PROTECTIVE EQUIPMENT:

Cartridge respirator. Chemical resistant goggles. Face shield. Rubber gloves. Rubber apron. Rubber boots. Coveralls.

9 PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: Liquid

COLOR: Greenish-yellow

ODOR: Chlorine

ODOR THRESHOLD: Not available

SPECIFIC GRAVITY: ~ 1.2

VAPOR PRESSURE: Not available

VAPOR DENSITY (air = 1): Not available

EVAPORATION RATE: Not available

BOILING POINT: Decomposes @ 40°C

FREEZING POINT: -15 to -20°C

pH: > 11.5

VISCOSITY (C): Not available

SOLUBILITY IN WATER: Complete

COEFFICIENT OF WATER/OIL DISTRIBUTION: Not available

10 STABILITY AND REACTIVITY

STABILITY:

Decomposes slowly in air. Exposure to heat or light accelerates decomposition.

INCOMPATIBILITY/CONDITIONS OF REACTIVITY:

Amines, ammonium salts, methanol, metals and acids.

HAZARDOUS THERMAL DECOMPOSITION PRODUCTS:

Chlorine. Oxygen. Sodium chlorate.

HAZARDOUS POLYMERIZATION:

Will not occur.

11 TOXICOLOGICAL PROPERTIES

CHRONIC EFFECTS:

Dermatitis.

SENSITIZATION:

Not known.

CARCINOGENICITY:

None of the components of this product have been listed as carcinogenic by IARC, NTP or OSHA. (IARC - International Agency for Research on Cancer) (NTP - National Toxicology Program) (OSHA - Occupational Safety

& Health Administration (US))

MUTAGENICITY:

Not known.

REPRODUCTIVE TOXICITY:

Not known.

12 ECOLOGICAL INFORMATION

No specific information available

13 DISPOSAL CONSIDERATIONS

WASTE DISPOSAL:

Consult local waste authorities for direction and/or approvals prior to disposal.

14 TRANSPORT INFORMATION

TDG

Proper Shipping Name: HYPOCHLORITE SOLUTION

UN No.: UN 1791

Hazard Class - Primary: 8

Hazard Class - Secondary:

Packing Group: III

AIR TRANSPORT (ICAO/IATA)

Proper Shipping Name: HYPOCHLORITE SOLUTION

UN No.: UN 1791

Hazard Class - Primary: 8

Hazard Class - Secondary:

Packing Group: III

MARINE TRANSPORT (IMDG/IMO)

Proper Shipping Name: HYPOCHLORITE SOLUTION

UN No.: UN 1791

Hazard Class - Primary: 8

Hazard Class - Secondary:

Packing Group: III

EmS: F-A, S-B

15 REGULATORY INFORMATION

WHMIS:

E (Corrosive liquid)

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

16 OTHER INFORMATION

ISSUE DATE: 19/11/2005

REVISIONS: Reformat/Sections 5, 9, 11 and 15

PREPARED BY: Chemical Technology Centre

REFERENCES:

Suppliers' Literature.

CCINFO Web Information Service, Canadian Centre for Occupational Health and Safety, 2005.

International Marine Dangerous Goods Code, 2002 Edition, International Maritime Organisation, 2002.

Dangerous Goods Regulations, 46th ed., International Air Transport Association, 2005.

TDG Clear Language Regulations, as published in the Canada Gazette Part II, August 2001.

Guide to Occupational Exposure Values - 2004, American Conference of Governmental Industrial Hygienists, 2004.

The information contained herein is based on data considered accurate. However, no warranty is expressed or

implied regarding the accuracy of these data or the results to be obtained from the use thereof. Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in his use of the material.

Revision: 1 Status: Approved & Released MSDS

Revision History:

Revision:	Sec/Para Changed	Change Made:	Date
1	N/A	Initial Issue of Document	01/11/95
2	N/A	General review/reformat	26/11/98
3	III	Physical properties; WHMIS three year review.	16/12/01
4	IX	Updated transport information	15/08/02
5	5, 9 and 15	Reformat; fire hazards/measures, physical properties, toxicological properties, WHMIS classification.	19/11/05

Name: Jim G Greenwood	Approved - 21/11/2005 by Jim G Greenwood
Title: QSE Manager	
Name:	
Title:	
Final Approval by Jim G Greenwood – 21/11/2005	

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