

Devon Canada Corporation Jackfish Boiler Blowdown Water

SECTION 1. IDENTIFICATION

Product Identifier	Devon Canada Corporation Jackfish Boiler Blowdown Water
Other Means of Identification	Treated Water
Other Identification	Boiler Water, Boiler Condensate
Product Family	Produced Water
Recommended Use	Boiler feed water Process water, Oilfield waste.
Manufacturer	Devon Canada Corporation, 2000, 400 - 3rd Avenue SW, Calgary, Alberta, T2P 4H2
Emergency Phone No.	Devon Canada Corporation, 1-403-232-7100, (24 hr) CANUTEC, 1-613-996-6666, (24 hr)

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Flammable liquid - Category 4; Acute toxicity (Oral) - Category 4; Skin corrosion/irritation - Category 3; Serious eye damage/eye irritation - Category 2B



SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	%	Other Identifiers
Water, with dissolved mineral salts	Not applicable	100	
Benzene	71-43-2	0.004	
Crude Oil and hydrocarbons	8002-05-9	Trace	

SECTION 4. FIRST-AID MEASURES

First-aid Measures

Inhalation

Not normally an expected route of exposure. Dissolved vapours may be an irritant if they are released.

Skin Contact

Wash gently and thoroughly with lukewarm, gently flowing water and mild soap for 5 minutes. If persistent irritation occurs, obtain medical attention.

Eye Contact

Rinse the contaminated eye(s) with lukewarm, gently flowing water for 5 minutes, while holding the eyelid(s) open.

Ingestion

Rinse mouth with water. If vomiting occurs naturally, lie on your side in the recovery position. Rinse mouth with water again.

Most Important Symptoms and Effects, Acute and Delayed

If inhaled:

Can irritate the nose and throat. Symptoms may include coughing, shortness of breath, difficult breathing and tightness in the chest.

If on skin:

May cause mild irritation. Symptoms include pain, redness, and swelling.

If in eyes:

May cause mild irritation. Symptoms include sore, red eyes, and tearing.

If swallowed:

Symptoms may include nausea, vomiting, stomach cramps and diarrhea.

Immediate Medical Attention and Special Treatment

Medical Conditions Aggravated by Exposure

None known.

SECTION 5. FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media

Carbon dioxide, dry chemical powder, appropriate foam, water spray or fog.

Unsuitable Extinguishing Media

None known.

Specific Hazards Arising from the Chemical

Not considered a flammable material, but may contain entrained hydrocarbon vapours that can release and could create conditions for a flash fire.

This product presents no unusual hazards in a fire situation.

Special Protective Equipment and Precautions for Fire-fighters

Wear full protective clothing and self-contained breathing apparatus.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, and Emergency Procedures

Evacuate the area immediately. Isolate the hazard area. Keep out unnecessary and unprotected personnel. Use the personal protective equipment recommended in Section 8 of this safety data sheet. Eliminate all ignition sources. Use grounded, explosion-proof equipment. Distant ignition and flashback are possible.

Environmental Precautions

It is good practice to prevent releases into the environment. Do not allow into any sewer, on the ground or into any waterway.

Methods and Materials for Containment and Cleaning Up

Small spills or leaks: stop or reduce leak if safe to do so. Ventilate the area to prevent the gas from accumulating, especially in confined spaces. Remove or eliminate any potential ignition sources.

Large spills or leaks: dike spilled product to prevent runoff. Dike and recover contaminated water for appropriate disposal. Remove or eliminate any potential ignition sources. Keep out of low areas; released vapours may be heavier than air and travel along the ground, or collect in sewers, basements, or tanks.

SECTION 7. HANDLING AND STORAGE

Precautions for Safe Handling

No special handling precautions are necessary. Eliminate heat and ignition sources such as sparks, open flames, hot surfaces and static discharge. Post "No Smoking" signs. Do not use near welding operations or other high energy sources. If exposure to vapours is a possibility or a concern, use of NIOSH approved cartridge masks, or supplied air or

Product Identifier: Devon Canada Corporation

Date of Preparation: March 10, 2014

Page 02 of 06

self contained breathing apparatus (SCBA) may be employed.

It is good practice to: avoid breathing product; avoid skin and eye contact and wash hands after handling. Do NOT smoke in work areas. Do NOT eat, drink or store food in work areas. Remove contaminated clothing and protective equipment before entering eating areas or leaving work area. Wash hands thoroughly after handling this product and before eating, using the washroom or leaving work area.

Conditions for Safe Storage

No special requirements for storage area. Store in a well ventilated area away from all sources of ignition. Avoid storage in confined spaces or near incompatible materials, oxidizers, or materials that support combustion.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

Chemical Name	ACGIH TLV®		OSHA PEL		AIHA WEEL	
	TWA	STEL	TWA	Ceiling	8-hr TWA	TWA
Benzene	0.5 ppm A1 Skin	2.5 ppm A1 Skin				

Appropriate Engineering Controls

The hazard potential of this product is relatively low. General ventilation is usually adequate. Use non-sparking ventilation systems, approved explosion-proof equipment and intrinsically safe electrical systems in areas where this product is used and stored.

Individual Protection Measures

Eye/Face Protection

Not required but it is good practice to wear safety glasses or chemical safety goggles.

Skin Protection

Avoid repeated or prolonged skin contact. Wear chemical protective clothing e.g. gloves, aprons, boots.

Respiratory Protection

Not usually required when working with small quantities.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Basic Physical and Chemical Properties

Odour	Hydrocarbon
pH	10.8
Melting Point/Freezing Point	< 0 °C (estimated) (freezing)
Initial Boiling Point/Range	~ 100 °C
Flash Point	> 100 °C
Evaporation Rate	Not available
Upper/Lower Flammability or Explosive Limit	Not available (upper); Not available (lower)
Relative Density (water = 1)	1.01 - 1.03
Solubility	Soluble in all proportions in water
Auto-ignition Temperature	Not available
Viscosity	Not available (kinematic)
Other Information	
Physical State	Liquid
Molecular Formula	H ₂ O
Electrical Conductivity	62000 µS/cm

SECTION 10. STABILITY AND REACTIVITY

Chemical Stability

Product Identifier: Devon Canada Corporation

Date of Preparation: March 10, 2014

Page 03 of 06

Normally stable.

Possibility of Hazardous Reactions

May react violently in contact with strong nitric acid.

Conditions to Avoid

Open flames, sparks, static discharge, heat and other ignition sources. High energy sources, e.g. welding arcs. Material is stable under normal conditions, but may contain flammable residue (i.e. dissolved gases).

Incompatible Materials

Strong acids (e.g. hydrochloric acid), strong oxidizing agents (e.g. perchloric acid), metals (e.g. aluminum), halogens (e.g. chlorine).

Hazardous Decomposition Products

None known.

SECTION 11. TOXICOLOGICAL INFORMATION

Likely Routes of Exposure

Inhalation; skin contact; eye contact; ingestion.

Acute Toxicity

Chemical Name	LC50	LD50 (oral)	LD50 (dermal)
Benzene	13700 ppm (rat) (4-hour exposure)	930 mg/kg (rat)	> 8240 mg/kg (rabbit)

Skin Corrosion/Irritation

May be irritating to skin. Symptoms may include redness, swelling, and itching.

May cause mild irritation. Symptoms include pain, redness, and swelling.

Serious Eye Damage/Irritation

May be irritating to eyes. Symptoms may include redness, swelling, pain, tearing, and blurred or hazy vision.

May cause mild irritation. Symptoms include sore, red eyes, and tearing.

STOT (Specific Target Organ Toxicity) - Single Exposure

Inhalation

May be harmful

Not an expected route of exposure, but vapours may cause irritation of the nose and throat.

Can irritate the nose and throat. Symptoms may include coughing, shortness of breath, difficult breathing and tightness in the chest.

Skin Absorption

Not expected to be harmful.

Ingestion

May be harmful

May cause gastrointestinal irritation. Symptoms may include abdominal pain, stomach upset, nausea, vomiting, and diarrhea.

Not expected to be harmful. Symptoms may include nausea, vomiting, stomach cramps and diarrhea.

STOT (Specific Target Organ Toxicity) - Repeated Exposure

Although the material in general is not considered to have chronic effects, it may contain benzene, a listed carcinogen.

Refer to Section 11 of the MSDS for more detailed information.

Respiratory and/or Skin Sensitization

Not a respiratory sensitizer. Not a skin sensitizer.

Carcinogenicity

Chemical Name	IARC	ACGIH®	NTP	OSHA
Benzene	Group 1	A1	Known carcinogen	Carcinogen

Material in general is not expected to cause harm.

The material in general is not considered a carcinogen, despite the possibility of the presence of trace amounts of

benzene.

Reproductive Toxicity

Development of Offspring

Not hazardous according to OSHA/WHMIS criteria.

The material in general is not expected to produce teratogenic or embryotoxic effects.

Sexual Function and Fertility

Not hazardous according to OSHA/WHMIS criteria.

Not hazardous according to OSHA/WHMIS criteria.

Germ Cell Mutagenicity

Not hazardous according to OSHA/WHMIS criteria.

Not hazardous according to OSHA/WHMIS criteria.

Interactive Effects

Not hazardous according to OSHA/WHMIS criteria.

Not hazardous according to OSHA/WHMIS criteria.

SECTION 12. ECOLOGICAL INFORMATION

Contains dissolved salts, but not expected to be hazardous to the environment.

Toxicity

Not expected to have long term toxic effects.

Persistence and Degradability

No ingredient of this product or its degradation products is known to be highly persistent.

Bioaccumulative Potential

This product and its degradation products are not expected to bioaccumulate.

Mobility in Soil

If released into the environment, this product can move rapidly through the soil.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal Methods

Water injection into approved wells is generally allowed. Avoid contact with soil and surface waterways. Use only approved transporters, recyclers, treatment, storage or disposal facilities. Contact local environmental authorities for approved disposal or recycling methods in your jurisdiction.

SECTION 14. TRANSPORT INFORMATION

Regulation	UN No.	Proper Shipping Name	Transport Hazard Class(es)	Packing Group
Canadian TDG	N.A.	Not Regulated (Water, with dissolved mineral salts)		
US DOT	N.A.	Not Regulated, or (Water, with dissolved mineral salts)		
Canadian TDG	1267	Oilfield Wastes, N.O.S. (Oilfield Wastes, N.O.S.)		
US DOT	1267	Oilfield Wastes, N.O.S. (Oilfield Wastes, N.O.S.)		

Special Precautions for User Please note: TDG: N.A. IF transported in a CLEAN tank.

TDG: UN1267 IF transported in a tank that last carried crude oil or condensate.

Transport in Bulk According to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15. REGULATORY INFORMATION

Safety, Health and Environmental Regulations

Product Identifier: Devon Canada Corporation

Date of Preparation: March 10, 2014

Page 05 of 06

Canada

WHMIS Classification



Class B2



Class D1A



Class D2B

B2 - Flammable Liquid; D1A - Very Toxic; D2B - Toxic

SECTION 16. OTHER INFORMATION

NFPA Rating **Health - 0** **Flammability - 0** **Instability - 0**

SDS Prepared By Maxxam Analytics

Phone No. 1-800-386-7247

Date of Preparation March 10, 2014

Revision Indicators The following MSDS content was changed on September 28, 2015:
Section 11 - Toxicological Information; Carcinogenicity.

Disclaimer This MSDS provides safety information and was developed for employees, customers and agents of Devon Canada Corporation from data obtained from the sample(s) submitted for analysis. The information may not be valid or complete if the product or material is used in combination with other products or materials, or in any process. This information is intended for reasonable normal usage and recommended practices, and to underscore the potential hazards that may be inherent to the nature of the product or material. Although every effort is made to ensure accuracy and completeness of the contained information, it is understood that Maxxam Analytics makes no warranty as to the accuracy or completeness of information and assumes no liability for any damage or loss suffered as result of any inaccuracy or incompleteness therein. This information is considered to be as accurate as possible, as of the date of preparation. The reader is invited to contact Devon Canada Corporation at the address shown to insure the information is up to date or to obtain further information related to an unusual or other use.

(M)SDS related samples:
Jackfish II Blowdown Water