

3. Composition/Information on Ingredients

Chemical Name: Produced Water
Common Name/Synonyms: Formation Water, Produced Brine

Ingredient Name	Weight %	CAS No.
Water	98 – 99.9	7732-18-5
Minerals salts Cations: sodium, potassium, calcium Anions: chlorides, carbonate, sulphate	0.1 - 1.0	Not applicable
Hydrogen Sulphide	< 10 ppm	7783-06-4
Crude oil and hydrocarbons	0 - Trace	8002-05-9
Benzene	0 - 100 ppm	71-43-2
Toluene	0 - 100 ppm	108-88-3
Xylene (all isomers)	0 - 50 ppm	1330-20-7
Ethylbenzene	0 – 50 ppm	100-41-4

4. First Aid Measures

Immediate Medical Attention and Special Treatment:
Treat symptomatically and supportively. Refer also to Table below.

First Aid:	
Inhalation:	Remove person to fresh air and keep comfortable for breathing. If exposed or concerned: Call a doctor/physician.
Skin:	Rinse skin with water/shower. If skin irritation occurs: get medical advice/attention.
Eyes:	Rinse cautiously with water for several minutes. If eye irritation persists: get medical advice/attention.
Ingestion:	Not expected to be a route of exposure.

Most Important Effects and Symptoms, Acute or Delayed:		
Exposure Route	Health Effects	Symptoms of Exposure
Inhalation:	may cause mild respiratory irritation.	Mild shortness of breath to slight dizziness.
Skin:	Prolonged exposure to skin may cause mild irritation.	Redness, dry skin.
Eyes:	May cause irritation.	Redness, tearing, irritation.
Ingestion:	Ingestion in large quantity may cause thirst.	Feeling thirsty.

5. Fire Fighting Measures

Flammability: No. Product is not flammable, not combustible	Hazardous Combustion Products: None. Product is not flammable
Explosion: No	Sensitive to static discharge: No
Extinguishing Media: <ul style="list-style-type: none"> In case of fire in the surroundings, use extinguishing media appropriate for the fire. 	
Unsuitable Extinguishing Media: <ul style="list-style-type: none"> In case of fire in the surroundings, do not use extinguishing media unsuitable for the fire 	
Special Protective Equipment for Firefighters: <ul style="list-style-type: none"> None. Product is not flammable/combustible 	
Precautions for Firefighters: <ul style="list-style-type: none"> Wear proper PPE and extinguishing media appropriate for the fire and materials being combusted 	
Unusual Fire and Explosion Hazards: <ul style="list-style-type: none"> None 	

6. Accidental Release Measures

Protective Equipment: Gloves: Recommended: neoprene and nitrile. Not recommended: polyvinyl chloride PVC. Clothing: Flame-retardant coverall e.g. Nomex, Proban. Respirator: NIOSH Approved Supplied-Air Respirator or SCBA where large H ₂ S concentration is anticipated, and the exposure level is unknown or where an oxygen-deficient atmosphere may exist. Eye: Safety glasses with side shields, safety goggles or face shields. Large spills: wear full protective clothing and NIOSH-approved SCBA with full face-piece.	
Precautions: <ul style="list-style-type: none"> Do not breathe gas/vapors if there is chance that the H₂S may degas. 	
Emergency Procedures: <ul style="list-style-type: none"> Evacuate area of all unnecessary personnel. Small spill: absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Large spill: dike far ahead of liquid spill for containment and cleanup. Emergency personnel must wear appropriate personal protective equipment. Ventilate area of leak or spill. 	
Containment and Clean-up: <ul style="list-style-type: none"> Dike far ahead of liquid spill for containment and cleanup. Collect spillage with an inert material (e.g., vermiculite, dry sand, earth), and place in container for later disposal. Prevent entry into waterways, sewers, basements or confined areas. Dispose of contents/container in accordance with applicable local, provincial/state, and federal regulations. 	

7. Handling and Storage

<p>Handling Precautions:</p> <ul style="list-style-type: none"> Wear protective gloves/ protective clothing/ eye protection/ face protection. Gloves: neoprene, nitrile. Clothing: fire-retardant Nomex, Proban. Eye: Safety glasses with side shields or goggles.
<p>Storage Precautions:</p> <p><u>Locations</u></p> <ul style="list-style-type: none"> Store in a well-marked area clear of obstruction. <p><u>Containers</u></p> <ul style="list-style-type: none"> Product may be slowly corrosive to metals. Periodic inspection is recommended. Do not pressurize, cut, weld, braze, solder, drill, grind or expose such containers to heat, sparks, flame, static electricity or other sources of ignition. <p><u>Other precautions</u></p> <ul style="list-style-type: none"> None.

8. Exposure Controls / Personal Protection

EXPOSURE LIMITS

There are no components present in quantities which may reach Occupational Exposure limits and present risk to workers.

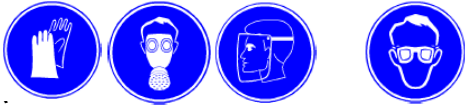


ENGINEERING CONTROLS

- Ventilate area where product is used, stored and/or handled to maintain airborne concentrations below levels which may cause irritation or discomfort.
- Exhaust/ventilate to the outside.

PERSONAL PROTECTIVE EQUIPMENT

- Gloves: Recommended: neoprene and nitrile; Not recommended: polyvinyl chloride PVC.
- Clothing: Flame-retardant coverall e.g. Nomex, Proban.
- Respirator: NIOSH Approved Supplied-Air Respirator.
- Eye: Safety glasses with side shields, safety goggles or face shields.



9. Physical and Chemical Properties

Chemical Formula: H ₂ O		Molecular Weight: 18.00 g/mole	Physical State: Liquid
Appearance: Clear to slight amber color		Odor: Slight hydrocarbon odor	Odor Threshold: ~ 10 ppb (H ₂ S)
pH: ~3-9	Melting/Freezing Point: 0 to -3°C	Boiling Point: ~96 - 99°C	Boiling Range: Not available
Flash Point: >100°C		Flammability: No	Evaporation Rate: Not available
Upper-Lower Explosive Limit: 4.01% (LEL), 44.0% (UEL) (H ₂ S)		Vapor Pressure: Not available	Vapor Density: Not available
Density: ~ 1.00 kg/m ³		Soluble in water (@20°C): ~100%	Percent Volatile: < 0.1
Partition Coefficient n-octanol/water: Not available		Auto-Ignition Temperature: Not available	Decomposition Temp.: Not available
Viscosity: 0.9 – 1.0 cSt (@15°C)		Henry's Law Constant: Not available	Isobaric Heat Capacity: Not available

10. Stability and Reactivity

Reactivity: Product may be very slowly corrosive to metals.
Chemical Stability: Stable under normal temperatures and pressures.
Possibility of Hazardous Reactions: Not known to occur.
Conditions to Avoid: Extreme temperatures and pressure. Avoid leaving product in metal containers for extended period of time.
Incompatible Materials: <ul style="list-style-type: none"> Product may be very slowly corrosive to metals.
Hazardous Decomposition Products: <ul style="list-style-type: none"> None.

11. Toxicological Information

Exposure Route	Acute Health Effects	Symptoms of Exposure
Inhalation:	May irritate respiratory tract	Mild shortness of breath to slight dizziness
Skin:	In liquid form: skin irritation	Redness, itchy skin
Eye:	May cause eye irritation	Irritation, tearing, visual disturbances
Ingestion:	Not expected to be a route of exposure.	

Chronic Exposure:

Inhalation:

Repeated or prolonged exposure may cause respiratory tract irritation.

Skin:

Not known to be a skin-sensitizer. Repeated and prolonged contact may cause dry, red, cracked skin (dermatitis).

Medical Conditions Aggravated by Exposure:

Possibly asthma.

Sensitization: No	Reproductive Toxicology: No	Teratogenicity: No	Mutagenicity: No
Carcinogenicity: Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.	Irritancy: No.	Target Organs: No data available.	

Lethality Tests:

Chemical Name	CAS No.	LD50	LC50
Hydrogen sulphide	7783-06-4		Rat, inhalation 0.99 mg/L, 1 h Rat 700 mg/m ³ 4 h

12. Ecological Information

Persistence & Degradability: No data available.	Bioaccumulative Potential: No.
Mobility: No data available.	Other Adverse Effects: None.

Eco Toxicity Tests:

Chemical Name	CAS No.		
Hydrogen sulphide	7783-06-4	Fish	Lepomis macrochirus (Bluegill) LC50 = 0.0448 mg/L: 96 hrs flow-through
			Pimephales promelas (Fathead minnow) LC50 = 0.016 mg/L: 96 hrs. flow-through

13. Disposal Considerations

Waste Disposal:

- Dispose of waste material at an approved waste treatment/disposal facility in accordance with applicable local, provincial, and federal regulations.
- Do not dispose of waste with normal garbage, or to sewer systems.

14. Transport Information

TDG (CANADA) CLASSIFICATION

This product is not regulated under TDG and is therefore Non-Dangerous Goods

Caution:

- *As produced water is traditionally hauled by trucks that previously transported other products (e.g. crude, condensate) and not steamed or rinsed, the product remaining in these trucks may change the composition of the produced water, and render it “dangerous goods” under TDG*
- *The Consignor must review the content remaining in the incoming truck, by examining “residue-last-contained”, and may need to placard the produced water accordingly*

15. Regulatory Information

CANADA

None

16. Other Information

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 Issue Date/ Revision No:

Revisions:	Dates:	Main Changes
• Original:	September 30, 2019	none
• 1 st revision	August 17, 2021	Updated phone number and address

Glossary

- ACGIH** – American Conference of Governmental Industrial Hygiene
- DOT** – US Department of Transportation
- DSL** – Domestic Substance List (Canada)
- E2** – Environmental Emergencies (Canada)
- GHS** – Globally Harmonized System
- IARC** – International Agency for Research on Cancer
- IDLH** – Immediately Dangerous to Life and Health
- NIOSH** – National Institute for Occupational Safety & Health
- NPRI** – National Pollutant Release Inventory (Canada)
- NTP** – National Toxicology Program
- OSHA** – Occupational Safety & Health Administration of the US Department of Labour
- PEL** – Permissible Exposure Limit
- SARA** – Superfund Amendments and Reauthorization Act of 1986
- STEL** – Short Term Exposure Limit
- TRI** – US Toxic Release Inventory
- TSCA** – Toxic Substance Control Act
- TWA** – Time Weighted Average

Disclaimer of Expressed and Implied Warranties



Produced Water, Non-Flammable, Non-Sour

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~ End of Safety Data Sheet ~