

All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume. BS&W is taken from condensate tanks and may contain quantities of highly volatile and explosive contaminants. See SDS Condensate for specific hazards.

4. First-aid measures

Inhalation	Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately!
Skin contact	Wash skin with soap and water. Get medical attention promptly if symptoms occur after washing.
Eye contact	Any material that contacts the eye should be washed out immediately with water. If easy to do, remove contact lenses.
Ingestion	Seek medical advice.
Most important symptoms/effects, acute and delayed	Fatal if inhaled. May cause cancer. May cause genetic defects. May contain poisonous and flammable hydrogen sulfide vapor in container headspace. Odor does not provide a reliable indicator of the presence of hazardous levels in the atmosphere. In high concentrations (500-1000 ppm), H ₂ S acts as a systemic poison causing unconsciousness and death.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.
General information	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media	Use any media suitable for the surrounding fires.
Unsuitable extinguishing media	None known.
Specific hazards arising from the chemical	May contain harmful concentrations of hydrogen sulfide, which can accumulate in the head space.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Wear appropriate personal protective equipment (See Section 8). Before entering storage tanks and commencing any operation in a confined area, check the atmosphere for oxygen content, hydrogen sulfide (H ₂ S) and flammability.
Methods and materials for containment and cleaning up	Absorb spill with vermiculite or other inert material, then place in a container for chemical waste for proper disposal. Large Spills: Flush with plenty of water. Prevent runoff from entering drains, sewers, or streams. Dike for later disposal.
Environmental precautions	Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling	Do not breathe gas. Wash thoroughly after handling. Use only with adequate ventilation. May contain poisonous and flammable hydrogen sulfide vapor in container headspace.
Conditions for safe storage, including any incompatibilities	Keep containers tightly closed. Store away from incompatible materials. Before entering storage tanks and commencing any operation in a confined area, check the atmosphere for oxygen content, hydrogen sulfide (H ₂ S) and flammability.

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-2 (29 CFR 1910.1000)

Components	Type	Value
Hydrogen sulfide (CAS 7783-06-4)	Ceiling	20 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value
Hydrogen sulfide (CAS 7783-06-4)	STEL	5 ppm
	TWA	1 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Hydrogen sulfide (CAS 7783-06-4)	Ceiling	15 mg/m ³ 10 ppm
Biological limit values	No biological exposure limits noted for the ingredient(s).	
Appropriate engineering controls	Ensure adequate ventilation, especially in confined areas. Provide easy access to water supply and eye wash facilities.	
Individual protection measures, such as personal protective equipment		
Eye/face protection	Wear safety glasses with side shields (or goggles).	
Skin protection		
Hand protection	Chemical resistant gloves are recommended.	
Other	Wear chemical-resistant gloves, footwear, and protective clothing appropriate for the risk of exposure. Contact health and safety professional or manufacturer for specific information.	
Respiratory protection	Hydrogen sulfide impairs olfactory nerve function above 20 ppm, odor warning property (rotten egg smell) lost at higher concentrations. If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Respirator type: Air-purifying respirator with an appropriate, government approved (where applicable), air-purifying filter, cartridge or canister.	
Thermal hazards	Not applicable.	
General hygiene considerations	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.	

9. Physical and chemical properties

Appearance	Opaque liquid.
Physical state	Liquid.
Form	Opaque liquid.
Color	Opaque.
Odor	Salty to slightly hydrocarbon
Odor threshold	Not relevant
pH	6.5 - 8
Melting point/freezing point	33.8 °F (1 °C)
Initial boiling point and boiling range	212 °F (100 °C) at 1 atmosphere
Flash point	Not relevant. Aqueous solution may release flammable gases.
Evaporation rate	< 1 BuAc
Flammability (solid, gas)	Not relevant.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not relevant
Flammability limit - upper (%)	Not relevant
Vapor pressure	Not relevant
Vapor density	Not relevant
Solubility(ies)	
Solubility (water)	100 % Solubility complete except for possible crude component
Partition coefficient (n-octanol/water)	Not relevant
Auto-ignition temperature	Not relevant
Decomposition temperature	Not relevant
Viscosity	Varies based on solids content

Other information

Bulk density	10 lb/gal
VOC (Weight %)	Negligible

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	None known.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information**Information on likely routes of exposure**

Ingestion	Expected to be a low ingestion hazard.
Inhalation	Fatal if inhaled.
Skin contact	No adverse effects due to skin contact are expected.
Eye contact	Direct contact with eyes may cause temporary irritation.

Symptoms related to the physical, chemical and toxicological characteristics Fatal if inhaled. May contain poisonous and flammable hydrogen sulfide vapor in container headspace. In high concentrations (500-1000 ppm), H₂S acts as a systemic poison causing unconsciousness and death.

Information on toxicological effects

Acute toxicity Fatal if inhaled.

Components	Species	Test Results
Hydrogen sulfide (CAS 7783-06-4)		
Acute		
<i>Inhalation</i>		
LC100	Rat	2317 mg/m ³ , 3 Minutes 780 - 800 ppm, 10 Minutes
LC50	Mouse	940 mg/m ³ 634 ppm, 1 Hours
	Rat	950 mg/m ³ 712 ppm, 1 Hours 444 ppm, 4 Hours 335 ppm > 0.38 mg/l, 960 Minutes
Petroleum Distillate (CAS 64741-47-5)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	> 1900 mg/kg
<i>Inhalation</i>		
LC50	Rat	> 4980 mg/m ³ > 4980 mg/m ³ , 4 Hours > 4970 mg/m ³ , 4 Hours > 5 mg/l, 4 Hours > 4.96 mg/l, 4 Hours
<i>Oral</i>		
LD50	Rat	> 4800 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation	Not classified.
Serious eye damage/eye irritation	Direct contact with eyes may cause temporary irritation.
Respiratory or skin sensitization	
Respiratory sensitization	Not classified.
Skin sensitization	Not classified.
Germ cell mutagenicity	May cause genetic defects.
Carcinogenicity	May cause cancer.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Reproductive toxicity	Not classified.
Specific target organ toxicity - single exposure	Not classified.
Specific target organ toxicity - repeated exposure	Not classified.
Aspiration hazard	Not classified.

12. Ecological information

Ecotoxicity Harmful to aquatic life.

Components	Species	Test Results
Hydrogen sulfide (CAS 7783-06-4)		
Aquatic		
Fish	LC50	Lake whitefish (<i>Coregonus clupeaformis</i>) 0.002 mg/l, 96 hours
		Rainbow trout, donaldson trout (<i>Oncorhynchus mykiss</i>) 0.007 mg/l, 96 hours

Persistence and degradability	No data is available on the degradability of this product.
Bioaccumulative potential	No data available.
Mobility in soil	No data available.
Other adverse effects	Not established.

13. Disposal considerations

Disposal instructions Do not discharge into drains, water courses or onto the ground. Discharge, treatment, or disposal may be subject to national, state, or local laws.

Hazardous waste code The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

US RCRA Hazardous Waste U List: Reference

Hydrogen sulfide (CAS 7783-06-4) U135

Waste from residues / unused products Dispose of in accordance with local regulations.

Contaminated packaging Since emptied containers retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT
Not regulated as dangerous goods.

IATA
Not regulated as dangerous goods.

IMDG
Not regulated as dangerous goods.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable.

15. Regulatory information

US federal regulations This product is hazardous according to OSHA 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

CERCLA Hazardous Substance List (40 CFR 302.4)

Hydrogen sulfide (CAS 7783-06-4) LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories
 Immediate Hazard - Yes
 Delayed Hazard - Yes
 Fire Hazard - No
 Pressure Hazard - No
 Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Chemical name	CAS number	Reportable quantity	Threshold planning quantity	Threshold planning quantity, lower value	Threshold planning quantity, upper value
Hydrogen sulfide	7783-06-4	100	500 lbs		

SARA 311/312 Hazardous chemical Yes**SARA 313 (TRI reporting)**

Chemical name	CAS number	% by wt.
Hydrogen sulfide	7783-06-4	0-1

Other federal regulations**Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List**

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Hydrogen sulfide (CAS 7783-06-4)

Safe Drinking Water Act (SDWA) Not regulated.**US state regulations** This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.**US. Massachusetts RTK - Substance List**

Hydrogen sulfide (CAS 7783-06-4)

US. New Jersey Worker and Community Right-to-Know Act

Hydrogen sulfide (CAS 7783-06-4)

US. Pennsylvania Worker and Community Right-to-Know Law

Hydrogen sulfide (CAS 7783-06-4)

US. Rhode Island RTK

Hydrogen sulfide (CAS 7783-06-4)

US. California Proposition 65**US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance**

Not listed.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	No
Canada	Domestic Substances List (DSL)	No
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	No
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	No
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	No
New Zealand	New Zealand Inventory	No

Country(s) or region	Inventory name	On inventory (yes/no)*
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	No

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date 19-March-2014

Revision date 14-July-2014

Version # 02

NFPA ratings



References

ECHA registered substances database
 HSDB® - Hazardous Substances Data Bank
 IARC Monographs. Overall Evaluation of Carcinogenicity
 National Toxicology Program (NTP) Report on Carcinogens
 Registry of Toxic Effects of Chemical Substances (RTECS)

Disclaimer

The information provided herein is believed to be accurate as of the date of issue, but is offered without guarantee. The information provided may not be complete, as it is not practicable to provide all scientific information in the format of this document. Further, additional information may be necessary under exceptional conditions of use, or because of applicable laws or regulations. Noble Energy, Inc. does not assume any liability arising out of product use even if safety procedures are followed as outlined herein. The user has the responsibility for evaluating the adequacy of the information under the conditions of use and obtaining additional information where uncertainty exists. No express or implied guarantees are made as to the effects of use, the results to be obtained, or the safety and toxicity of the product in any specific application. The user assumes all risks of use of the product. Noble Energy, Inc. expressly disclaims all warranties of every kind including warranties of merchantability and fitness for any particular purpose. Nothing herein is intended to be construed as permission or recommendation for use of the product in any manner which might infringe existing patents.