HALLIBURTON

SAFETY DATA SHEET

according to Regulation (EC) No. 453/2010

HYDROGEN PEROXIDE

Revision Date: 15-Oct-2015 **Revision Number:** 13

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product Identifier

Product Name HYDROGEN PEROXIDE
Internal ID Code HM001777

1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Additive

1.3. Details of the supplier of the safety data sheet

Halliburton Energy Services
Halliburton House, Howemoss Place
Kirkhill Industrial Estate
Dyce
Aberdeen, AB21 0GN
United Kingdom

www.halliburton.com

For further information, please contact
E-Mail address: fdunexchem@halliburton.com

1.4. Emergency telephone number

+44 8 08 189 0979 / 1-760-476-3961

Emergency telephone - §45 - (EC)1272/2008	
Europe	**112**
Croatia	Centar za kontrolu otrovanja (CKO): (+385 1) 23-48-342 (Poison Control Center (PCC) - Institute for Medical Research and Occupational Health)
Cyprus	+210 7793777
Denmark	Poison Control Hotline (DK): +45 82 12 12 12
France	ORFILA (FR): + 01 45 42 59 59
Germany	Poison Center Berlin (DE): +49 030 30686 790
Italy	Poison Center, Milan (IT): +39 02 6610 1029
Netherlands	National Poisons Information Center (NL): +31 30 274 88 88 (NB: this service is only available to health professionals)
Norway	Poisons Information (NO):+ 47 22 591300
Poland	Poison Control and Information Centre, Warsaw (PL): +48 22 619 66 54; +48 22 619 08 97
Romania	+40 21 318 36 06
Spain	Poison Information Service (ES): +34 91 562 04 20
United Kingdom	NHS Direct (UK): +44 0845 46 47

SECTION 2: Hazards Identification

2.1. Classification of the substance or mixture

REGULATION (EC) No 1272/2008

Acute Oral Toxicity	Category 4 - H302
Acute Inhalation Toxicity - Vapors	Category 4 - H332
Acute Inhalation Toxicity - Dusts and Mists	Category 1 - H318
Skin Corrosion / irritation	Category 1 B - H314
Specific Target Organ Toxicity - (Single Exposure)	Category 3 - H335
Chronic Aquatic Toxicity	Chronic 3 - H412
Oxidizing liquids.	Category 2 - H272

2.2. Label Elements

Hazard Pictograms

Signal Word **Danger**

Hazard Statements
H272 - May intensify fire; oxidizer
H302 - Harmful if swallowed
H314 - Causes severe skin burns and eye damage
H318 - Causes serious eye damage
H332 - Harmful if inhaled
H335 - May cause respiratory irritation
H412 - Harmful to aquatic life with long lasting effects

Precautionary Statements - EU (§28, 1272/2008)
P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P301+ P312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
P304 + P340 - IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

Contains

Substances	**CAS Number**
Hydrogen peroxide	7722-84-1

2.3. Other Hazards

This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).
This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

SECTION 3: Composition/information on Ingredients

3.2. Mixtures

Mixture

Substances	EINECS	CAS Number	PERCENT (w/w)	EU - CLP Substance Classification	REACH No.
Hydrogen peroxide	231-765-0	7722-84-1	30 - 60%	Acute Tox. 4 (H302) Acute Tox. 4 (H332) Skin Corr. 1A (H314) Eye Corr. 1 (H318) STOT SE 3 (H335) Aquatic Chronic 3 (H412) Ox. Liq. 1 (H271)	No data available

For the full text of the H-phrases mentioned in this Section, see Section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation If inhaled, move victim to fresh air and seek medical attention.
Eyes Immediately flush eyes with large amounts of water for at least 30 minutes. Seek prompt medical attention.

Skin	In case of contact, immediately flush skin with plenty of soap and water for at least 30 minutes and remove contaminated clothing, shoes and leather goods immediately. Get medical attention immediately.
Ingestion	Do NOT induce vomiting. Give nothing by mouth. Obtain immediate medical attention.

4.2. Most Important symptoms and effects, both acute and delayed
Toxic if inhaled. Causes severe skin burns and eye damage. Harmful if swallowed. May cause respiratory irritation.

4.3. Indication of any immediate medical attention and special treatment needed
Notes to Physician Treat symptomatically

SECTION 5: Firefighting Measures

5.1. Extinguishing media
Suitable Extinguishing Media
Water fog, carbon dioxide, foam, dry chemical.
Extinguishing media which must not be used for safety reasons
None known.

5.2. Special hazards arising from the substance or mixture
Special Exposure Hazards
Oxidizer. May ignite combustibles. Releases oxygen at high temperatures.

5.3. Advice for firefighters
Special Protective Equipment for Fire-Fighters
Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Remove sources of ignition. Use appropriate protective equipment. Ensure adequate ventilation. Avoid contact with skin, eyes and clothing. Avoid breathing vapors. Evacuate all persons from the area.
See Section 8 for additional information

6.2. Environmental precautions
Prevent from entering sewers, waterways, or low areas.

6.3. Methods and material for containment and cleaning up
Isolate spill and stop leak where safe. Contain spill with sand or other inert materials. Scoop up and remove. Flush area with water.

6.4. Reference to other sections
See Section 8 and 13 for additional information.

SECTION 7: Handling and Storage

7.1. Precautions for Safe Handling
Remove sources of ignition. Use appropriate protective equipment. Avoid contact with eyes, skin, or clothing. Ensure adequate ventilation. Avoid breathing vapors. Avoid breathing mist. Wash hands after use. Launder contaminated clothing before reuse.
Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities
Keep container closed when not in use. Store away from combustibles. Keep from excessive heat. Store away from direct sunlight.

7.3. Specific End Use(s)
Exposure Scenario No information available
Other Guidelines No information available

SECTION 8: Exposure Controls/Personal Protection

8.1. Control parameters
Exposure Limits

Substances	CAS Number	EU	UK	Netherlands	France
Hydrogen peroxide	7722-84-1	Not applicable	TWA: 1 ppm TWA: 1.4 mg/m³ STEL: 2 ppm STEL: 2.8 mg/m³	1 ppm	1 ppm

Substances	CAS Number	Germany	Spain	Portugal	Finland
Hydrogen peroxide	7722-84-1	TWA: 0.5 ppm TWA: 0.71 mg/m³	TWA: 1 ppm TWA: 1.4 mg/m³	TWA: 1 ppm	TWA: 1 ppm TWA: 1.4 mg/m³ STEL: 3 ppm STEL: 4.2 mg/m³

Substances	CAS Number	Austria	Ireland	Switzerland	Norway
Hydrogen peroxide	7722-84-1	TWA: 1 ppm TWA: 1.4 mg/m³ STEL" 2 ppm STEL" 2.8 mg/m³	1 ppm TWA; 1.5 mg/m³ TWA 2 ppm STEL; 3 mg/m³ STEL	TWA: 0.5 ppm TWA: 0.71 mg/m³ STEL: 0.5 ppm STEL: 0.71 mg/m³	TWA: 1 ppm TWA: 1.4 mg/m³ STEL: 3 ppm STEL: 2.8 mg/m³

Substances	CAS Number	Italy	Poland	Hungary	Czech Republic
Hydrogen peroxide	7722-84-1	Not applicable	TWA: 1.5 mg/m³ STEL: 4 mg/m³	Not applicable	TWA: 1 mg/m³

Substances	CAS Number	Denmark	Romania	Croatia	Cyprus
Hydrogen peroxide	7722-84-1	TWA: 1 ppm TWA: 1.4 mg/m³	Not applicable	TWA: 1 ppm TWA: 1.4 mg/m³ STEL: 2 ppm STEL: 2.8 mg/m³	Not applicable

Derived No Effect Level (DNEL) No information available.

Worker

General Population

Predicted No Effect Concentration (PNEC) No information available.

8.2. Exposure controls

Engineering Controls Use in a well ventilated area. Local exhaust ventilation should be used in areas without good cross ventilation.

Personal protective equipment

If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.

Respiratory Protection In high concentrations, supplied air respirator or a self-contained breathing apparatus. Wear a NIOSH certified, European Standard EN 149 (FFP2/FFP3), AS/NZS 1715, or equivalent respirator when using this product.

Hand Protection Impervious rubber gloves. Nitrile gloves. Neoprene gloves. Polyvinylchloride gloves.
Skin Protection PVC coated apron or clothing. Neoprene coated apron or clothing. Rubber boots
Eye Protection Chemical goggles; also wear a face shield if splashing hazard exists.
Other Precautions Eyewash fountains and safety showers must be easily accessible.

Environmental Exposure Controls Do not allow material to contaminate ground water system

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State: Liquid **Color:** Clear colorless
Odor: Mild pungent **Odor Threshold:** No information available

Property Remarks/ - Method	Values
pH:	2
Freezing Point/Range	-53 °C
Melting Point/Range	No data available
Boiling Point/Range	114 °C / 238 °F
Flash Point	No data available

Flammability (solid, gas)	No data available
upper flammability limit	No data available
lower flammability limit	No data available
Evaporation rate	No data available
Vapor Pressure	18.3 mmHg
Vapor Density	No data available
Specific Gravity	1.19
Water Solubility	Soluble in water
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

VOC Content (%) No data available

SECTION 10: Stability and Reactivity

10.1. Reactivity

Not expected to be reactive.

10.2. Chemical Stability

Stable

10.3. Possibility of Hazardous Reactions

Will Not Occur

10.4. Conditions to Avoid

Contact with other materials may cause fire or explosion, especially if heated.

10.5. Incompatible Materials

Organic matter. Reducing agents. Combustible materials.

10.6. Hazardous Decomposition Products

Oxygen.

SECTION 11: Toxicological Information

11.1. Information on Toxicological Effects

Acute Toxicity

Inhalation	May cause respiratory irritation. Toxic if inhaled.
Eye Contact	Causes eye burns.
Skin Contact	Causes severe burns.
Ingestion	May produce oxygen which can injury the gastrointestinal tract. Harmful if swallowed.

Chronic Effects/Carcinogenicity Chronic drinking water studies showed that laboratory mice exposed to 0.4% hydrogen peroxide in drinking water had an increased incidence of duodenal cancer.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Hydrogen peroxide	7722-84-1	801 mg/kg (Rat) 859.85 mg/kg (Rat)	4060 mg/kg (Rat) 2000 mg/kg (Rabbit) > 2000 mg/kg (Rabbit)	2 mg/L (Rat) 4h

Substances	CAS Number	Skin corrosion/irritation
Hydrogen peroxide	7722-84-1	Skin, rabbit: Causes severe skin irritation with tissue destruction.

Substances	CAS Number	Eye damage/irritation
Hydrogen peroxide	7722-84-1	Causes severe eye irritation. (10 % solution)

Substances	CAS Number	Skin Sensitization
Hydrogen peroxide	7722-84-1	Not regarded as a sensitizer.

Substances	CAS Number	Respiratory Sensitization

Hydrogen peroxide	7722-84-1	No information available

Substances	CAS Number	Mutagenic Effects
Hydrogen peroxide	7722-84-1	In vivo tests did not show mutagenic effects.

Substances	CAS Number	Carcinogenic Effects
Hydrogen peroxide	7722-84-1	While there is some evidence of carcinogenic activity in animals studies, the relevance to humans is questionable.

Substances	CAS Number	Reproductive toxicity
Hydrogen peroxide	7722-84-1	No data of sufficient quality are available. Not regarded as a reproductive and developmental toxicant.

Substances	CAS Number	STOT - single exposure
Hydrogen peroxide	7722-84-1	May cause respiratory irritation.

Substances	CAS Number	STOT - repeated exposure
Hydrogen peroxide	7722-84-1	No significant toxicity observed in animal studies at concentration requiring classification.

Substances	CAS Number	Aspiration hazard
Hydrogen peroxide	7722-84-1	Not applicable

SECTION 12: Ecological Information

12.1. Toxicity

Ecotoxicity Effects

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Hydrogen peroxide	7722-84-1	EC50 (72h) 2.5 mg/L (Chlorella vulgaris)	LC50 (96h) 16.4 mg/L (Pimephales promelas) LC50: 18-56 mg/L (Lepomis macrochirus) LC50: 10.0-32.0 mg/L (Oncorhynchus mykiss)	No information available	EC50: 18-32 mg/L EC50 (48h) 2.4 mg/L (Daphnia pulex) NOEC (21d) 0.63 mg/L (Daphnia magna)

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Hydrogen peroxide	7722-84-1	Readily biodegradable

12.3. Bioaccumulative potential

Substances	CAS Number	Log Pow
Hydrogen peroxide	7722-84-1	-1.57

12.4. Mobility in soil

Substances	CAS Number	Mobility
Hydrogen peroxide	7722-84-1	No information available

12.5. Results of PBT and vPvB assessment

This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT). This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

Substances	PBT and vPvB assessment
Hydrogen peroxide	Not PBT/vPvB

12.6. Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

SECTION 13: Disposal Considerations

13.1. Waste treatment methods

Disposal Method Disposal should be made in accordance with federal, state, and local regulations.
Contaminated Packaging Follow all applicable national or local regulations.

SECTION 14: Transport Information

IMDG/IMO

UN Number: UN2014
UN Proper Shipping Name: Hydrogen Peroxide, Aqueous Solution (50% Hydrogen Peroxide)
Transport Hazard Class(es): 5.1 (8)
Packing Group: II
Environmental Hazards: Not applicable

RID

UN Number: UN2014
UN Proper Shipping Name: Hydrogen Peroxide, Aqueous Solution (50% Hydrogen Peroxide)
Transport Hazard Class(es): 5.1 (8)
Packing Group: II
Environmental Hazards: Not applicable

ADR

UN Number: UN2014
UN Proper Shipping Name: Hydrogen Peroxide, Aqueous Solution (50% Hydrogen Peroxide)
Transport Hazard Class(es): 5.1 (8)
Packing Group: II
Environmental Hazards: Not applicable

IATA/ICAO

UN Number: UN2014
UN Proper Shipping Name: Hydrogen Peroxide, Aqueous Solution (50% Hydrogen Peroxide)
Transport Hazard Class(es): 5.1 (8)
Packing Group: II
Environmental Hazards: Not applicable

14.1. UN Number: UN2014

14.2. UN Proper Shipping Name: Hydrogen Peroxide, Aqueous Solution (50% Hydrogen Peroxide)

14.3. Transport Hazard Class(es): 5.1 (8)

14.4. Packing Group: II

14.5. Environmental Hazards: Not applicable

14.6. Special Precautions for User: None

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

SECTION 15: Regulatory Information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

International Inventories

EINECS Inventory This product, and all its components, complies with EINECS
US TSCA Inventory All components listed on inventory or are exempt.
Canadian DSL Inventory All components listed on inventory or are exempt.

Legend
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

Germany, Water Endangering WGK 1: Low hazard to waters.

Classes (WGK)

15.2. Chemical Safety Assessment
No information available

SECTION 16: Other Information

Full text of H-Statements referred to under sections 2 and 3
H271 - May cause fire or explosion; strong oxidizer
H272 - May intensify fire; oxidizer
H302 - Harmful if swallowed
H314 - Causes severe skin burns and eye damage
H318 - Causes serious eye damage
H332 - Harmful if inhaled
H335 - May cause respiratory irritation
H412 - Harmful to aquatic life with long lasting effects

Key or legend to abbreviations and acronyms
bw – body weight
CAS – Chemical Abstracts Service
CLP – REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on Classification, Labelling and Packaging of substances and mixtures
EC – European Commission
EC10 – Effective Concentration 10%
EC50 – Effective Concentration 50%
EEC – European Economic Community
ErC50 – Effective Concentration growth rate 50%
IBC Code – International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL0 – Lethal Loading 0%
LL50 – Lethal Loading 50%
MARPOL – International Convention for the Prevention of Pollution from Ships
mg/kg – milligram/kilogram
mg/L – milligram/liter
NIOSH – National Institute for Occupational Safety and Health
NOEC – No Observed Effect Concentration
NTP – National Toxicology Program
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
PC – Chemical Product category
PEL – Permissible Exposure Limit
ppm – parts per million
PROC – Process category
REACH – REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals
STEL – Short Term Exposure Limit
SU – Sector of Use category

Key literature references and sources for data
www.ChemADVISOR.com/

Revision Date: 15-Oct-2015
Revision Note
SDS sections updated: 1

This safety data sheet complies with the requirements of Regulation (EC) No. 453/2010

Disclaimer Statement
This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

End of Safety Data Sheet