HALLIBURTON

SAFETY DATA SHEET

according to Regulation (EC) No. 453/2010

Zinc Bromide Brine 19.2 PPG

Revision Date: 09-Jun-2015 **Revision Number:** 3

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

1.1. Product Identifier

Product Name Zinc Bromide Brine 19.2 PPG

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

Recommended Use	Additive
Sector of use	SU2 - Mining, (including offshore industries)
Product category	PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents, other unspecific
Process categories	PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises

1.3. Details of the supplier of the safety data sheet

Halliburton Manufacturing Services, Ltd.
Halliburton House, Howemoss Crescent
Kirkhill Industrial Estate
Dyce
Aberdeen, AB21 0GN
United Kingdom

Emergency Phone Number: +44 1224 795277 or +1 281 575 5000

www.halliburton.com

For further information, please contact

E-Mail address: fdunexchem@halliburton.com

1.4. Emergency telephone number

+44 1224 795277 or +1 281 575 5000

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
Skin Corrosion / irritation	Category 1 B - H314
Serious Eye Damage / Eye Irritation	Category 1 - H318
Skin Sensitization	Category 1 - H317
Specific Target Organ Toxicity - (Single Exposure)	Category 3 - H335
Chronic Aquatic Toxicity	Chronic 1 - H410
Substances/mixtures corrosive to metal.	Category 1 - H290

2.2. Label Elements

Hazard Pictograms

Signal Word **Danger**

Hazard Statements
H290 - May be corrosive to metals
H302 - Harmful if swallowed
H314 - Causes severe skin burns and eye damage
H317 - May cause an allergic skin reaction
H318 - Causes serious eye damage
H335 - May cause respiratory irritation
H410 - Very toxic to aquatic life with long lasting effects

Precautionary Statements - EU (§28, 1272/2008)
P280 - Wear protective gloves/eye protection/face protection
P301+ P330 + P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P310 - Immediately call a POISON CENTRE or doctor/physician
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**
Zinc bromide	7699-45-8

2.3. Other Hazards

None known

SECTION 3: Composition/information on Ingredients

3.2. Mixtures

Mixture

Substances	EINECS	CAS Number	PERCENT (w/w)	EU - CLP Substance Classification	REACH No.
Zinc bromide	231-718-4	7699-45-8	60 - 100%	Acute Tox. 4 (H302) Skin Corr. 1B (H314) Eye Corr. 1 (H318) Skin Sens. 1 (H317) STOT SE 3 (H335) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410) Met. Corr. 1 (H290)	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

Harmful if swallowed. Causes severe skin irritation with tissue destruction. Causes severe eye irritation which may damage tissue. May cause allergic skin reaction. 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

All standard fire fighting media

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

Decomposition in fire may produce toxic gases.

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

Use appropriate protective equipment.

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.

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

Avoid contact with eyes, skin, or clothing. 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

Store away from oxidizers. Store away from acids. Store in a cool, dry location. Keep container closed when not in use.

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
Zinc bromide	7699-45-8	Not applicable	Not applicable	Not applicable	Not applicable

Substances	CAS Number	Germany	Spain	Portugal	Finland
Zinc bromide	7699-45-8	TWA: 0.1 mg/m³ TWA: 2 mg/m³	Not applicable	Not applicable	Not applicable

Substances	CAS Number	Austria	Ireland	Switzerland	Norway
Zinc bromide	7699-45-8	Not applicable	Not applicable	Not applicable	Not applicable

Substances	CAS Number	Italy	Poland	Hungary	Czech Republic
Zinc bromide	7699-45-8	Not applicable	Not applicable	Not applicable	Not applicable

Substances	CAS Number	Denmark	Romania	Croatia	Cyprus
Zinc bromide	7699-45-8	Not applicable	Not applicable	Not applicable	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.

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 If engineering controls and work practices cannot keep exposure below occupational exposure limits or if exposure is unknown, wear a NIOSH certified, European Standard EN 149, AS/NZS 1715:2009, or equivalent respirator when using this product. Selection of and instruction on using all personal protective equipment, including respirators, should be performed by an Industrial Hygienist or other qualified professional.
Dust/mist respirator. (N95, P2/P3)

Hand Protection Chemical-resistant protective gloves (EN 374) Suitable materials for longer, direct contact (recommended: protection index 6, corresponding to > 480 minutes permeation time as per EN 374): Nitrile gloves. (>= 0.4 mm thickness)
This information is based on literature references and on information provided by glove manufacturers, or is derived by analogy with similar substances. Please note that in practice the working life of chemical-resistant protective gloves may be considerably shorter than the permeation time determined in accordance with EN 374 as a result of the many influencing factors (e.g. temperature). If signs of wear and tear are noticed then the gloves should be replaced. Manufacturer's directions for use should be observed because of great diversity of types.

Skin Protection Rubber apron.

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 No information available

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State: Liquid
Color: Clear light yellow
Odor: Mild
Odor Threshold: No information available

Property Remarks/ - Method	Values
pH:	5-6 (1:10)
Freezing Point/Range	-8 °C
Melting Point/Range	No data available
Boiling Point/Range	136 °C / 277 °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	No data available
Vapor Density	No data available
Specific Gravity	2.3
Water Solubility	Miscible with water
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	No data available
Decomposition Temperature	Decomposition occurs at temperatures above 200°C
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

None anticipated

10.5. Incompatible Materials

Strong acids.

10.6. Hazardous Decomposition Products

Hydrogen bromide. Toxic fumes.

SECTION 11: Toxicological Information

11.1. Information on Toxicological Effects

Acute Toxicity

Inhalation Causes severe respiratory irritation.

Eye Contact Causes severe eye irritation. May cause eye burns.

Skin Contact Causes severe skin irritation. May cause skin burns on prolonged contact. May cause an allergic skin reaction.

Ingestion Harmful if swallowed. Causes burns of the mouth, throat and stomach. May cause headache, dizziness, nausea, vomiting, gastrointestinal irritation and central nervous system depression.

Chronic Effects/Carcinogenicity May cause bromism characterized by disturbances of the central nervous system, skin and digestive tract. May cause birth defects.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation

Zinc bromide	7699-45-8	1470 mg/kg (Rat) 1047 mg/kg (Rat)	>2000 mg/kg (Rabbit)	No data available

Substances	CAS Number	Skin corrosion/irritation
Zinc bromide	7699-45-8	Skin, rabbit: Causes severe irritation and or burns

Substances	CAS Number	Eye damage/irritation
Zinc bromide	7699-45-8	Eye, rabbit: Causes serious eye damage

Substances	CAS Number	Skin Sensitization
Zinc bromide	7699-45-8	Skin sensitizer in guinea pig.

Substances	CAS Number	Respiratory Sensitization
Zinc bromide	7699-45-8	No information available

Substances	CAS Number	Mutagenic Effects
Zinc bromide	7699-45-8	Some in vitro tests have shown mutagenic effects. No data of sufficient quality are available.

Substances	CAS Number	Carcinogenic Effects
Zinc bromide	7699-45-8	No information available.

Substances	CAS Number	Reproductive toxicity
Zinc bromide	7699-45-8	When tested at maternally toxic doses, no adverse effects on fertility, teratogenicity, or development were observed.

Substances	CAS Number	STOT - single exposure
Zinc bromide	7699-45-8	May cause respiratory irritation.

Substances	CAS Number	STOT - repeated exposure
Zinc bromide	7699-45-8	No significant toxicity observed in animal studies at concentration requiring classification.

Substances	CAS Number	Aspiration hazard
Zinc bromide	7699-45-8	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
Zinc bromide	7699-45-8	EC50 (728h) 6.6 mg/L (Skeletonema costatum) NOEC (72h) 0.0054 mg/L (Pseudokirchnerella subcapitata) NOEC (16d) 1.071 mg/L (Macrocystis pyrifera)	LC50 (96h) 115.9 mg/L (Scophthalmus maximus) EC50 (7d) 0.76 mg/L (Pimephales promelas) LC50 (96h) 0.315 mg/L (Thymallus arcticus) (similar substace) NOEC (7d) 0.085 mg/L (Pimephales promelas)	EC50 (3d) 3.2 mg/L (Activated sludge, domestic)	EC50 (48h) 2.4 mg/L (Acartia tonsa) EC50 (48h) 8.8 mg/L (Daphnia magna) LC50 (48h) 0.5 mg/L (Ceriodaphnia dubia) NOEC (28d) 0.1 m/L (Capitella capitata)

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability

Zinc bromide	7699-45-8	The methods for determining biodegradability are not applicable to inorganic substances.

12.3. Bioaccumulative potential

Substances	CAS Number	Log Pow
Zinc bromide	7699-45-8	No information available

12.4. Mobility in soil

Substances	CAS Number	Mobility
Zinc bromide	7699-45-8	No information available

12.5. Results of PBT and vPvB assessment

No information available.

Substances	PBT and vPvB assessment
Zinc bromide	Not applicable

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: UN3264
UN Proper Shipping Name: Corrosive Liquid, Acidic, Inorganic, N.O.S. (Contains Zinc Bromide)
Transport Hazard Class(es): 8
Packing Group: III
Environmental Hazards: Marine Pollutant

RID

UN Number: UN3264
UN Proper Shipping Name: Corrosive Liquid, Acidic, Inorganic, N.O.S. (Contains Zinc Bromide)
Transport Hazard Class(es): 8
Packing Group: III
Environmental Hazards: Marine Pollutant

ADR

UN Number: UN3264
UN Proper Shipping Name: Corrosive Liquid, Acidic, Inorganic, N.O.S. (Contains Zinc Bromide)
Transport Hazard Class(es): 8
Packing Group: III
Environmental Hazards: Marine Pollutant

IATA/ICAO

UN Number: UN3264
UN Proper Shipping Name: Corrosive Liquid, Acidic, Inorganic, N.O.S. (Contains Zinc Bromide)
Transport Hazard Class(es): 8
Packing Group: III
Environmental Hazards: Marine Pollutant

14.1. UN Number: UN3264

14.2. UN Proper Shipping Name: Corrosive Liquid, Acidic, Inorganic, N.O.S. (Contains Zinc Bromide)

14.3. Transport Hazard Class(es): 8

14.4. Packing Group: III

14.5. Environmental Hazards: Marine Pollutant

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 Classes (WGK) WGK 1: Low hazard to waters.

15.2. Chemical Safety Assessment
No information available

SECTION 16: Other Information

Full text of H-Statements referred to under sections 2 and 3
None

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: 09-Jun-2015
Revision Note
Update to Format SECTION: 2

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

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End of Safety Data Sheet