HALLIBURTON

SAFETY DATA SHEET

Product Trade Name: **BARIUM CHLORIDE**

Issuing Date: No data available **Revision Date:** 20-Dec-2012
Revision Number: 12

1. Identification

1.1. Product Identifier

Product Trade Name: BARIUM CHLORIDE
Synonyms: None
Chemical Family: Inorganic Salt
Internal ID Code HM001739

1.2 Recommended use and restrictions on use

Application: Additive
Uses Advised Against No information available

1.3 Manufacturer's Name and Contact Details

Manufacturer/Supplier
Halliburton Energy Services Inc.
P.O. Box 1431
Duncan, Oklahoma 73536-0431
Emergency Telephone: 1-866-519-4752 (US, Canada, Mexico) or 1-760-476-3962

Halliburton Energy Services
645 - 7th Ave SW Suite 2200
Calgary, AB
T2P 4G8
Canada

Prepared By Chemical Stewardship
Telephone: 1-580-251-4335
e-mail: fdunexchem@halliburton.com

1.4. Emergency telephone number

Emergency Telephone Number (281) 575-5000

2. Hazard(s) Identification

2.1 Classification in accordance with paragraph (d) of §1910.1200

Acute Oral Toxicity	Category 3 - H301
Acute Inhalation Toxicity - Vapors	Category 4 - H332
Serious Eye Damage / Eye Irritation	Category 2 - H319
Acute Aquatic Toxicity	Category 3 - H402

2.2. Label Elements

Hazard Pictograms

Signal Word Danger

Hazard Statements

H301 - Toxic if swallowed
H319 - Causes serious eye irritation
H332 - Harmful if inhaled
H402 - Harmful to aquatic life

Precautionary Statements

Prevention

P261 - Avoid breathing dust/fume/gas/mist/vapors/spray
P264 - Wash face, hands and any exposed skin thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P271 - Use only outdoors or in a well-ventilated area
P273 - Avoid release to the environment
P280 - Wear eye protection/face protection

Response

P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
P330 - Rinse mouth
P304 + P340 - IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing
P312 - Call a POISON CENTER or doctor/physician if you feel unwell
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P337 + P313 - If eye irritation persists: Get medical advice/attention

Storage

P405 - Store locked up

Disposal

P501 - Dispose of contents/container in accordance with local/regional/national/international regulations

Contains Substances	**CAS Number**
Barium chloride	10361-37-2

2.3 Hazards not otherwise classified

None known

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - US
Barium chloride	10361-37-2	60 - 100%	Acute Tox. 3 (H301) Acute Tox. 4 (H332) Eye Irrit. 2 (H319) Aquatic Acute 3 (H402)

The exact percentage (concentration) of the composition has been withheld as proprietary.

4. First-Aid Measures

4.1. Description of first aid measures

Inhalation If inhaled, move victim to fresh air and seek medical attention.

Eyes In case of contact, or suspected contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention immediately after flushing.

Skin Wash with soap and water. Get medical attention if irritation persists.

Ingestion Do NOT induce vomiting. Give nothing by mouth. Obtain immediate medical attention.

4.2 Most important symptoms/effects, acute and delayed

Causes eye irritation Toxic if swallowed. Harmful if inhaled.

4.3. Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically.

5. Fire-fighting 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 Specific hazards arising from the substance or mixture

Special Exposure Hazards

Decomposition in fire may produce harmful gases.

5.3 Special protective equipment and precautions for fire-fighters

Special Protective Equipment for Fire-Fighters

Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use appropriate protective equipment. Avoid creating and breathing dust.

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

Scoop up and remove.

7. Handling and storage

7.1. Precautions for Safe Handling

Handling Precautions

Avoid contact with eyes, skin, or clothing. Avoid creating or inhaling dust. 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

Storage Information

Store in a dry location.

8. Exposure Controls/Personal Protection

8.1 Occupational Exposure Limits

Substances	CAS Number	OSHA PEL-TWA	ACGIH TLV-TWA
Barium chloride	10361-37-2	0.5 mg/m³	0.5 mg/m³

8.2 Appropriate engineering controls

Engineering Controls Use in a well ventilated area.

8.3 Individual protection measures, such as personal protective equipment

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 Dust/mist respirator. (N95, P2/P3)

Hand Protection Impervious rubber gloves.

Skin Protection Normal work coveralls.

Eye Protection Dust proof goggles.

Other Precautions None known.

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State: Solid

Color: White

Odor: Odorless

Odor Threshold: No information available

Property Remarks/ - Method	Values
pH:	No data available
Freezing Point/Range	No data available
Melting Point/Range	No data available
Boiling Point/Range	No data available
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	4.23
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

Molecular Weight 233.4

VOC Content (%) No data available

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
Bromine trifluoride.

10.6. Hazardous Decomposition Products
Hydrogen chloride. Chlorine. Metal oxides.

11. Toxicological Information

11.1 Information on likely routes of exposure
Principle Route of Exposure Eye or skin contact, inhalation.

11.2 Symptoms related to the physical, chemical and toxicological characteristics
Acute Toxicity

Inhalation May be harmful if inhaled. May cause respiratory irritation.

Eye Contact Causes eye irritation.

Skin Contact May cause skin irritation.

Ingestion Toxic if swallowed. May cause abdominal pain, vomiting, nausea, and diarrhea. May cause kidney damage. May cause tremors, faintness, paralysis of arms and legs, and slow or irregular heartbeat. Severe cases may produce collapse and death on respiratory failure.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 0.1% are chronic health hazards.

11.3 Toxicity data

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Barium chloride	10361-37-2	100 - 300 mg/kg (Rat) 645 mg/kg (Rat) 76 mg/kg (Guinea pig)	No information available	1.1 - 5 mg/L (Rat) (4h)

Substances	CAS Number	Skin corrosion/irritation
Barium chloride	10361-37-2	Non-irritating to the skin (similar substances)

Substances	CAS Number	Eye damage/irritation
Barium chloride	10361-37-2	Eye, rabbit: Causes severe eye irritation. (similar substances)

Substances	CAS Number	Skin Sensitization
Barium chloride	10361-37-2	Did not cause sensitization on laboratory animals (similar substances)

Substances	CAS Number	Respiratory Sensitization
Barium chloride	10361-37-2	No information available

Substances	CAS Number	Mutagenic Effects
Barium chloride	10361-37-2	In vitro tests did not show mutagenic effects (similar substances)

Substances	CAS Number	Carcinogenic Effects
Barium chloride	10361-37-2	Did not show carcinogenic effects in animal experiments (similar substances)

Substances	CAS Number	Reproductive toxicity
Barium chloride	10361-37-2	Animal testing did not show any effects on fertility. No data of sufficient quality are available.

Substances	CAS Number	STOT - single exposure
Barium chloride	10361-37-2	No significant toxicity observed in animal studies at concentration requiring classification.

Substances	CAS Number	STOT - repeated exposure
Barium chloride	10361-37-2	No significant toxicity observed in animal studies at concentration requiring classification.

Substances	CAS Number	Aspiration hazard
Barium chloride	10361-37-2	No information available

12. Ecological Information

12.1. Toxicity

Ecotoxicity Effects

Product Ecotoxicity Data

No data available

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Barium chloride	10361-37-2	EC50 (72h) >100 mg/L (Pserdokirchnerella subcapitata)	LC50 (28d) 42.7 mg/L (Oncorhynchus mykiss) BCF 68.4 L/kg (female) 74.4 L/kg (male) (Lepomis macrochirus)	EC50 (3h) >1000 mg/L (Activated sludge in a predominantly domestic sewage)	LC50 (48h) 14.5 mg/L (Daphnia magna) EC16 (3wk) 5.8 mg/L (Daphnia magna) LC50 (96h) >152 mg/L (Danio rerio) EC20 (28d) 165 mg/L (Folsomia candida)

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Barium chloride	10361-37-2	The methods for determining biodegradability are not applicable to inorganic substances.

12.3. Bioaccumulative potential

Substances	CAS Number	Log Pow
Barium chloride	10361-37-2	No information available

12.4. Mobility in soil

Substances	CAS Number	Mobility
Barium chloride	10361-37-2	No information available

12.5 Other adverse effects

No information available

13. Disposal Considerations

13.1. Waste treatment methods

Disposal Method Disposal should be made in accordance with federal, state, and local regulations.

Contaminated Packaging This bag may contain residue of a hazardous material. Some authorities may regulate such containers as hazardous waste. Dispose of container according to national or local regulations.

14. Transport Information

US DOT

UN Number: UN1564
UN Proper Shipping Name: Barium Compound
Transport Hazard Class(es): 6.1
Packing Group: III
Environmental Hazards: Not applicable
NAERG: NAERG 154

US DOT Bulk

DOT (Bulk) Not applicable

Canadian TDG

UN Number: UN1564
UN Proper Shipping Name: Barium Compound
Transport Hazard Class(es): 6.1
Packing Group: III
Environmental Hazards: Not applicable

IMDG/IMO

UN Number: UN1564
UN Proper Shipping Name: Barium Compound
Transport Hazard Class(es): 6.1
Packing Group: III
Environmental Hazards: Not applicable
EMS: EmS F-A, S-A

IATA/ICAO

UN Number: UN1564
UN Proper Shipping Name: Barium Compound
Transport Hazard Class(es): 6.1
Packing Group: III
Environmental Hazards: Not applicable

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not applicable
Special Precautions for User: None

15. Regulatory Information

US Regulations

US TSCA Inventory All components listed on inventory or are exempt.

EPA SARA Title III Extremely Hazardous Substances

Substances	CAS Number	EPA SARA Title III Extremely Hazardous Substances
Barium chloride	10361-37-2	Not applicable

EPA SARA (311,312) Hazard Class
Acute Health Hazard

EPA SARA (313) Chemicals

Substances	CAS Number	Toxic Release Inventory (TRI) - Group I	Toxic Release Inventory (TRI) - Group II
Barium chloride	10361-37-2	1.0%	Not applicable

EPA CERCLA/Superfund Reportable Spill Quantity

Substances	CAS Number	CERCLA RQ
Barium chloride	10361-37-2	Not applicable

EPA RCRA Hazardous Waste Classification

If product becomes a waste, it does meet the criteria of a hazardous waste as defined by the US EPA, because of:

Toxicity D005

California Proposition 65 All components listed do not apply to the California Proposition 65 Regulation.

MA Right-to-Know Law Does not apply.

NJ Right-to-Know Law Does not apply.

PA Right-to-Know Law Does not apply.

Canadian Regulations

Canadian DSL Inventory All components listed on inventory or are exempt.

16. Other information

Preparation Information

Prepared By Chemical Stewardship
Telephone: 1-580-251-4335
e-mail: fdunexchem@halliburton.com

Revision Date: 20-Dec-2012

Reason for Revision SDS sections updated:
2

Additional information

For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Stewardship at 1-580-251-4335.

Key or legend to abbreviations and acronyms

bw – body weight
CAS – Chemical Abstracts Service
EC50 – Effective Concentration 50%
ErC50 – Effective Concentration growth rate 50%
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL50 – Lethal Loading 50%
mg/kg – milligram/kilogram
mg/L – milligram/liter
NIOSH – National Institute for Occupational Safety and Health
NTP – National Toxicology Program

OEL – Occupational Exposure Limit
PEL – Permissible Exposure Limit
ppm – parts per million
STEL – Short Term Exposure Limit
TWA – Time-Weighted Average
UN – United Nations
h - hour
mg/m^3 - milligram/cubic meter
mm - millimeter
mmHg - millimeter mercury
w/w - weight/weight
d - day

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

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End of Safety Data Sheet