HALLIBURTON

SAFETY DATA SHEET

CLAYFIX MATERIAL

Revision Date: 11-May-2015 **Revision Number:** 15

1. Product Identifier & Identity for the Chemical

Statement of Hazardous Nature Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

1.1. Product Identifier

Product Name CLAYFIX MATERIAL

Other means of Identification

Synonyms: None

Product Code: HM000369

Recommended use of the chemical and restrictions on use

Recommended Use Clay Stabilizer

Uses Advised Against No information available

Supplier's name, address and phone number

Manufacturer/Supplier Halliburton Australia Pty. Ltd.
15 Marriott Road
Jandakot
WA 6164
Australia

ACN Number: 009 000 775
Telephone Number: + 61 1 800 686 951
Fax Number: 61 (08) 9455 5300

E-Mail address: fdunexchem@halliburton.com

Emergency phone number

+ 61 1 800 686 951

Australian Poisons Information Centre

24 Hour Service: - 13 11 26

Police or Fire Brigade: - 000 (exchange): - 1100

2. Hazard Identification

Statement of Hazardous Nature Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG.

Classification of the hazardous chemical

Acute Oral Toxicity	Category 4 - H302
Serious Eye Damage / Eye Irritation	Category 2 - H319
Acute Aquatic Toxicity	Acute 3 - H402

Label elements, including precautionary statements

Hazard Pictograms

Signal Word Warning

Hazard Statements
H302 - Harmful if swallowed
H319 - Causes serious eye irritation
H402 - Harmful to aquatic life

Precautionary Statements

Prevention
P264 - Wash face, hands and any exposed skin thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P280 - Wear eye protection/face protection

Response
P301+ P312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
P330 - Rinse mouth
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 None

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

Contains Substances	**CAS Number**
Ammonium chloride	12125-02-9

Other hazards which do not result in classification
None known

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

Classification Xn - Harmful.

Risk Phrases
R22 Harmful if swallowed.
R36 Irritating to eyes.
R53 May cause long-term adverse effects in the aquatic environment.

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - Australia
Ammonium chloride	12125-02-9	60 - 100%	Acute Tox. 4 (H302) Eye Irrit. 2 (H319) Aquatic Acute 3 (H402)

4. First aid measures

Description of necessary first aid measures

Inhalation	If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.
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. Remove contaminated clothing and launder before reuse.
Ingestion	Do NOT induce vomiting. Give nothing by mouth. Obtain immediate medical attention.

Symptoms caused by exposure

Causes eye irritation Harmful if swallowed.

Medical Attention and Special Treatment

Notes to Physician Treat symptomatically

5. Fire Fighting Measures

Suitable extinguishing equipment

Suitable Extinguishing Media

Water fog, carbon dioxide, foam, dry chemical.

Extinguishing media which must not be used for safety reasons

None known.

Specific hazards arising from the chemical

Special Exposure Hazards

Decomposition in fire may produce harmful gases.

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.

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.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice. Wash thoroughly after handling. Remove and wash contaminated clothing before re-use

7.2. Conditions for safe storage, including any incompatibilities

Storage Information

Store away from alkalis. Store away from acids. Store in a cool, dry location. Product has a shelf life of 60 months.

Other Guidelines

No information available

8. Exposure Controls/Personal Protection

Control parameters - exposure standards, biological monitoring

Exposure Limits

Substances	CAS Number	Australia NOHSC	ACGIH TLV-TWA
Ammonium chloride	12125-02-9	TWA: 10 mg/m^3 STEL: 20 mg/m^3	TWA: 10 mg/m^3 STEL: 20 mg/m^3

Appropriate engineering controls

Engineering Controls Use in a well ventilated area. Localized ventilation should be used to control dust levels.

Personal protective equipment (PPE)

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 Not normally needed. But if significant exposures are possible then the following respirator is recommended:
Dust/mist respirator. (N95, P2/P3)

Hand Protection Chemical-resistant protective gloves (EN 374) Suitable materials for short-term contact or splashes (recommended: at least protection index 2, corresponding to > 30 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.

Skin Protection Normal work coveralls.

Eye Protection Chemical goggles; also wear a face shield if splashing hazard exists.

Other Precautions None known.

Environmental Exposure Controls No information available

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:	4.3-5.5
Freezing Point/Range	No data available
Melting Point/Range	No data available
Boiling Point/Range	No data available
Flash Point	No data available
Evaporation rate	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Specific Gravity	1.567
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	53.46
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
Strong alkalis. Carbonates of alkalis. Contact with lead. Silver salts. Avoid contact with acidic, basic or oxidizing agents. Amphoteric metals such as aluminum, magnesium, lead, tin, or zinc. Contact with oxidizing agents. Strong acids. Strong bases.
10.6. Hazardous Decomposition Products
Ammonia. Oxides of nitrogen. Hydrogen chloride.

11. Toxicological Information

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

Sympotoms related to exposure
Most Important Symptoms/Effects
Causes eye irritation Harmful if swallowed.

Numerical measures of toxicity

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Ammonium chloride	12125-02-9	1410 mg/kg (Rat) 1220 mg/kg (Rat) 1630 mg/kg (Rat) 1300 mg/kg (Mouse)	> 2000 mg/kg (Rat)	No data available

Test species: Rat

Immediate, delayed and chronic health effects from exposure
Inhalation Coughing, chest pains, and breathing difficulty may occur. May cause mild respiratory irritation.
Eye Contact Causes eye irritation.
Skin Contact May cause mild skin irritation.
Ingestion Harmful if swallowed. Irritation of the mouth, throat, and stomach. May cause abdominal pain, vomiting, nausea, and diarrhea.

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

Exposure Levels
No data available

Interactive effects
Skin disorders. Lung disorders.

Data limitations
No data available

Substances	CAS Number	Skin corrosion/irritation
Ammonium chloride	12125-02-9	Non-irritating to the skin (Rabbit)

Substances	CAS Number	Eye damage/irritation

Ammonium chloride	12125-02-9	Causes moderate eye irritation. (Rabbit)

Substances	CAS Number	Skin Sensitization
Ammonium chloride	12125-02-9	Did not cause sensitization on laboratory animals (guinea pig)

Substances	CAS Number	Respiratory Sensitization
Ammonium chloride	12125-02-9	No information available

Substances	CAS Number	Mutagenic Effects
Ammonium chloride	12125-02-9	Not regarded as mutagenic.

Substances	CAS Number	Carcinogenic Effects
Ammonium chloride	12125-02-9	Did not show carcinogenic effects in animal experiments

Substances	CAS Number	Reproductive toxicity
Ammonium chloride	12125-02-9	Did not show teratogenic effects in animal experiments. Animal testing did not show any effects on fertility. (similar substances)

Substances	CAS Number	STOT - single exposure
Ammonium chloride	12125-02-9	No information available

Substances	CAS Number	STOT - repeated exposure
Ammonium chloride	12125-02-9	No significant toxicity observed in animal studies at concentration requiring classification.

Substances	CAS Number	Aspiration hazard
Ammonium chloride	12125-02-9	Not applicable

12. Ecological Information

Ecotoxicity

Product Ecotoxicity Data

No data available

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Ammonium chloride	12125-02-9	EC50 40-70 mg/L (Skeletonema costatum) EC50 (10d) 90.4 mg/L (Navicula sp.) NOEC (10d) 26.8 mg/L (growth rate) (Navicula sp.) EC50 (5d) 1300 mg/L (growth rate) (Chlorella vulgaris)	LC50 (96h) 275 mg/L (Cyprinus carpio) LC50 (96h) 163 mg/L (Pimephales promelas) LC50 (96h) 218 mg/L (Lepomis cyanellus) LC50 (96h) 34 mg/L (Oncorhynchus mykiss) NOEC (28d) 11.8 mg/L (Pimephales promelas)	EC50 (30m) 1618 mg/L (activated sludge, domestic)	TLM96 16 mg/L (Crangon crangon) EC50 (48h) 101 mg/L (Daphnia magna) NOEC (21d) 14.6 mg/L (Daphnia magna)

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Ammonium chloride	12125-02-9	The methods for determining biodegradability are not applicable to inorganic substances.

12.3. Bioaccumulative potential

Substances	CAS Number	Log Pow
Ammonium chloride	12125-02-9	No information available

12.4. Mobility in soil

Substances	CAS Number	Mobility
Ammonium chloride	12125-02-9	No information available

12.6. Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

13. Disposal Considerations

Safe handling and disposal methods

Bury in a licensed landfill according to federal, state, and local regulations.

Disposal of any contaminated packaging

Follow all applicable national or local regulations.

Environmental regulations

Not applicable

14. Transport Information

Transportation Information

UN Number:	Not restricted
UN Proper Shipping Name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

Special precautions during transport

None

HazChem Code

None Allocated

15. Regulatory Information

Safety, health and environmental regulations specific for the product

International Inventories

Australian AICS Inventory	All components listed on inventory or are exempt.
New Zealand Inventory of Chemicals	All components listed on inventory or are exempt.
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.

Poisons Schedule number

None Allocated

16. Other information

Date of preparation or review

Revision Date: 11-May-2015

Revision Note Revision Note

SDS sections updated: 2

Full text of R-phrases referred to under Sections 2 and 3

R22 Harmful if swallowed.
R36 - Irritating to eyes
R52 Harmful to aquatic organisms.

Full text of H-Statements referred to under sections 2 and 3
H302 - Harmful if swallowed
H319 - Causes serious eye irritation
H402 - Harmful to aquatic life

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 abreviations or acronyms used

bw – body weight CAS – Chemical Abstracts Service EC50 – Effective Concentration 50% LC50 – Lethal Concentration 50% LD50 – Lethal Dose 50% LL50 – Lethal Loading 50% mg/kg – milligram/kilogram mg/L – milligram/liter NOEC – No Observed Effect Concentration OEL – Occupational Exposure Limit PBT – Persistent Bioaccumulative and Toxic ppm – parts per million STEL – Short Term Exposure Limit TWA – Time-Weighted Average vPvB – very Persistent and very Bioaccumulative 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