## 1. Product Identifier & Identity for the Chemical

<table>
<thead>
<tr>
<th>Statement of Hazardous Nature</th>
<th>Non-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.</th>
</tr>
</thead>
</table>
| **1.1. Product Identifier**  | **Product Name**
|                               | CHOLINE CHLORIDE                                                                                                            |
| **Other means of Identification** | **Synonyms:** None                                                                                                          |
|                               | **Product Code:** HM006900                                                                                                   |
| **Recommended use of the chemical and restrictions on use** | **Recommended Use** Clay Stabilization Agent  
**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

<table>
<thead>
<tr>
<th>Statement of Hazardous Nature</th>
<th>Non-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.</th>
</tr>
</thead>
</table>
| **Classification of the hazardous chemical** | Not classified  
**Label elements, including precautionary statements**  
**Hazard Pictograms** |
| **Signal Word** | Not Hazardous |
Hazard Statements
Not Classified

Precautionary Statements

Prevention
None
Response
None
Storage
None
Disposal
None

Contains
Substances	CAS Number
Choline chloride	67-48-1

Other hazards which do not result in classification
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).

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

Classification
Not Classified
Risk Phrases
None

3. Composition/information on Ingredients

<table>
<thead>
<tr>
<th>Substances</th>
<th>CAS Number</th>
<th>PERCENT (w/w)</th>
<th>GHS Classification - Australia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choline chloride</td>
<td>67-48-1</td>
<td>60 - 100%</td>
<td></td>
</tr>
</tbody>
</table>

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, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

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.

Symptoms caused by exposure
No significant hazards expected.

Medical Attention and Special Treatment
Notes to Physician
Treat symptomatically

5. Fire Fighting Measures

Suitable extinguishing equipment

Suitable Extinguishing Media
All standard fire fighting media
Extinguishing media which must not be used for safety reasons
None known.
6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Use appropriate protective equipment. Avoid contact with skin, eyes and clothing. Avoid breathing vapors. Ensure adequate ventilation.

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.

7. Handling and storage

7.1. Precautions for Safe Handling
Handling Precautions
Avoid contact with eyes, skin, or clothing. Avoid breathing vapors. Ensure adequate ventilation. Wash hands after use. Launder contaminated clothing before reuse. Use appropriate protective equipment.
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 cool, dry location. Keep container closed when not in use.
Other Guidelines
No information available

8. Exposure Controls/Personal Protection

Control parameters - exposure standards, biological monitoring
Exposure Limits

<table>
<thead>
<tr>
<th>Substances</th>
<th>CAS Number</th>
<th>Australia NOHSC</th>
<th>ACGIH TLV-TWA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choline chloride</td>
<td>67-48-1</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

Appropriate engineering controls
Engineering Controls
Use in a well ventilated area.

Personal protective equipment (PPE)
Respiratory Protection
Not normally necessary.
Hand Protection
Impervious rubber gloves.
Skin Protection
Normal work coveralls.
Eye Protection
Wear safety glasses or goggles to protect against exposure.
Other Precautions
Eyewash fountains and safety showers must be easily accessible.

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

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties
CHOLINE CHLORIDE

Physical State: Liquid
Color: White

Odor: Mild amine
Odor Threshold: No information available

Property
Remarks/ - Method
pH:
Freezing Point/Range
Melting Point/Range
Boiling Point/Range
Flash Point
Evaporation rate
Vapor Pressure
Vapor Density
Specific Gravity
Water Solubility
Solubility in other solvents
Partition coefficient: n-octanol/water
Autoignition Temperature
Decomposition Temperature
Viscosity
Explosive Properties
Oxidizing Properties

Values

7-9
No data available
No data available
No data available
No data available
No data available
No data available
No data available
1.07 - 1.091
Soluble in water
No data available
No data available
No data available
No data available
No data available
No data available
No data available
No data available

9.2. Other information
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
Avoid contact with metals such as aluminum, tin, lead, brass, bronze, copper, and zinc.

10.5. Incompatible Materials
Strong oxidizers.

10.6. Hazardous Decomposition Products

11. Toxicological Information

Information on routes of exposure

Symptoms related to exposure
Most Important Symptoms/Effects
No significant hazards expected.

Numerical measures of toxicity

Toxicology data for the components

<table>
<thead>
<tr>
<th>Substances</th>
<th>CAS Number</th>
<th>LD50 Oral</th>
<th>LD50 Dermal</th>
<th>LC50 Inhalation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choline chloride</td>
<td>67-48-1</td>
<td>3400 mg/kg (Rat)</td>
<td>No data available</td>
<td>No data available</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt;= 2790 mg/kg (Rat)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5500 mg/kg (Rat)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Immediate, delayed and chronic health effects from exposure

Inhalation: May cause mild respiratory irritation.
Eye Contact: May cause mild eye irritation.
Skin Contact: May cause mild skin irritation.
Ingestion
None known.

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
None known.

Data limitations
No data available

<table>
<thead>
<tr>
<th>Substances</th>
<th>CAS Number</th>
<th>Skin corrosion/irritation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choline chloride</td>
<td>67-48-1</td>
<td>Non-irritating to the skin (Rabbit)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Substances</th>
<th>CAS Number</th>
<th>Eye damage/irritation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choline chloride</td>
<td>67-48-1</td>
<td>Non-irritating to the eye (Rabbit)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Substances</th>
<th>CAS Number</th>
<th>Skin Sensitization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choline chloride</td>
<td>67-48-1</td>
<td>Did not cause sensitization on laboratory animals (guinea pig)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Substances</th>
<th>CAS Number</th>
<th>Respiratory Sensitization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choline chloride</td>
<td>67-48-1</td>
<td>No information available</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Substances</th>
<th>CAS Number</th>
<th>Mutagenic Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choline chloride</td>
<td>67-48-1</td>
<td>In vitro tests did not show mutagenic effects</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Substances</th>
<th>CAS Number</th>
<th>Carcinogenic Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choline chloride</td>
<td>67-48-1</td>
<td>No information available</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Substances</th>
<th>CAS Number</th>
<th>Reproductive toxicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choline chloride</td>
<td>67-48-1</td>
<td>Animal testing did not show any effects on fertility. Did not show teratogenic effects in animal experiments.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Substances</th>
<th>CAS Number</th>
<th>STOT - single exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choline chloride</td>
<td>67-48-1</td>
<td>No significant toxicity observed in animal studies at concentration requiring classification.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Substances</th>
<th>CAS Number</th>
<th>STOT - repeated exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choline chloride</td>
<td>67-48-1</td>
<td>No significant toxicity observed in animal studies at concentration requiring classification.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Substances</th>
<th>CAS Number</th>
<th>Aspiration hazard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choline chloride</td>
<td>67-48-1</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

12. Ecological Information

Ecotoxicity
Product Ecotoxicity Data
No data available

Substance Ecotoxicity Data

<table>
<thead>
<tr>
<th>Substances</th>
<th>CAS Number</th>
<th>Toxicity to Algae</th>
<th>Toxicity to Fish</th>
<th>Toxicity to Microorganisms</th>
<th>Toxicity to Invertebrates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choline chloride</td>
<td>67-48-1</td>
<td>EC50(72h): &gt; 500 mg/L (Desmodesmus subspicatus)</td>
<td>LC50(96h): &gt; 10000 mg/L (Leuciscus idus)</td>
<td>EC50(17h): 132.8 mg/L (Pseudomonas putida)</td>
<td>EC50(24h): 250 mg/L (Daphnia magna) EC50(48h): 500 mg/L (Daphnia magna) NOEC(21d): 30.2 mg/L (reproduction) (Daphnia magna)</td>
</tr>
</tbody>
</table>
12.2. Persistence and degradability

<table>
<thead>
<tr>
<th>Substances</th>
<th>CAS Number</th>
<th>Persistence and Degradability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choline chloride</td>
<td>67-48-1</td>
<td>Readily biodegradable (&gt;75% @ 5d)</td>
</tr>
</tbody>
</table>

12.3. Bioaccumulative potential

<table>
<thead>
<tr>
<th>Substances</th>
<th>CAS Number</th>
<th>Log Pow</th>
<th>BCF: 3.16 L/kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choline chloride</td>
<td>67-48-1</td>
<td>-3.77</td>
<td></td>
</tr>
</tbody>
</table>

12.4. Mobility in soil

<table>
<thead>
<tr>
<th>Substances</th>
<th>CAS Number</th>
<th>Mobility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choline chloride</td>
<td>67-48-1</td>
<td>No information available</td>
</tr>
</tbody>
</table>

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
Disposal should be made in accordance with 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: 30-Sep-2015

Revision Note

SDS sections updated: 2

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

None

Full text of H-Statements referred to under sections 2 and 3

None

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 abbreviations 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

Key literature references and sources for data

www.ChemADVISOR.com/

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