1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product Identifier
Product Name: SODIUM NITRITE SOLUTION

Recommended Use
Additive

Uses Advised Against
No information available

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

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

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture
REGULATION (EC) No 1272/2008

Acute Oral Toxicity Category 3- H301
Acute Aquatic Toxicity Acute 1- H400
Oxidizing solids. Category 3- H272

Classification according to EU Directives 67/548/EEC or 1999/45/EC
2. HAZARDS IDENTIFICATION

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

Classification

O - Oxidizing.
T - Toxic.
N - Dangerous For The Environment.

Risk Phrases

R8  Contact with combustible material may cause fire.
R25  Toxic if swallowed.
R50  Very toxic to aquatic organisms.

Label Elements

Hazard Pictograms

Signal Word Danger

Hazard Statements

H301 - Toxic if swallowed
H272 - May intensify fire; oxidizer
H400 - Very toxic to aquatic life

Contains

Substances  CAS Number
Sodium nitrite  7632-00-0

Precautionary Statements - EU (§28, 1272/2008)

P220 - Keep/Store away from clothing/ combustible materials
P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking
P221 - Take any precaution to avoid mixing with combustibles
P264 - Wash face, hands and any exposed skin thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P280 - Wear protective gloves/eye protection/face protection
P273 - Avoid release to the environment
P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
P330 - Rinse mouth
P370 + P 378 - In case of fire: Use CO2, dry chemical, or foam
P391 - Collect spillage

Other Hazards

None known
3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Substances</th>
<th>EINECS</th>
<th>CAS Number</th>
<th>PERCENT</th>
<th>EEC Classification</th>
<th>EU - CLP Substance Classification</th>
<th>REACH No.</th>
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</thead>
<tbody>
<tr>
<td>Sodium nitrite</td>
<td>231-555-9</td>
<td>7632-00-0</td>
<td>30 - 60%</td>
<td>O; R8</td>
<td>Acute Tox. 3 (H301)</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>T; R25</td>
<td>Aquatic acute 1 (H400)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>N; R50</td>
<td>Ox. Sol. 3 (H272)</td>
<td></td>
</tr>
</tbody>
</table>

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

4. FIRST AID MEASURES

Description of 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. Remove contaminated clothing and launder before reuse.

Ingestion  
Do not induce vomiting. Slowly dilute with 1-2 glasses of water or milk and seek medical attention. Never give anything by mouth to an unconscious person.

Most Important symptoms and effects, both acute and delayed
May cause eye and skin irritation. May effect the blood's ability to carry oxygen.

Indication of any immediate medical attention and special treatment needed
Treat symptomatically

Notes to Physician

5. FIREFIGHTING MEASURES

Extinguishing mediao

Suitable Extinguishing Media
Water fog, carbon dioxide, foam, dry chemical.

Extinguishing media which must not be used for safety reasons
None known.

Special hazards arising from the substance of mixture

Special Exposure Hazards
Oxidizer. May ignite combustibles. Explodes when exposed to high temperatures, cyanides, organic materials or friction. Decomposition in fire may produce toxic gases.

Advice for firefighters

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

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures
Use appropriate protective equipment. Use only competent persons for cleanup. See Section 12 for additional information

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

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.

Reference to other sections
See Section 12 for additional information.
7. HANDLING AND STORAGE

Precautions for Safe Handling
Avoid contact with eyes, skin, or clothing. Avoid breathing mist.

Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice

Conditions for safe storage, including any incompatibilities
Store away from combustibles. Store in a cool, dry location.

Specific End Use(s)

Exposure Scenario
No information available

Other Guidelines
No information available

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

<table>
<thead>
<tr>
<th>Substances</th>
<th>EU</th>
<th>UK OEL</th>
<th>Netherlands</th>
<th>France OEL</th>
<th>Germany MAK/TRK</th>
</tr>
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<tbody>
<tr>
<td>Sodium nitrite</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Sodium nitrite</td>
<td>Italy</td>
<td>Poland</td>
<td>Hungary</td>
<td>Czech Republic</td>
<td>Denmark</td>
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<tr>
<td>Sodium nitrite</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

Derived No Effect Level (DNEL) No information available.
Predicted No Effect Concentration (PNEC) No information available.

Exposure controls
Use in a well ventilated area.

Personal protective equipment

Respiratory Protection
Not normally needed. But if significant exposures are possible then the following respirator is recommended:
HEPA Respirator.

Hand Protection
Impervious rubber gloves.

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

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical State: Liquid
Odor: Odorless
Color: Clear colorless to pale yellow
Odor Threshold: No information available

Property
Remarks/ Method
pH: 9
Melting Point/Range: No data available
Freezing Point/Range (C): -12
Boiling Point/Range: No data available120°C
Flash Point: No data available
Evaporation rate: No data available
Vapor Pressure: No data available
Vapor Density: No data available
Specific Gravity: 1.43
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
9. PHYSICAL AND CHEMICAL PROPERTIES

Oxidizing Properties
No information available

Other information
VOC Content (%)
No data available

10. STABILITY AND REACTIVITY

Reactivity
Not applicable

Chemical Stability
Stable

Possibility of Hazardous Reactions
Will Not Occur

Conditions to Avoid
Keep away from heat, sparks and flame.

Incompatible Materials
Ammonium compounds. Cyanides. All flammables, especially petroleum products, asphalt & other volatile flammables. Organic matter.

Hazardous Decomposition Products

11. TOXICOLOGICAL INFORMATION

Information on Toxicological Effects

Acute Toxicity

Inhalation
May cause respiratory irritation. May reduce the blood's ability to transport oxygen (methemaglobinemia).

Eye Contact
May cause eye irritation.

Skin Contact
May cause skin irritation.

Ingestion
May reduce the blood's ability to transport oxygen (methemalobinemia).

Chronic Effects/Carcinogenicity
No data available to indicate product or components present at greater than 1% are chronic health hazards.

<table>
<thead>
<tr>
<th>Substances</th>
<th>LD50 Oral</th>
<th>LD50 Dermal</th>
<th>LC50 Inhalation</th>
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<td>Sodium nitrite</td>
<td>85 mg/kg</td>
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</tr>
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</table>

Test species: Rat

12. ECOLOGICAL INFORMATION

Toxicity

Ecotoxicity Effects

<table>
<thead>
<tr>
<th>Substances</th>
<th>Toxicity to Algae</th>
<th>Toxicity to Fish</th>
<th>Toxicity to Microorganisms</th>
<th>Daphnia Magna (Water Flea)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium nitrite</td>
<td>No information available</td>
<td>No information available</td>
<td>No information available</td>
<td>No information available</td>
</tr>
</tbody>
</table>

Persistence and degradability
No information available

Bioaccumulative potential
No information available

Mobility in soil
No information available

Results of PBT and vPvB assessment
No information available.

Other adverse effects
Endocrine Disruptor Information
This product does not contain any known or suspected endocrine disruptors

13. DISPOSAL CONSIDERATIONS

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.

14. TRANSPORT INFORMATION

IMDG/IMO
UN Number: UN3139,
UN Proper Shipping Name: Oxidizing Liquid, N.O.S.
Transport Hazard Class(es): 5.1
Packing Group: III
EMS: EmS F-A, S-Q

RID
UN Number: UN3139,
UN Proper Shipping Name: Oxidizing Liquid, N.O.S.
Transport Hazard Class(es): 5.1
Packing Group: III

ADR
UN Number: UN3139,
UN Proper Shipping Name: Oxidizing Liquid, N.O.S.
Transport Hazard Class(es): 5.1
Packing Group: III

IATA/ICAO
UN Number: UN3139,
UN Proper Shipping Name: Oxidizing Liquid, N.O.S.
Transport Hazard Class(es): 5.1
Packing Group: III

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

15. REGULATORY INFORMATION

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 2: Hazard to waters.

Chemical Safety Assessment
No information available

16. OTHER INFORMATION

Full text of R-phrases referred to under Sections 2 and 3
R8 Contact with combustible material may cause fire.
R25 Toxic if swallowed.
R50 Very toxic to aquatic organisms.

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

Revision Date: 07-Feb-2011
Revision Note: Not applicable

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

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End of Safety Data Sheet