SAFETY DATA SHEET

1. Identification

GHS Product identifier: Brine Solution

Other means of identification
Common name(s), synonym(s): Salt water, Brine recycle stream, Sodium chloride solution
SDS number: NOVA-0087

Recommended use and restriction on use
Recommended use: Operation of underground storage caverns and for salt manufacturing.
Restrictions on use: All uses other than the identified.

Manufacturer/Importer/Supplier/Distributor Information

Manufacturer
Company Name: NOVA Chemicals
Address: 785 Petrolia Line
           Corunna, Ontario, Canada N0N 1G0
Telephone: Product Information: 1-412-490-4063
           SDS Information Email: msdsemail@novachem.com

Emergency telephone number:
1-800-561-6682, 1-403-314-8767 (NOVA Chemicals) (24 hours)
1-800-424-9300 (CHEMTREC-USA) (24 hours)

General Comments
This is not a NOVA Chemicals' product.

2. Hazard(s) identification

Hazard Classification

Health Hazards
  Serious Eye Damage/Eye Irritation Category 2A

Label Elements

Hazard Symbol:

Signal Word: Warning
Hazard Statement: Causes serious eye irritation.
Precautionary Statements:
Prevention: Wash hands thoroughly after handling. Wear eye protection/face protection.
Response: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

Storage: Store locked up.

Disposal: Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Other hazards which do not result in GHS classification: None.

3. Composition/information on ingredients

Mixtures

<table>
<thead>
<tr>
<th>Chemical Identity</th>
<th>Common name and synonyms</th>
<th>CAS number</th>
<th>Content in percent (%)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium chloride</td>
<td>Salt</td>
<td>7647-14-5</td>
<td>5 - 26%</td>
</tr>
</tbody>
</table>

* All concentrations are percent by weight.

Additional Information: This product is considered hazardous by the OSHA Hazard Communication Standard, (29 CFR 1910.1200).

4. First-aid measures

Ingestion: Call a POISON CENTER/doctor if you feel unwell.

Inhalation: Call a POISON CENTER/doctor if you feel unwell.

Skin Contact: If skin irritation occurs: Get medical advice/attention.

Eye contact: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

Most important symptoms/effects, acute and delayed

Symptoms: Eye irritation.

Indication of immediate medical attention and special treatment needed

Treatment: For more detailed medical emergency support information call 1-800-561-6682 or 1-403-314-8767 (24 hours NOVA Chemicals Emergency Response). Treat symptomatically. Treatment for overexposure should be directed at controlling the symptoms and clinical condition of the patient. After adequate first aid, no further treatment is required unless symptoms reappear.

5. Fire-fighting measures

General Fire Hazards: This product is not flammable. Product does not burn.

Suitable (and unsuitable) extinguishing media

Suitable extinguishing media: In case of fire in the surroundings: use appropriate extinguishing media.
### 6. Accidental release measures

<table>
<thead>
<tr>
<th>Personal precautions, protective equipment and emergency procedures:</th>
<th>Isolate area. Keep unauthorized personnel away.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methods and material for containment and cleaning up:</td>
<td>Wear appropriate personal protective equipment. Do not touch or walk through spilled material. Keep upwind. Keep out of low areas. Stop leak if safe to do so. Contain discharge by booming on water or diking on ground. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply.</td>
</tr>
<tr>
<td>Small Spills: Remove liquid material with approved pumps or vacuum equipment.</td>
<td></td>
</tr>
<tr>
<td>Large Spills: Isolate, contain, and attempt to recover. Remove liquid material with approved pumps or vacuum equipment. Spill area may be washed down with water, with wash waters collected for testing and proper disposal.</td>
<td></td>
</tr>
</tbody>
</table>

### 7. Handling and storage

| Precautions for safe handling: | Product is slowly corrosive to metal. Handle in properly designed and approved equipment systems. Periodically inspect pipelines and other equipment for integrity and corrosion. Do not ingest or inhale. Avoid contact with skin and eyes. Wash hands thoroughly after handling. Wear eye protection/face protection. |
| Conditions for safe storage, including any incompatibilities: | Storage area should be clearly identified, well-illuminated and clear of obstruction. Store locked up. Only allow access to authorized persons. Storage ponds and tank areas should be periodically inspected and kept separate from fresh water supply or outlets. Keep away from incompatible materials. |

### 8. Exposure controls/personal protection

<table>
<thead>
<tr>
<th>Control Parameters</th>
<th>Occupational Exposure Limits</th>
<th>None of the components have assigned exposure limits.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appropriate Engineering Controls</td>
<td>Provide adequate ventilation to maintain worker exposure below levels that are irritating to the eyes. Administrative (procedure) controls and use of personal protective equipment may also be required.</td>
<td></td>
</tr>
</tbody>
</table>
Individual protection measures, such as personal protective equipment

**General information:** Personal protective equipment (PPE) should not be considered a long-term solution to exposure control. Employer programs to properly select, fit, maintain and train employees to use equipment must accompany PPE. Consult a competent industrial hygiene resource, the PPE manufacturer's recommendation, and/or applicable regulations to determine hazard potential and ensure adequate protection.

**Eye/face protection:** Chemical goggles are recommended. If splashing is possible use chemical goggles and a full-face shield. Carefully rinse off contaminated goggles before removing.

**Skin Protection**
- **Hand Protection:** Chemical resistant gloves.
- **Other:** Wear chemical-resistant safety footwear with good traction to prevent slipping. Wear work clothes with long sleeves and pants. If splashing or contact with liquid material is possible, consider the need for an impervious overcoat.

**Respiratory Protection:** None under normal conditions.

**Hygiene measures:** Ensure that eyewash stations and safety showers are in close proximity to work locations.

### 9. Physical and chemical properties

**Appearance**
- **Physical state:** liquid
- **Form:** liquid
- **Color:** White/clear
- **Odor:** Odorless
- **Odor threshold:** No data available.
- **pH:** 6.5 - 8.5
- **Melting point/freezing point:** -10 °C (14 °F)
- **Initial boiling point and boiling range:** > 100 °C (> 212 °F)
- **Flash Point:** not applicable
- **Evaporation rate:** No data available.
- **Flammability (solid, gas):** not applicable

**Upper/lower limit on flammability or explosive limits**
- **Flammability limit - upper (%):** not applicable
- **Flammability limit - lower (%):** not applicable
- **Vapor pressure:** not applicable
- **Vapor density:** not applicable
- **Density:** 1,200 kg/m³
- **Relative density:** 1.2 (15 °C (59 °F))
- **Solubility(ies)**
  - **Solubility in water:** Miscible with water.
- **Solubility (other):** No data available.
- **Partition coefficient (n-octanol/water):** No data available.
- **Auto-ignition temperature:** not applicable
- **Decomposition temperature:** not applicable
- **Viscosity:** No data available.
10. Stability and reactivity

Reactivity: Product is slowly corrosive to metal.

Chemical Stability: Material is stable under normal conditions.

Possibility of hazardous reactions: None known.

Conditions to avoid: None known.

Incompatible Materials: In presence of air, liquid contact or mists will slowly corrode most metals.

Hazardous Decomposition Products: None known.

11. Toxicological information

Information on likely routes of exposure

Ingestion: Ingestion of large quantities of this product may cause irritation of the gastrointestinal tract.

Inhalation: May be irritating to the respiratory tract.

Skin Contact: Skin contact may lead to skin dryness; mild skin irritant.

Eye contact: Causes serious eye irritation.

Symptoms related to the physical, chemical and toxicological characteristics

Ingestion: If very large quantities ingested - nausea, vomiting, dehydration, diarrhea, edema.

Inhalation: Coughing, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

Skin Contact: Dry skin.

Eye contact: Eye irritation.

Information on toxicological effects

Acute toxicity (list all possible routes of exposure)

Oral Product: Not classified for acute toxicity based on available data.

Dermal Product: Not classified for acute toxicity based on available data.

Inhalation Product: Not classified for acute toxicity based on available data.

Repeated dose toxicity Product: No data available.

Skin Corrosion/Irritation Product: No data available.

Specified substance(s): Sodium chloride Mild.
Serious Eye Damage/Eye Irritation
Product: Causes serious eye irritation.

Respiratory or Skin Sensitization
Product: No data available.

Carcinogenicity
Product: No data available.

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:
No carcinogenic components identified

US. National Toxicology Program (NTP) Report on Carcinogens:
No carcinogenic components identified

No carcinogenic components identified

Germ Cell Mutagenicity
In vitro
Product: No data available.
In vivo
Product: No data available.

Reproductive toxicity
Product: No data available.

Specific Target Organ Toxicity - Single Exposure
Product: No data available.

Specific Target Organ Toxicity - Repeated Exposure
Product: No data available.

Aspiration Hazard
Product: No data available.

Other effects: No data available.

12. Ecological information

Ecotoxicity:

Acute hazards to the aquatic environment:

Fish
Product: No data available.

Specified substance(s):
Sodium chloride
LC 50 (Rainbow trout, donaldson trout (Oncorhynchus mykiss), 96 h): 4,747 - 7,824 mg/l Mortality

Aquatic Invertebrates
Product: No data available.
Specified substance(s):
Sodium chloride
EC 50 (Water flea (Daphnia magna), 48 h): 340.7 - 469.2 mg/l Intoxication

Toxicity to Aquatic Plants
Product: No data available.
Chronic hazards to the aquatic environment:

Fish
Product: No data available.

Aquatic Invertebrates
Product: No data available.

Toxicity to Aquatic Plants
Product: No data available.

Persistence and Degradability

Biodegradation
Product: No data available.

BOD/COD Ratio
Product: No data available.

Bioaccumulative potential

Bioconcentration Factor (BCF)
Product: No data available.

Partition Coefficient n-octanol / water (log Kow)
Product: No data available.

Mobility in soil: When spilled onto soil, brine will behave similar to spilled water. Sodium chloride may leach from soil into groundwater.

Other adverse effects: A concentrated brine solution (~26% sodium chloride) will dehydrate animal and vegetative species.

13. Disposal considerations

Disposal instructions: Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal. The use, mixing or processing of this product with other materials may alter its properties or hazards.

Contaminated Packaging: Check local, federal and state environmental regulations prior to disposal.

14. Transport information

DOT
Not regulated.

15. Regulatory information

US Federal Regulations

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
None present or none present in regulated quantities.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)
None present or none present in regulated quantities.

CERCLA Hazardous Substance List (40 CFR 302.4):
None present or none present in regulated quantities.
Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories
Serious eye damage or eye irritation

SARA 302 Extremely Hazardous Substance
None present or none present in regulated quantities.

SARA 304 Emergency Release Notification
None present or none present in regulated quantities.

SARA 311/312 Hazardous Chemical

<table>
<thead>
<tr>
<th>Chemical Identity</th>
<th>Threshold Planning Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium chloride</td>
<td>10000 lbs</td>
</tr>
</tbody>
</table>

SARA 313 (TRI Reporting)
None present or none present in regulated quantities.

Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3)
None present or none present in regulated quantities.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):
None present or none present in regulated quantities.

US State Regulations

US. California Proposition 65
No ingredient regulated by CA Prop 65 present.

US. New Jersey Worker and Community Right-to-Know Act
No ingredient regulated by NJ Right-to-Know Law present.

US. Pennsylvania RTK - Hazardous Substances
No ingredient regulated by PA Right-to-Know Law present.

Inventory Status
Canada DSL Inventory List: On or in compliance with the inventory
US TSCA Inventory: On or in compliance with the inventory

16. Other information, including date of preparation or last revision

Issue Date: 11/30/2017
Revision Information: 11/30/2017: SDS Update – phrasing updates, density added
6/2/2016: SDS Update
Version #: 6.2
Abbreviations and acronyms:

ACGIH = American Conference of Governmental Industrial Hygienists; BOD = Biochemical Oxygen Demand; C = Ceiling; CAS = Chemical Abstracts Service; CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act; CFR = Code of Federal Regulations; COD = Chemical Oxygen Demand; DOT = Department of Transportation; DSL = Domestic Substances List; EC50 = Effective Concentration 50%; EPA = Environmental Protection Agency; GHS = Globally Harmonized System for the Classification and Labelling of Chemicals; HPV = High Production Volume; IARC = International Agency for Research on Cancer; LC50 = Lethal Concentration 50%; LD50 = Lethal Dose 50%; NFPA = National Fire Protection Association; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; PEL = Permissible Exposure Limit; PMCC = Pensky-Martens Closed Cup; PPE = Personal Protective Equipment; RCRA = Resource Conservation and Recovery Act; SARA = Superfund Amendments and Reauthorization Act; SCBA = Self Contained Breathing Apparatus; SDS = Safety Data Sheet; STEL = Short Term Exposure Limit; TLV = Threshold Limit Value; TSCA = Toxic Substances Control Act; TWA = Time Weighted Average

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