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

Product Identifier
Product Name: Blockade

Other means of identification
Item#: 0142
Synonyms: None

Recommended use of the chemical and restrictions on use
Recommended use: Barrier Teat Dip, Restricted to professional users
Uses advised against: No information available

Details of the supplier of the safety data sheet
Supplier: DeLaval Manufacturing
11100 N. Congress Ave.
Kansas City, MO 64153
Tel: 816-891-7700, 8am – 5pm M-F

Emergency Telephone Number
Chemtrec 1-800-424-9300

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status
This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.122)

Label Elements

Emergency Overview

Appearance: Brown  Physical state: Liquid  Odor: No information available

Hazards not otherwise classified (HNOC)
Other Information
* Harmful to aquatic life
Unknown Acute Toxicity 0.35% of the mixture consists of ingredient(s) of unknown toxicity

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS-No</th>
<th>Weight %</th>
<th>Trade Secret</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iodine</td>
<td>7553-56-2</td>
<td>0 - 10%</td>
<td>*</td>
</tr>
<tr>
<td>Glycerol</td>
<td>56-81-5</td>
<td>10 - 20%</td>
<td>*</td>
</tr>
</tbody>
</table>

* The exact percentage (concentration) of composition has been withheld as a trade secret.
4. FIRST AID MEASURES

FIRST AID MEASURES

Eye contact  Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If eye irritation persists, get medical advice/attention.

Skin contact  Wash off with plenty of water.

Inhalation  Move to fresh air.

Ingestion  Call a physician or Poison Control Centre immediately.

Most important symptoms and effects, both acute and delayed

Most Important Symptoms and Effects  According to our experience and to the information provided to us, the product does not have any harmful effects if it is used and handled as specified.

Indication of any immediate medical attention and special treatment needed

Notes to Physician  Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media  Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media  No information available.

Specific hazards arising from the chemical  No information available.

Protective Equipment and Precautions for Firefighters  As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures  Avoid contact with eyes.

Environmental Precautions  Prevent further leakage or spillage if safe to do so. Do not flush into surface water or sanitary sewer system.

Methods and material for containment and cleaning up  Soak up with inert absorbent material. Sweep up and shovel into suitable containers for disposal.

7. HANDLING AND STORAGE

Precautions for Safe Handling

Handling  Handle in accordance with good industrial hygiene and safety practice. Avoid contact with eyes.

Conditions for safe storage, including any incompatibilities

Storage  Keep containers tightly closed in a dry, cool and well-ventilated place. Do not freeze. Freezing will affect the physical condition but will not damage the material. Thaw and mix before using.

Incompatible Materials  strong oxidizing agents, strong acids, strong bases
8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Keep out of the reach of children

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iodine</td>
<td>TWA: 0.01 ppm STEL: 0.1 ppm</td>
<td>Ceiling: 0.1 ppm</td>
<td>2 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ceiling: 1 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Glycerol</td>
<td>TWA: 10 mg/m³ TWA: 5 mg/m³ TWA:15 mg/m³</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Appropriate engineering controls

Engineering Controls
Ensure adequate ventilation, especially in confined areas.

Individual protection measures, such as personal protective equipment

Eye/face Protection
If splashes are likely to occur, wear: Safety glasses with side-shields.

Skin and body protection
No special technical protective measures are necessary.

Respiratory Protection
Ensure adequate ventilation, especially in confined areas.

General Hygiene Considerations
Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state          | Liquid          |
Appearance              | Brown           |
Color                   | No information available |
Odor                    | No information available |
Odor Threshold          | No information available |

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Remarks/ Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>4 - 6</td>
<td>No information available</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Boiling Point/Range</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Flash Point</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Flammability Limit in Air</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper flammability limit</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Lower flammability limit</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Vapor Density</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>1.05</td>
<td></td>
</tr>
<tr>
<td>Water Solubility</td>
<td>soluble</td>
<td></td>
</tr>
<tr>
<td>Solubility in other solvents</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Autoignition Temperature</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Viscosity of Product</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Dynamic viscosity</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Explosive Properties</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Oxidizing Properties</td>
<td>No information available</td>
<td></td>
</tr>
</tbody>
</table>

Other information
10. STABILITY AND REACTIVITY

Reactivity
No data available

Chemical Stability
Stable under normal conditions.

Possibility of hazardous reactions
None known.

Conditions to Avoid
Extremes of temperature and direct sunlight.

Incompatible Materials
Strong oxidizing agents, strong acids, strong bases

Hazardous decomposition products
None known.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

<table>
<thead>
<tr>
<th>Route</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inhalation</td>
<td>No data available.</td>
</tr>
<tr>
<td>Eye contact</td>
<td>No data available.</td>
</tr>
<tr>
<td>Skin contact</td>
<td>No data available.</td>
</tr>
<tr>
<td>Ingestion</td>
<td>No data available.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>LD50 Oral</th>
<th>LD50 Dermal</th>
<th>LC50 Inhalation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iodine (7559-56-2)</td>
<td>14000 mg/kg</td>
<td>-</td>
<td>137 ppm 4.588 mg/L</td>
</tr>
<tr>
<td>Glycerol (56-81-5)</td>
<td>= 12600 mg/kg (Rat)</td>
<td>21900 mg/kg (Rat)</td>
<td>&gt; 570 mg/m³ (Rat) 1 h</td>
</tr>
</tbody>
</table>

Information on toxicological effects

Symptoms
No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Sensitization
No information available.

Mutagenic effects
No information available.

Carcinogenicity
No information available.

Reproductive Effects
No information available.

STOT - single exposure
No information available.

STOT-repeated exposure
No information available.

Aspiration Hazard
No information available.

Numerical measures of toxicity - Product Information

Unknown Acute Toxicity
0.35% of the mixture consists of ingredient(s) of unknown toxicity
The following values are calculated based on chapter 3.1 of the GHS document.

12. ECOLOGICAL INFORMATION

Ecotoxicity
5.23% of the mixture consists of components(s) of unknown hazards to the aquatic environment

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Algae/aquatic plants</th>
<th>Fish</th>
<th>Microtox</th>
<th>Waterflea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iodine</td>
<td>-</td>
<td>LC50 (96 h) 0.53 mg/L</td>
<td>-</td>
<td>LC50 (48 h) 0.16 mg/L</td>
</tr>
<tr>
<td>Glycerol</td>
<td>-</td>
<td>51 - 57: 96 h Oncorhynchus mykiss mL/L LC50 static</td>
<td>-</td>
<td>500: 24 h Daphnia magna mg/L EC50</td>
</tr>
</tbody>
</table>

Persistence and degradability
No information available.

Bioaccumulation/Accumulation
No information available.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Partition coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycerol 56-81-5</td>
<td>-1.76</td>
</tr>
</tbody>
</table>

Other adverse effects
No information available

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste Disposal Method Dispose of in accordance with local regulations.

Contaminated Packaging Empty containers should be taken for local recycling, recovery or waste disposal.

14. TRANSPORT INFORMATION

DOT Not regulated

15. REGULATORY INFORMATION

International Inventories

<table>
<thead>
<tr>
<th>Inventory</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSCA</td>
<td>TSCA</td>
</tr>
<tr>
<td>DSL/NDSL</td>
<td>DSL/NDSL</td>
</tr>
<tr>
<td>EINECS/ELINCS</td>
<td>Does not Comply</td>
</tr>
<tr>
<td>ENCS</td>
<td>Does not Comply</td>
</tr>
<tr>
<td>CHINA</td>
<td>Complies</td>
</tr>
<tr>
<td>KECL</td>
<td>Complies</td>
</tr>
<tr>
<td>PICCS</td>
<td>Complies</td>
</tr>
<tr>
<td>AICS</td>
<td>Complies</td>
</tr>
</tbody>
</table>

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

State Regulations

California Proposition 65
This product does not contain any Proposition 65 chemicals.

U.S. EPA Label information
EPA Pesticide registration number Not applicable

16. OTHER INFORMATION

<table>
<thead>
<tr>
<th>NFPA</th>
<th>Health</th>
<th>Flammability</th>
<th>Instability</th>
<th>Physical Hazard</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>0</td>
<td>0</td>
<td>-</td>
</tr>
</tbody>
</table>

Preparation Date: 05-Aug-2008
Revision Date: 29-May-2015
Revision Note
No information available

Disclaimer
The information provided on this MSDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS