1. Identification


Other means of identification: None.

Recommended use: Flow Improver.

Recommended restrictions: Other uses are not recommended unless an assessment demonstrates potential exposures will be controlled.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer: LiquidPower Specialty Products Inc.

Address: One BriarLake Plaza
2000 W Sam Houston Pkwy S
Suite 400
Houston, TX 77042

Telephone: 1.713.339.8703 or 1.800.897.2774

E-mail: SDS@LiquidPower.com

Website: www.LiquidPower.com

Emergency telephone: +1 703.527.3887
+1 800.424.9300

2. Hazard(s) identification

Physical hazards: Not classified.

Health hazards: Specific target organ toxicity following repeated exposure Category 2 (Kidney)

Environmental hazards: Hazardous to the aquatic environment, long-term hazard Category 3

Label elements

Signal word: Warning

Hazard statement: May cause damage to organs (Kidney) through prolonged or repeated exposure. Harmful to aquatic life with long lasting effects.

Precautionary statements

Prevention: Do not breathe mist or vapour. Avoid release to the environment.

Response: Get medical advice/attention if you feel unwell.

Storage: Store away from incompatible materials.

Disposal: Dispose of contents/container in accordance with local/regional/national/international regulations.

Other hazards: None known.

Supplemental information: None.

3. Composition/information on ingredients

Mixtures

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylene glycol</td>
<td>107-21-1</td>
<td>10-30</td>
</tr>
<tr>
<td>C11-C15 Hydrocarbon Solvent 1*</td>
<td>Proprietary*</td>
<td>3-7</td>
</tr>
<tr>
<td>C11-C15 Hydrocarbon Solvent 2*</td>
<td>Proprietary*</td>
<td>3-7</td>
</tr>
</tbody>
</table>
Alcohols, C12 - C14 secondary, ethoxylated  
84133-50-6  
Alcohol Ethoxylate 1* Proprietary* 1-5  
Alcohol Ethoxylate 2* Proprietary* 1-5

**Composition comments**
Only one of the listed hydrocarbon solvents will be included in the product. Only one of the alcohol ethoxylates will be included in the product.
All concentrations are in percent by weight. Components not listed are either non-hazardous or are below reportable limits. *See Section 15 for HMIRA status.

### 4. First-aid measures

**Inhalation**
Move to fresh air. Call a physician if symptoms develop or persist.

**Skin contact**
Wash off with soap and water. Get medical attention if irritation develops and persists.

**Eye contact**
Rinse with water. Get medical attention if irritation develops and persists.

**Ingestion**
Rinse mouth. Get medical attention if symptoms occur.

**Most important symptoms/effects, acute and delayed**
Oedema. Prolonged exposure may cause chronic effects.

**Indication of immediate medical attention and special treatment needed**
Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.

**General information**
If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

### 5. Fire-fighting measures

**Suitable extinguishing media**
Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).

**Unsuitable extinguishing media**
Do not use water jet as an extinguisher, as this will spread the fire.

**Specific hazards arising from the chemical**
During fire, gases hazardous to health may be formed.

**Special protective equipment and precautions for firefighters**
Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

**Fire fighting equipment/instructions**
Move containers from fire area if you can do so without risk.

**Specific methods**
Use standard firefighting procedures and consider the hazards of other involved materials.

**General fire hazards**
No unusual fire or explosion hazards noted.

### 6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures**
Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist or vapour. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

**Methods and materials for containment and cleaning up**
This product is miscible in water. Prevent product from entering drains.

**Large Spills**
Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.

**Small Spills**
Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

**Environmental precautions**
Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

### 7. Handling and storage

**Precautions for safe storage**
Do not breathe mist or vapour. Provide adequate ventilation. Wear appropriate personal protective equipment. Avoid release to the environment. Observe good industrial hygiene practices.
Conditions for safe storage, including any incompatibilities

Store in original tightly closed container. Store away from incompatible materials (see section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

**US. ACGIH Threshold Limit Values**

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>C11-C15 Hydrocarbon Solvent (CAS Proprietary)</td>
<td>TWA</td>
<td>200 mg/m³</td>
<td>Non-aerosol.</td>
</tr>
<tr>
<td>Ethylene glycol (CAS 107-21-1)</td>
<td>Ceiling</td>
<td>100 mg/m³</td>
<td>Aerosol</td>
</tr>
</tbody>
</table>

**Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2)**

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>C11-C15 Hydrocarbon Solvent (CAS Proprietary)</td>
<td>TWA</td>
<td>200 mg/m³</td>
<td>Vapour.</td>
</tr>
<tr>
<td>Ethylene glycol (CAS 107-21-1)</td>
<td>Ceiling</td>
<td>100 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

**Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended)**

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>C11-C15 Hydrocarbon Solvent (CAS Proprietary)</td>
<td>TWA</td>
<td>200 mg/m³</td>
<td>Non-aerosol.</td>
</tr>
<tr>
<td>Ethylene glycol (CAS 107-21-1)</td>
<td>Ceiling</td>
<td>100 mg/m³</td>
<td>Aerosol</td>
</tr>
<tr>
<td></td>
<td>STEL</td>
<td>50 ppm</td>
<td>Vapour.</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>20 mg/m³</td>
<td>Particulate.</td>
</tr>
</tbody>
</table>

**Canada. Manitoba OELs (Reg. 217/2006, The Workplace Safety And Health Act)**

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>C11-C15 Hydrocarbon Solvent (CAS Proprietary)</td>
<td>TWA</td>
<td>200 mg/m³</td>
<td>Non-aerosol.</td>
</tr>
<tr>
<td>Ethylene glycol (CAS 107-21-1)</td>
<td>Ceiling</td>
<td>100 mg/m³</td>
<td>Aerosol</td>
</tr>
</tbody>
</table>

**Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents)**

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>C11-C15 Hydrocarbon Solvent (CAS Proprietary)</td>
<td>TWA</td>
<td>200 mg/m³</td>
<td>Non-aerosol.</td>
</tr>
<tr>
<td>Ethylene glycol (CAS 107-21-1)</td>
<td>Ceiling</td>
<td>100 mg/m³</td>
<td>Aerosol</td>
</tr>
</tbody>
</table>

**Canada. Quebec OELs. (Ministry of Labour - Regulation Respecting the Quality of the Work Environment)**

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylene glycol (CAS 107-21-1)</td>
<td>Ceiling</td>
<td>127 mg/m³</td>
<td>Vapor and mist.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>50 ppm</td>
<td>Vapor and mist.</td>
</tr>
</tbody>
</table>

**Canada. Saskatchewan OELs (Occupational Health and Safety Regulations, 1996, Table 21)**

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylene glycol (CAS 107-21-1)</td>
<td>Ceiling</td>
<td>100 mg/m³</td>
<td>Aerosol</td>
</tr>
</tbody>
</table>

**Biological limit values**

No biological exposure limits noted for the ingredient(s).

**Exposure guidelines**

**Canada - Alberta OELs: Skin designation**

- C11-C15 Hydrocarbon Solvent (CAS Proprietary) Can be absorbed through the skin.

**Canada - British Columbia OELs: Skin designation**

- C11-C15 Hydrocarbon Solvent (CAS Proprietary) Can be absorbed through the skin.
Canada - Manitoba OELs: Skin designation
C11-C15 Hydrocarbon Solvent (CAS Proprietary) Can be absorbed through the skin.

Canada - Ontario OELs: Skin designation
C11-C15 Hydrocarbon Solvent (CAS Proprietary) Can be absorbed through the skin.

Canada - Saskatchewan OELs: Skin designation
C11-C15 Hydrocarbon Solvent (CAS Proprietary) Can be absorbed through the skin.

US ACGIH Threshold Limit Values: Skin designation
C11-C15 Hydrocarbon Solvent (CAS Proprietary) Can be absorbed through the skin.

Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Appropriate engineering controls

Individual protection measures, such as personal protective equipment
Eye/face protection
Wear safety glasses with side shields (or goggles). Wear face shield if there is risk of splashes.

Skin protection
Hand protection
Wear appropriate chemical resistant gloves.

Other
Normal work clothing (long sleeved shirts and long pants) is recommended.

Respiratory protection
In case of accident and/or inadequate ventilation, use respiratory protection with organic vapour cartridge.

General hygiene considerations
Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance
Physical state Liquid.
Form Liquid.
Colour White.
Odour Mild petroleum odour.
Odour threshold No data available.
pH 6 - 8
Melting point/freezing point -22.78 °C (-9 °F)
Initial boiling point and boiling range 105.56 °C (222 °F)
Flash point > 93.3 °C (> 200.0 °F) Pensky-Martens Closed Cup ASTM D93, EPA 1010
Evaporation rate Same as water.
Flammability (solid, gas) Not applicable.

Upper/lower flammability or explosive limits
Flammability limit - lower (%) Not available.
Flammability limit - upper (%) Not available.
Explosive limit - lower (%) No data available.
Explosive limit – upper (%) No data available.

Vapour pressure 24 mm Hg @ 100°F / 37.8°C (estimate)
Vapour density < 1
Relative density 1 - 1.02 @ 68°F (20°C)
Solubility(ies)
Solubility (water) Disperses completely.
Partition coefficient (n-octanol/water) Not available.
Auto-ignition temperature No data available.
Decomposition temperature: No data available.

Viscosity: 85 cP @ 511s⁻¹ @ 77°F (Non-newtonian).

Other information:
- Bulk density: Not determined.
- Explosive properties: Not explosive.
- Oxidising properties: Not oxidising.
- Particle size: Not applicable.
- Percent volatile: No data available.

10. Stability and reactivity

Reactivity: The product is stable and non-reactive under normal conditions of use, storage and transport.

Chemical stability: Material is stable under normal conditions.

Possibility of hazardous reactions: No dangerous reaction known under conditions of normal use.

Conditions to avoid: Avoid temperatures exceeding the flash point. Contact with incompatible materials.

Incompatible materials: Strong oxidising agents.

Hazardous decomposition products: No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure:
- Inhalation: No adverse effects due to inhalation are expected.
- Skin contact: No adverse effects due to skin contact are expected.
- Eye contact: Direct contact with eyes may cause temporary irritation.
- Ingestion: Expected to be a low ingestion hazard.


Information on toxicological effects:
- Acute toxicity: Not expected to be acutely toxic.

<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylene glycol (CAS 107-21-1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dermal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LD50</td>
<td>Rabbit</td>
<td>9530 mg/kg</td>
</tr>
<tr>
<td>Sodium lauryl sulfate (CAS 151-21-3)</td>
<td>oral</td>
<td></td>
</tr>
<tr>
<td>Acute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oral</td>
<td>Rat</td>
<td>1200 mg/kg</td>
</tr>
<tr>
<td>LD50</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Skin corrosion/irritation: No information available on the mixture. However, none of the components are classified in respect of this hazard (or are present at a level below the concentration threshold for classification).

Serious eye damage/eye irritation: No information available on the mixture. However, none of the components are classified in respect of this hazard (or are present at a level below the concentration threshold for classification).

Respiratory or skin sensitisation:
- Canada - Alberta OELs: Irritant
  - Ethylene glycol (CAS 107-21-1): Irritant
  - No information available on the mixture. However, none of the components are classified in respect of this hazard (or are present at a level below the concentration threshold for classification).
Germ cell mutagenicity

No information available on the mixture. However, none of the components are classified in respect of this hazard (or are present at a level below the concentration threshold for classification).

Carcinogenicity

No information available on the mixture. However, none of the components are classified in respect of this hazard (or are present at a level below the concentration threshold for classification).

ACGIH Carcinogens

- C11-C15 Hydrocarbon Solvent (CAS Proprietary): A3 Confirmed animal carcinogen with unknown relevance to humans.
- Ethylene glycol (CAS 107-21-1): A4 Not classifiable as a human carcinogen.

Canada - Manitoba OELs: carcinogenicity

- C11-C15 Hydrocarbon Solvent (CAS Proprietary): Confirmed animal carcinogen with unknown relevance to humans.
- Ethylene glycol (CAS 107-21-1): Not classifiable as a human carcinogen.

Reproductive toxicity

Several studies have shown that Ethylene glycol has caused fetal malformations and fetotoxicity at doses producing no maternal toxicity.

Specific target organ toxicity - single exposure

No information available on the mixture. However, none of the components are classified in respect of this hazard (or are present at a level below the concentration threshold for classification).

Specific target organ toxicity - repeated exposure

May cause damage to organs (Kidney) through prolonged or repeated exposure.

Aspiration hazard

Not an aspiration hazard.

Chronic effects

May cause damage to organs through prolonged or repeated exposure.

Further information

Ingestion of ethylene glycol may result in nausea, vomiting, abdominal cramps, blindness, liver damage, irritation, reproductive effects, nerve damage, convulsions, oedema of the lung, cardiopulmonary effects (metabolic acidosis), pneumonia and kidney failure which could result in death. The single lethal dose for humans is about 100 ml. Inhalation of high levels of vapour or mists for prolonged periods of time may also result in toxic effects.

12. Ecological information

Ecotoxicity

Harmful to aquatic life with long lasting effects.

<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylene glycol (CAS 107-21-1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Aquatic</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crustacea</td>
<td>EC50</td>
<td>Ceriodaphnia dubia</td>
</tr>
<tr>
<td>Fish</td>
<td>LC50</td>
<td>Oncorhynchus mykiss</td>
</tr>
<tr>
<td>Chronic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crustacea</td>
<td>NOEC</td>
<td>Ceriodaphnia dubia</td>
</tr>
<tr>
<td>Fish</td>
<td>NOEC</td>
<td>Oncorhynchus mykiss</td>
</tr>
<tr>
<td>Sodium lauryl sulfate (CAS 151-21-3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Aquatic</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Algae</td>
<td>EC50</td>
<td>Scenedesmus subspicatus</td>
</tr>
<tr>
<td>Crustacea</td>
<td>EC50</td>
<td>Ceriodaphnia dubia</td>
</tr>
<tr>
<td>Fish</td>
<td>LC50</td>
<td>Lepomis macrochirus</td>
</tr>
</tbody>
</table>

Persistence and degradability

Not expected to persist in the environment if spilled or released.

Bioaccumulative potential

The product is not expected to bioaccumulate.

Partition coefficient n-octanol / water (log Kow)

- Ethylene glycol (CAS 107-21-1): -1.36
- Sodium lauryl sulfate (CAS 151-21-3): 1.6

Mobility in soil

Expected to have low mobility in soil and sediments with adsorption being the predominant physical process.

Other adverse effects

No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.
13. Disposal considerations

Disposal instructions
Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations. Waste material from this product should not be exposed to waste streams or sumps containing any concentration of hydrocarbon. This will cause formation of gelled substances that may plug pipes.

Local disposal regulations
Dispose in accordance with all applicable regulations.

Hazardous waste code
The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products
Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging
Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

TDG
Not regulated as dangerous goods.

IATA
Not regulated as dangerous goods.

IMDG
Not regulated as dangerous goods.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not established.

15. Regulatory information

Canadian regulations
This product has been classified in accordance with the hazard criteria of the HPR and the SDS contains all the information required by the HPR.

HMIRA Registry Number 12272

WHMIS Trade Secret Registration Filing Date: 2018-10-24

WHMIS Trade Secret Decision Granted Date: YYYY-MM-DD

Controlled Drugs and Substances Act
Not regulated.

Export Control List (CEPA 1999, Schedule 3)
Not listed.

Greenhouse Gases
Not listed.

Precursor Control Regulations
Not regulated.

International regulations

Stockholm Convention
Not applicable.

Rotterdam Convention
Not applicable.

Kyoto protocol
Not applicable.

Montreal Protocol
Not applicable.

Basel Convention
Not applicable.

International Inventories

<table>
<thead>
<tr>
<th>Country(s) or region</th>
<th>Inventory name</th>
<th>On inventory (yes/no)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Australian Inventory of Chemical Substances (AICS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Country(s) or region</td>
<td>Inventory name</td>
<td>On inventory (yes/no)*</td>
</tr>
<tr>
<td>----------------------</td>
<td>--------------------------------------------------------------------------------</td>
<td>-----------------------</td>
</tr>
<tr>
<td>Canada</td>
<td>Domestic Substances List (DSL)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Non-Domestic Substances List (NDSL)</td>
<td>Yes</td>
</tr>
<tr>
<td>China</td>
<td>Inventory of Existing Chemical Substances in China (IECSC)</td>
<td>Yes</td>
</tr>
<tr>
<td>Europe</td>
<td>European Inventory of Existing Commercial Chemical Substances (EINECS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Europe</td>
<td>European List of Notified Chemical Substances (ELINCS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Japan</td>
<td>Inventory of Existing and New Chemical Substances (ENCS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Korea</td>
<td>Existing Chemicals List (ECL)</td>
<td>Yes</td>
</tr>
<tr>
<td>New Zealand</td>
<td>New Zealand Inventory</td>
<td>Yes</td>
</tr>
<tr>
<td>Philippines</td>
<td>Philippine Inventory of Chemicals and Chemical Substances (PICCS)</td>
<td>Yes</td>
</tr>
<tr>
<td>United States &amp; Puerto Rico</td>
<td>Toxic Substances Control Act (TSCA) Inventory</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

### 16. Other information

**Issue date**: 25-April-2017  
**Revision date**: 24-October-2018  
**Version No.**: 03

**List of abbreviations**
- LD50: Lethal Dose, 50%.
- LC50: Lethal Concentration, 50%.
- EC50: Effective Concentration, 50%.
- NOEC: No observed effect concentration.
- PBT: Persistent, bioaccumulative, toxic.
- vPvB: very Persistent, very Bioaccumulative.
- TWA: time weighed average.
- STEL: Short term exposure limit.

**References**
- HSDB® - Hazardous Substances Data Bank
- IARC Monographs. Overall Evaluation of Carcinogenicity

**Disclaimer**
LiquidPower Specialty Products Inc. cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user’s responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.