SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier
Trade name or designation of the mixture: LP™ 200W Flow Improver
Registration number: If a registration number is not provided, then the substance is either exempt or still within the transition period for registration.
Synonyms: None.
Issue date: 11-May-2017
Version number: 03
Revision date: 18-September-2018
Supersedes date: 11-May-2017

1.2. Relevant identified uses of the substance or mixture and uses advised against
Identified uses: Flow Improver.
Uses advised against: None known.

1.3. Details of the supplier of the safety data sheet
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 (USA)
+(44)-870-8200418 & 1 703-527-3887

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture
The mixture has been assessed and/or tested for its physical, health and environmental hazards and the following classification applies.

Classification according to Regulation (EC) No 1272/2008 as amended

<table>
<thead>
<tr>
<th>Health hazards</th>
<th>Category 2 (kidneys)</th>
<th>H373 - May cause damage to organs (kidneys) through prolonged or repeated exposure.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific target organ toxicity - repeated exposure</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Hazard summary: Occupational exposure to the substance or mixture may cause adverse health effects. May cause damage to organs (kidney) through prolonged or repeated exposure.

2.2. Label elements
Label according to Regulation (EC) No. 1272/2008 as amended
Contains: Ethylene glycol

Signal word: Warning
Hazard statements:
H373 - May cause damage to organs (kidneys) through prolonged or repeated exposure.

Precautionary statements
Prevention:
P260
Do not breathe vapour/spray.
P264
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.

Get medical advice/attention if you feel unwell.

Not assigned.

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

None.

This mixture does not contain substances assessed to be vPvB / PBT according to Regulation (EC) No 1907/2006, Annex XIII.

### SECTION 3: Composition/information on ingredients

#### 3.2. Mixtures

**General information**

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>%</th>
<th>CAS-No. / EC No.</th>
<th>REACH Registration No.</th>
<th>Index No.</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylene glycol</td>
<td>10 - 15</td>
<td>107-21-1</td>
<td>01-2119456816-28-0093</td>
<td>603-027-00-1</td>
<td>#</td>
</tr>
<tr>
<td></td>
<td></td>
<td>203-473-3</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Classification:** Acute Tox. 4; H302, STOT RE 2; H373

- #: This substance has been assigned Union workplace exposure limit(s).
- All concentrations are in percent by weight. Components not listed are either non-hazardous or are below reportable limits. The full text for all H-statements is displayed in section 16.

### SECTION 4: First aid measures

**General information**

Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

#### 4.1. Description of 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.

#### 4.2. Most important symptoms and effects, both acute and delayed

Direct contact with eyes may cause temporary irritation. Prolonged exposure may cause chronic effects.

#### 4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically. Symptoms may be delayed.

### SECTION 5: Firefighting measures

**General fire hazards**

No unusual fire or explosion hazards noted.

#### 5.1. Extinguishing media

- **Suitable extinguishing media**
  - Water spray. Alcohol resistant foam. Carbon dioxide (CO2).
- **Unsuitable extinguishing media**
  - Do not use water jet as an extinguisher, as this will spread the fire.

#### 5.2. Special hazards arising from the substance or mixture

Closed containers can burst violently when heated, due to excess pressure build-up.

#### 5.3. Advice for firefighters

- **Special protective equipment for firefighters**
  - Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
- **Special fire fighting procedures**
  - Move containers from fire area if you can do it without risk.

**Specific methods**

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

### SECTION 6: Accidental release measures

#### 6.1. Personal precautions, protective equipment and emergency procedures

- **For non-emergency personnel**
  - Use personal protection recommended in Section 8 of the SDS. Avoid contact with skin and eyes. Keep unnecessary personnel away. In case of spills, beware of slippery floors and surfaces. Local authorities should be advised if significant spillages cannot be contained.
- **For emergency responders**
  - Keep unnecessary personnel away.
6.2. Environmental precautions

Prevent further leakage or spillage if safe to do so.

Use water spray to reduce vapours or divert vapour cloud drift.

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.

6.4. Reference to other sections

For personal protection, see section 8 of the SDS. For waste disposal, see section 13 of the SDS.

SECTION 7: Handling and storage

7.1. Preconditions for safe handling

Avoid contact with skin and eyes. Avoid prolonged exposure. Wear appropriate personal protective equipment. Wash thoroughly after handling. Change contaminated clothing. Handle in accordance with good industrial hygiene and safety practices.

7.2. Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Store away from incompatible materials (see section 10 of the SDS). Store away from incompatible materials. Protect against physical damage.

7.3. Specific end use(s)

Flow Improver.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

<table>
<thead>
<tr>
<th>UK. EH40 Workplace Exposure Limits (WELs) Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylene glycol (CAS 107-21-1)</td>
<td>STEL</td>
<td>104 mg/m3</td>
<td>Vapour.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>40 ppm</td>
<td>Vapour.</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>52 mg/m3</td>
<td>Vapour.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10 mg/m3</td>
<td>Particulate.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>20 ppm</td>
<td>Vapour.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylene glycol (CAS 107-21-1)</td>
<td>STEL</td>
<td>104 mg/m3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>40 ppm</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>52 mg/m3</td>
</tr>
</tbody>
</table>

Biological limit values

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

Recommended monitoring procedures

Follow standard monitoring procedures.

Derived no effect levels (DNEls)

Not available.

Predicted no effect concentrations (PNECs)

Not available.

Exposure guidelines

UK EH40 WEL: Skin designation

Ethylene glycol (CAS 107-21-1) Can be absorbed through the skin.

8.2. Exposure controls

Appropriate engineering controls

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.

Individual protection measures, such as personal protective equipment

General information

Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.

Eye/face protection

Wear safety glasses with side shields (or goggles). Wear a face shield if there is a risk of splashing.
Skin protection
- Hand protection Wear appropriate chemical resistant gloves. Nitrile gloves are recommended.
- Other Normal work clothing (long sleeved shirts and long pants) is recommended.
Respiratory protection In case of inadequate ventilation or risk of inhalation of vapours, use suitable respiratory equipment with gas filter (type A2).
Thermal hazards Not applicable.
Hygiene measures 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.

Environmental exposure controls Inform appropriate managerial or supervisory personnel of all environmental releases.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Form</td>
<td>Liquid</td>
</tr>
<tr>
<td>Colour</td>
<td>White</td>
</tr>
<tr>
<td>Odour</td>
<td>Mild</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>Not available</td>
</tr>
<tr>
<td>pH</td>
<td>8 - 11</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>-10 °C (14 °F)</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>105 °C (221 °F)</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not available</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Upper/lower flammability or explosive limits</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flammability limit - lower (%)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flammability limit - upper (%)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>23.9 mmHg (25°C)</td>
</tr>
<tr>
<td>Vapour density</td>
<td>&lt; 1 (Air = 1)</td>
</tr>
<tr>
<td>Relative density</td>
<td>0.87 - 0.99 (15.6°C)</td>
</tr>
<tr>
<td>Solubility(ies)</td>
<td>Disperses completely</td>
</tr>
<tr>
<td>Partition coefficient (n-octanol/water)</td>
<td>Not available</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>Not available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>Not available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>160 cP 511s-1 (Non-Newtonian) (25°C)</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Not explosive</td>
</tr>
<tr>
<td>Oxidising properties</td>
<td>Not oxidising</td>
</tr>
</tbody>
</table>

9.2. Other information

No relevant additional information available.

SECTION 10: Stability and reactivity

10.1. Reactivity The product is stable and non-reactive under normal conditions of use, storage and transport.
10.2. Chemical stability Material is stable under normal conditions.
10.3. Possibility of hazardous reactions No dangerous reaction known under conditions of normal use.
10.4. Conditions to avoid Excessive heat. Contact with incompatible materials.
10.5. Incompatible materials Strong oxidising agents.
10.6. Hazardous decomposition products No hazardous decomposition products are known.

SECTION 11: Toxicological information

General information Occupational exposure to the substance or mixture may cause adverse effects.
Information on likely routes of exposure

Inhalation
No adverse effects due to inhalation are expected.

Skin contact
Prolonged skin contact may cause temporary irritation.

Eye contact
Direct contact with eyes may cause temporary irritation.

Ingestion
Under normal conditions of intended use, this material does not pose a risk to health. However: Ingestion of ethylene glycol may result in nausea, vomiting, abdominal cramps, blindness, liver damage, irritation, reproductive effects, nerve damage, convulsions, edema of the lung, cardiopulmonary effects (metabolic acidosis), pneumonia and kidney failure which could result in death. The single lethal dose of ethylene glycol for humans is about 100 ml. Inhalation of high levels of vapors or mists for prolonged periods of time may also result in toxic effects.

Symptoms
Direct contact with eyes may cause temporary irritation. Prolonged exposure may cause chronic effects.

11.1. Information on toxicological effects

Acute toxicity
May be harmful if swallowed.

<table>
<thead>
<tr>
<th>Components</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylene glycol (CAS 107-21-1)</td>
<td></td>
</tr>
<tr>
<td><strong>Acute</strong></td>
<td></td>
</tr>
<tr>
<td>Dermal LD50</td>
<td>Rabbit 9530 mg/kg</td>
</tr>
<tr>
<td><strong>Skin corrosion/irritation</strong></td>
<td>Prolonged skin contact may cause temporary irritation.</td>
</tr>
<tr>
<td><strong>Serious eye damage/eye irritation</strong></td>
<td>Direct contact with eyes may cause temporary irritation.</td>
</tr>
<tr>
<td><strong>Respiratory sensitisation</strong></td>
<td>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).</td>
</tr>
<tr>
<td><strong>Skin sensitisation</strong></td>
<td>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).</td>
</tr>
<tr>
<td><strong>Germ cell mutagenicity</strong></td>
<td>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).</td>
</tr>
<tr>
<td><strong>Carcinogenicity</strong></td>
<td>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).</td>
</tr>
<tr>
<td><strong>Reproductive toxicity</strong></td>
<td>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).</td>
</tr>
<tr>
<td><strong>Specific target organ toxicity - single exposure</strong></td>
<td>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).</td>
</tr>
<tr>
<td><strong>Specific target organ toxicity - repeated exposure</strong></td>
<td>May cause damage to organs (kidneys) through prolonged or repeated exposure.</td>
</tr>
<tr>
<td><strong>Aspiration hazard</strong></td>
<td>Not an aspiration hazard.</td>
</tr>
<tr>
<td><strong>Mixture versus substance information</strong></td>
<td>No information available.</td>
</tr>
<tr>
<td><strong>Other information</strong></td>
<td>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.</td>
</tr>
</tbody>
</table>

SECTION 12: Ecological information

12.1. Toxicity
The product components are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

<table>
<thead>
<tr>
<th>Components</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylene glycol (CAS 107-21-1)</td>
<td></td>
</tr>
<tr>
<td><strong>Aquatic</strong></td>
<td></td>
</tr>
<tr>
<td>Acute EC50</td>
<td>Ceriodaphnia dubia 10000 mg/l, 48 Hours</td>
</tr>
<tr>
<td>Crustaceae LC50</td>
<td>Oncorhynchus mykiss 24591 mg/l, 96 Hours</td>
</tr>
<tr>
<td>Components</td>
<td>Species</td>
</tr>
<tr>
<td>---------------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td><strong>Chronic</strong></td>
<td></td>
</tr>
<tr>
<td>Crustacea</td>
<td>NOEC</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Fish</td>
<td>NOEC</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

12.2. Persistence and degradability

No data is available on the degradability of this product.

12.3. Bioaccumulative potential

**Partition coefficient**

n-octanol/water (log Kow)

Ethylene glycol (CAS 107-21-1) -1.36

**Bioconcentration factor (BCF)**

Not available.

12.4. Mobility in soil

This product is water soluble and may disperse in soil.

12.5. Results of PBT and vPvB assessment

This mixture does not contain substances assessed to be vPvB / PBT according to Regulation (EC) No 1907/2006, Annex XIII.

12.6. 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.

### SECTION 13: Disposal considerations

13.1. Waste treatment methods

**Residual waste**

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.

**EU waste code**

16 03 05*

This code has been assigned based upon the most common uses for this material and may not reflect contaminants resulting from actual use. Waste generators/ producers are responsible for assessing the actual process used when generating the waste and if it's contaminants in order to assign the proper waste disposal code.

This material, if discarded as produced, should be assigned the following hazardous waste properties: HP 5.

**Disposal methods/information**

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. Collect and reclaim or dispose in sealed containers at licensed waste disposal site.

**Special precautions**

Dispose in accordance with all applicable regulations.

### SECTION 14: Transport information

**ADR**

14.1. - 14.6.: Not regulated as dangerous goods.

**RID**

14.1. - 14.6.: Not regulated as dangerous goods.

**ADN**

14.1. - 14.6.: Not regulated as dangerous goods.

**IATA**

14.1. - 14.6.: Not regulated as dangerous goods.

**IMDG**

14.1. - 14.6.: Not regulated as dangerous goods.

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not established.

### SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

**EU regulations**

- Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I and II, as amended
  - Not listed.
  - Not listed.
Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended
Not listed.
Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended
Not listed.
Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended
Not listed.
Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended
Not listed.
Not listed.
Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA
Not listed.

Authorisations
Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorisation, as amended
Not listed.

Restrictions on use
Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended
Not listed.
Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work, as amended.
Not listed.

Other EU regulations
Directive 2012/18/EU on major accident hazards involving dangerous substances, as amended
Not listed.

Other regulations
The product is classified and labelled in accordance with Regulation (EC) 1272/2008 (CLP Regulation) as amended. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006 as amended.

National regulations
Follow national regulation for work with chemical agents.

National Registration Information - UK OSPAR (Cefas) - 25875
A Chemical Safety Assessment is not required for this substance.

SECTION 16: Other information

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

References
HSDB® - Hazardous Substances Data Bank
IARC Monographs. Overall Evaluation of Carcinogenicity
EPA: AQUIRE database

Information on evaluation method leading to the classification of mixture
The classification for health and environmental hazards is derived by a combination of calculation methods and test data, if available.

Full text of any H-statements not written out in full under Sections 2 to 15
H302 Harmful if swallowed.
H373 May cause damage to organs through prolonged or repeated exposure by ingestion.

Training information
Follow training instructions when handling this material.

Issued by
LiquidPower Specialty Products Inc.
One BriarLake Plaza
2000 West Sam Houston Parkway S
Suite 400
Houston, TX 77042
United States
1.800.897.2774
SDS@LiquidPower.com
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.