SAFETY DATA SHEET

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

Identification of the substance/preparation	**RP™ II Flow Improver**
Use of the substance/preparation	Flow Improver.
Version No.	04
CAS No.	Mixture
Manufacturer	
Manufacturer	LiquidPower Specialty Products Inc.
Address	2103 CityWest Blvd. Suite 1400 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) +1 800.424.9300 (USA)

2. HAZARDS IDENTIFICATION

This preparation is classified as dangerous according to Directive 1999/45/EC and its amendments.

Classification	Xi;R36, R52/53
Physical hazards	Not classified as a physical hazard.
Health hazards	Irritating to eyes.
Environmental hazards	Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS No.	Percent	EC-No.	Classification
Alcohols, C7-9-iso-, C8-rich	68526-83-0	35 - 45	271-231-4	Xi;R36/38, R52/53
Octan-1-ol	111-87-5	2 - 10	203-917-6	Xi;R36, R52/53

Composition comments All concentrations are in percent by weight. Components not listed are either non-hazardous or are below reportable limits.

4. FIRST-AID MEASURES

Inhalation	If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. 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	Flush eyes with water as a precaution. Get medical attention if irritation develops and persists.
Ingestion	Rinse mouth. If ingestion of a large amount does occur, call a poison control centre immediately.
General advice	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 spray. Alcohol resistant foam. Powder. Carbon dioxide (CO2).
Extinguishing media which must not be used for safety reasons	Do not use water jet as an extinguisher, as this will spread the fire.
Unusual fire & explosion hazards	None known.
Specific hazards	During fire, gases hazardous to health may be formed.
Special protective equipment for fire-fighters	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.
Hazardous combustion products	Carbon monoxide and carbon dioxide. During fire, gases hazardous to health may be formed.

6. ACCIDENTAL RELEASE MEASURES

Containment procedures Refer to attached safety data sheets and/or instructions for use. Use water spray to reduce vapours or divert vapour cloud drift. Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Prevent entry into waterwa

Personal precautions Keep unnecessary personnel away. Keep upwind. Keep out of low areas. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. For personal protection, see section 8 of the SDS.

Environmental precautions Avoid release to the environment. Refer to special instructions/safety data sheets. Contact local authorities in case of spillage to drain/aquatic environment. Do not contaminate water. Avoid discharge into drains, water courses or onto the ground.

Methods for cleaning up Should not be released into the environment. Prevent product from entering drains. Do not allow material to contaminate ground water system.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible

7. HANDLING AND STORAGE

Handling Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment. Avoid release to the environment.

Storage Use appropriate container to avoid environmental contamination. Keep containers tightly closed in a dry, cool and well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS).

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational exposure limits

Kenya. OELs. Recommended Limit for Hazardous Chemical Substances (Occupational Safety and Health Act CAP. 514; The Factories and Other Places of Work Rules, May 2007)

Components	Type	Value	Form
Propane -1,2 -diol (CAS 57-55-6)	TWA	470 mg/m3	Total vapour and particulates.
		10 mg/m3	Particulate.
		150 ppm	Total vapour and particulates.

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

Recommended monitoring procedures

Additional exposure data Not available.

Engineering measures 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 expos

Personal protective equipment

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

Hand protection Nitrile, butyl rubber or Viton (fluoroelastomers) gloves are recommended.

Eye protection Wear safety glasses with side shields (or goggles). Wear a face shield if there is a risk of splashing.

Skin and body protection Normal work clothing (long sleeved shirts and long pants) is recommended.

General Use personal protective equipment as required.

Environmental exposure controls Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. Fume scrubbers, filters or engineering modifications to the process equipment may be necessary to reduc

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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	
Physical state	Liquid.
Form	Liquid.
Colour	White.
Odour	Sweet, pungent.
pH	Property has not been measured.
Melting point/freezing point	< -40 °C (< -40 °F)
Boiling point, initial boiling point, and boiling range	185 °C (365 °F)
Flash point	83 °C (181.4 °F)
Auto-ignition temperature	Property has not been measured.
Combustion characteristics (solid, gas)	Not applicable.
Vapour pressure	1 mmHg (37.8°C)
Vapour density	< 1 (Air = 1)
Evaporation rate	Less than water.
Solubility(ies)	
Solubility (water)	Negligible in water.
Partition coefficient (n-octanol/water)	Property has not been measured.
Decomposition temperature	Property has not been measured.
Viscosity	150 cP 511s-1 (Non-Newtonian) (25 °C)
Other data	
Explosive limit - lower (%)	Property has not been measured.
Explosive limit – upper (%)	Property has not been measured.
Kinematic viscosity	Property has not been measured.
Relative density	> 0.83 - < 0.91 (25°C / 77°F)

10. STABILITY AND REACTIVITY

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Conditions to avoid	Avoid temperatures exceeding the flash point. Contact with incompatible materials.
Hazardous decomposition products	Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours.
Stability	Material is stable under normal conditions.
Materials to avoid	Strong oxidising agents.
Hazardous polymerisation	No dangerous reaction known under conditions of normal use.

11. TOXICOLOGICAL INFORMATION

Acute toxicity	Not expected to be acutely toxic.
Routes of exposure	Inhalation. Skin contact. Eye contact.
Toxicological information	Occupational exposure to the substance or mixture may cause adverse effects.
Chronic toxicity	None known.
Sensitisation	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).
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).
Reproductivity	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).
Epidemiology	No epidemiological data is available for this product.

Human experience No data available.

Further information None known.

12. ECOLOGICAL INFORMATION

Ecotoxicological data

Components		Species	Test Results
Alcohols, C7-9-iso-, C8-rich (CAS 68526-83-0)			
Aquatic			
Acute			
Algae	ErC50	Pseudokirchnerella subcapitata	23 mg/l, 72 h
Crustacea	LC50	Daphnia magna	31.8 mg/l, 48 h
Fish	LC50	Pimephales promelas	14 mg/l, 96 h
Chronic			
Crustacea	EC10	Ceriodaphnia dubia	0.28 mg/l, 6 day
Fish	EC10	Pimephales promelas	> 0.28 mg/l, 33 day
Octan-1-ol (CAS 111-87-5)			
Aquatic			
Acute			
Fish	LC50	Fathead minnow (Pimephales promelas)	>= 12.3 - <= 13.4 mg/l, 96 hours

Ecotoxicity Harmful to aquatic life with long lasting effects.

Environmental effects Harmful to aquatic organisms.

Persistence and degradability No data is available on the degradability of this product.

Bioaccumulation The product is not expected to bioaccumulate.

Bioaccumulative potential

Octanol/water partition coefficient log Kow

Octan-1-ol (CAS 111-87-5) 3

Mobility 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 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 from residues / unused products Dispose 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

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

Labelling

Symbol(s)

Irritant

R-phrase(s)	R36 Irritating to eyes. R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
S-phrase(s)	S23 Do not breathe gas/fumes/vapour/spray. S25 Avoid contact with eyes. S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S60 This material and its container must be disposed of as hazardous waste. S61 Avoid release to the environment. Refer to special instructions/ Safety data sheets.

16. OTHER INFORMATION

Wording of the R-phrases in sections 2 and 3	R36 Irritating to eyes. R36/38 Irritating to eyes and skin. R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	Yes

*A "Yes" indicates that all components of this product comply 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).

Recommended use	Use in accordance with supplier’s recommendations.
Recommended restrictions	Other uses are not recommended unless an assessment demonstrates potential exposures will be controlled.
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

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