

LST HEAVY LIQUID

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MATERIAL SAFETY DATA SHEET

Hazardous according to criteria of Worksafe Australia.

COMPANY DETAILS

COMPANY: Central Chemical Consulting Pty Ltd
ABN: 21 009 431 494
ADDRESS: PO Box 2546, Malaga, Western Australia 6944

INFORMATION
TELEPHONE NUMBER: 61 8 9248 2739

EMERGENCY
TELEPHONE NO: 61 8 9248 2739 *or* 61 8 9246 1102 (out of hours)
FACSIMILE NUMBER: 61 8 9248 2749

IDENTIFICATION

Product Name: LST Heavy Liquid.
Description: Solution of lithium heteropolytungstates in water.
Manufacturers Code: Not applicable.
UN Number: No UN Number allocated.
Dangerous Goods Class and Subsidiary Risk: Not a dangerous good.
Hazchem Code: None allocated.
Poisons Schedule: Not scheduled.
Use: Heavy liquid for density separation of minerals and ores.

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FIRST AID:

<i>Swallowed:</i>	If swallowed and feeling unwell contact Doctor or Poisons Information Centre.
<i>Eye:</i>	If in eye rinse out with running water for at least 15 minutes. Contact a doctor immediately.
<i>Skin:</i>	If on skin wash off immediately with water.
Advice to Doctor:	Treat Symptomatically.

PRECAUTIONS FOR USE

Exposure Limits:	No exposure standards have been established for this substance by Worksafe Australia.
Engineering Controls:	The substance should be used in systems which recover and recycle LST Heavy Liquid.
Personal Protection:	
<i>Skin:</i>	Impermeable rubber, vinyl or nitrile gloves should be worn when handling the material.
<i>Eyes:</i>	Safety glasses/goggles must be worn when handling LST Heavy Liquid or its solids.
<i>Respiratory:</i>	Not likely to be a route of exposure. Immediately clean up spills to prevent accumulation of dust from dried LST Heavy Liquid.
<i>Ingestion:</i>	Do not allow eating, drinking or smoking in areas where LST Heavy Liquid is to be stored or used.
Flammability:	Not flammable.

LST Heavy Liquid Specifications

Physical Characteristics

LST solids contain lithium heteropolytungstates in the form of extremely soluble, colourless hydrated crystals. Concentrated aqueous solutions of LST form colourless or pale yellow heavy liquids. LST is supplied and normally used with an aqueous base.

Safety

The driving force behind LST heavy liquid has been the need for a safer dense liquid to replace the undesirable dense organohalides such as tetrabromoethane (TBE) and bromoform. Safety was the prime consideration. Performance, i.e. high stability and low viscosity, was then optimised.

Detailed toxicity studies have been conducted on LST in order to register the new product for use.

Thermal Stability

Maintained at a temperature of 80°C for over two weeks, LST showed no observable change. Under these conditions, SPT was unstable. The high thermal stability of LST heavy liquid allows it to be boiled to evaporate water and regain its original high density. This means that recycling is rapid, simple and effective.

Operating Density

At 25°C LST heavy liquids can be used at any density up to 2.95 g/mL by diluting with water or by concentrating to remove water. The recommended operating density as a replacement for bromoform is 2.85 g/mL. The viscosity is low at this density and the likelihood of crystallisation is reduced. Densities up to 3.6 g/mL can be achieved at higher temperatures.

Viscosity

Low viscosity is a feature of LST heavy liquids that allows fast, effective separations. Grain separations in LST occur at about the same speed as when using TBE, but without the occupational health risk of organohalides. The exact viscosity of LST will vary with its temperature and density (figure 2), and is typically about 11 cP.

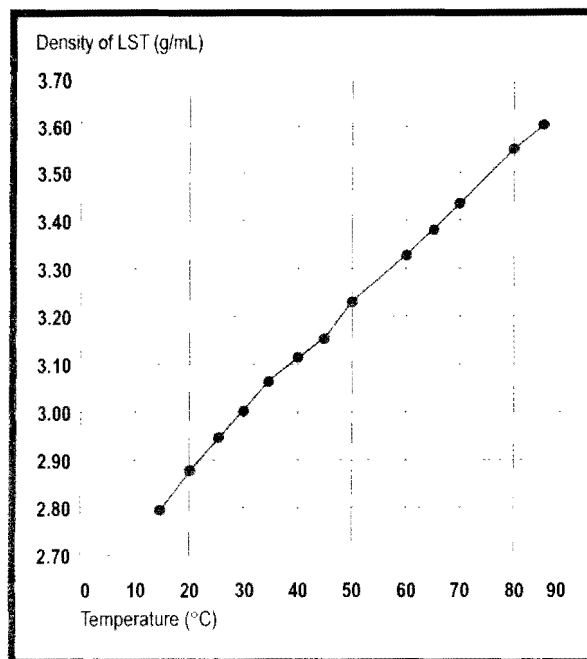


Figure 1: Maximum LST Density (water is added or removed)

Storage and Use

LST heavy liquids can be stored indefinitely in closed plastic or glass containers. LST may cause metal corrosion, so contact with metals should be avoided during storage and heavy liquid separations. If subject to very cold conditions, crystals may appear but will dissolve again when the heavy liquid is warmed.

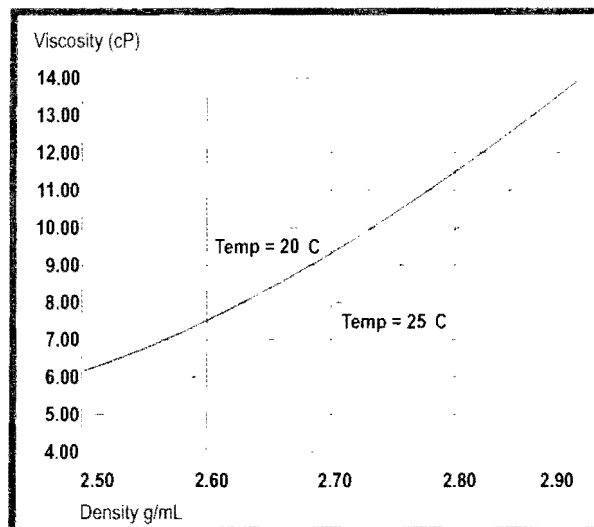


Figure 2: Viscosity vs Density for LST

For further information:



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Heavy Liquid

Light on the Environment

Laboratory safety is on everyone's mind, but no one wants to give up the convenience of a fast, effective heavy liquid. With new generation LST heavy liquid, you won't have to.

Old heavy liquids had your staff complaining about the smell and occupational health risks, your environmental officer concerned about disposing of contaminated minerals, and your legal department wondering when you would next require their services.

With LST heavy liquid you can get rid of those expensive fume cupboards and still get the throughput and convenience of which users of other low toxicity heavy liquids only dream.

LST heavy liquid is an aqueous solution of low toxicity which enables rapid and effective mineral separations. Specifically developed as a safe and effective replacement for bromoform and TBE, LST has low viscosity and high thermal stability with an expected operating density of 2.85 g/mL at 25°C.

Toxic heavy liquids such as bromoform and TBE achieve only 90% recovery on each cycle. With LST heavy liquid you can achieve 99% recovery, making the working cost of LST only 1/10 of its apparent cost. Add the savings you get from no longer needing to run fume extraction systems, and LST heavy liquid provides a competitive solution to the old toxic heavy liquids. A low cost indeed for a healthy laboratory environment.

In addition, LST heavy liquid can be used for separations at higher densities if you are willing to work at elevated temperatures. At 50°C you can use LST heavy liquid at over 3.2 g/mL, and at 75°C you can use LST at 3.5 g/mL. LST retains its low viscosity at these temperatures, too.

Used by mining and research laboratories throughout the world, LST was developed in conjunction with the Australian Mineral Industry Research Association and is manufactured and distributed by Central Chemical Consulting Pty Ltd.

LST heavy liquid, a low cost indeed for a healthy laboratory environment.



Low Toxicity

Friendly on
the Environment

Fast Separation

Fast Filtration

Stable and Reusable

Approved by
Worksafe Australia

Cost Effective

Developed by
and available from:



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ACN 109 371 411

rch
nds
sands
minerals



USING LST HEAVY LIQUID

DO

Safety

Wear safety glasses.

Wear rubber gloves if skin contact is possible.

Have clean water on tap to wash any spilt LST Heavy Liquid off the skin.

Use a stirrer or bumping chips when heating LST Heavy Liquid solutions.

Wash your hands after using LST Heavy Liquid.

Observe good laboratory practice and normal precautions.

Heavy Liquid Separations

Use only plastic or glass containers and implements.

Use only deionised or distilled water to adjust LST Heavy Liquid.

Use only deionised or distilled water to wash minerals after separation.

Check the density of LST Heavy Liquid before using.

Clean or deslime minerals before separation with LST Heavy Liquid.

Keep laboratory temperatures above 20°C to prevent LST crystallisation.

Recycle LST Heavy Liquid.

DO NOT

Safety

Do not ingest LST Heavy Liquid: do not smoke or eat where LST Heavy Liquid is used.

Do not allow any LST Heavy Liquid to contact eyes.

Do not heat or boil unstirred LST Heavy Liquid solutions.

Do not allow regular skin contact with LST Heavy Liquid.

Do not continue to wear clothing contaminated with LST Heavy Liquid.

Heavy Liquid Separations

Do not use metal containers, spatulas, or other metal implements.

Do not use saline or contaminated water to prepare LST Heavy Liquid.

Do not use saline or contaminated water for washing mineral samples.

Do not mix LST Heavy Liquid with other chemicals or different heavy liquids.

Do not allow LST Heavy Liquid to come in contact with alkaline materials.

Do not use wet mineral samples, or samples with a high slime content.

Do not allow LST Heavy Liquid to evaporate, unless the density is rechecked.

Do not chill LST Heavy Liquid below 20°C. This may cause crystallisation.

Do not discard LST Heavy Liquid to the environment.