

# TECHNICAL DATA SHEET

## ShiraSol™

### What is ShiraSol?

ShiraSol is a VOC-compliant solvent that is an efficient, cost effective alternative to Mineral Spirits, Aromatic 100, Aromatic 150, Methyl Amyl Ketone, *n*-Butyl Acetate and other slow evaporating solvents. ShiraSol is formulated for use as a cleaner, primary or co-solvent in a variety of formulations involving aliphatic, aromatic and ketone solvent systems

ShiraSol:

- is formulated to be benzene-free
- is non-carcinogenic
- does not contain
  - hazardous air pollutants (HAPs)
  - environmentally hazardous ingredients
  - ozone depleting or creating chemicals
- is considered "zero VOC" in all 50 states including SCAQMD\*
- is considered "zero VOC" solvent in Canada\*\*

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### Advantages

ShiraSol:

- has high purity and lower toxicity than many conventional solvent alternatives
- is zero-VOC and therefore eliminates Volatile Organic Compound (VOC) emissions
- offers better solvency and safety compared to Mineral Spirits
- has higher flash point than Mineral Spirits, Aromatic 100, Methyl Amyl Ketone and *n*-Butyl Acetate
- has similar evaporation rate to Mineral Spirits
- dries completely and leaves no surface residue
- superior solvency and solubility

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### Uses

ShiraSol is designed for a variety of uses and purposes.

- **ShiraSol can be used as a chemical diluent for:**
  - as a paint thinner and diluent for paints, coatings, inks and adhesives
  - in conjunction with cutting oils and as a thread cutting and reaming lubricant
  - ink thinners used in making monoprints
  - dissolution of a variety of polymers and resins
- **ShiraSol can also be used a primary or co-solvent in:**
  - aerosols, stains, wood preservatives, lacquers, varnishes, concrete and asphalt products
  - release agents
  - automobile cleaning products
  - cleaners/degreasers
  - liquid-filled compasses and gauges
  - as an alternative to kerosene
  - cleaning and unclogging screens after printing with oil-based textile and plastisol inks

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## Physical/Chemical Characteristics

<b>Upper Explosive Limit (UEL %)</b>	<b>11.94</b>
<b>Lower Explosive Limit (LEL %)</b>	<b>1.28</b>
<b>Auto Ignition Temp (°C)</b>	<b>452.5 (846.5 °F)</b>
<b>Flashpoint (°C)</b>	<b>43.5 (110 °F)</b>
<b>Average Molecular Weight (g/mol)</b>	<b>180.97</b>
<b>Initial Boiling Point (°C)</b>	<b>147.5 (297.5 °F)</b>
<b>Melting Point (°C)</b>	<b>-44.1 (-47.4 °F)</b>
<b>Density (g/mL @ 25 °C)</b>	<b>1.20 (10.01 lb/gal)</b>
<b>Viscosity (cP @ 25 °C)</b>	<b>1.18</b>
<b>Surface Tension (dynes/cm)</b>	<b>24.53</b>
<b>Specific Gravity</b>	<b>1.20</b>
<b>Solubility in H<sub>2</sub>O (g/mL @ 25 °C)</b>	<b>0.026</b>
<b>Evaporation Rate (n-Butyl Acetate = 1)</b>	<b>0.1</b>
<b>Vapour Pressure (mm Hg @ 20 °C)</b>	<b>3.46</b>
<b>Vapour Density (mm Hg Air = 1)</b>	<b>4.53</b>
<b>Kauri Butanol (Kb) Value</b>	<b>54.47</b>
<b>Maximum Incremental Reactivity (MIR)</b>	<b>0.097</b>
<b>Purity (Wt % Min)</b>	<b>99.0%</b>
<b>Water Content (ppm)</b>	<b>&lt;500</b>
<b>Colour (Alpha, max)</b>	<b>10 (Clear)</b>
<b>Volatility (%)</b>	<b>100</b>
<b>Heat of Combustion (btu/lb)</b>	<b>8046.8</b>
(kcal/kg)	<b>4473.2</b>
<b>Heat of Vapourization (btu/lb)</b>	<b>97.8</b>
(kcal/kg)	<b>54.3</b>
(kJ/mol)	<b>41.1</b>
<b>VOC (g/L) (ASTM 313-91)</b>	<b>2.9 ***</b>
<b>Global Warming Potential (100 year GWP)</b>	<b>5.4</b>
<b>Hansen solubility parameters, total (MPa)<sup>1/2</sup></b>	<b>17.2</b>
<b>δD (dispersion)</b>	<b>13.9</b>
<b>δP (polar)</b>	<b>8.3</b>
<b>δH (hydrogen bonding)</b>	<b>3.4</b>

\*SCAQMD – South Coast Air Quality Management District CARB - California Air Resources Board.

\*\*2014 NPRI reporting guide, the reporting requirements for the Part 4 Total VOCs: <http://www.ec.gc.ca/inrp-npri/default.asp?lang=En&n=1FAA2366-1>

Should a facility have 20,000 employee hours or more, all sources of CACs that are released to the air (including VOCs) will need to be considered.

Part 4 Total VOC requires all releases, regardless of concentration, need to be calculated and summed. The total is then compared to the 10 tonne reporting threshold.

Should the threshold be met or exceeded, the facility will need to submit a Part 4 total VOC report whereby the report contains the total VOC release value for the facility.

ShiraSol is considered comprised of 100% exempt material as per CEPA and NPRI.

In the European Union (EU), all components of ShiraSol are registered under REACH.

\*\*\* SCAQMD considers < 5 g/L VOC content to be "zero VOC". ShiraSol is a blend of VOC-exempt solvents and as such is considered Zero VOC by the EPA and SCAQMD.

NO WARRANTY IS MADE OF THE MERCHANTABILITY OR FITNESS OF ANY PRODUCT, AND NOTHING HEREIN WAIVES ANY OF THE SELLER'S CONDITIONS OF SALE.

TBF represents that the properties listed are accurate to the best of its knowledge. These are typical properties, TBF Environmental makes no representation that the material in any particular shipment will conform exactly to the properties listed.

