TECHNICAL DATA SHEET

ZemaSol™

What is ZemaSol?

ZemaSol is a VOC-compliant solvent that is an efficient, cost effective alternative to Xylene, Toluene, Parachlorobenzotrifluoride (PCBTF/Oxsol 100®) and Tertiary Butyl Acetate (TBAc).

ZemaSol:

- 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* and CARB*
- is considered "zero VOC" solvent in Canada**

Advantages

ZemaSol:

- has high purity and lower toxicity than many conventional organic solvent alternatives
- is zero-VOC and therefore eliminates Volatile Organic Compound (VOC) emissions
- dries completely and leaves no surface residue
- has excellent solvency and solubility requiring less solvent and decreasing costs
- has improved flow characteristics compared to Xylene, Toluene, PCBTF/Oxsol 100® and TBAc
- has excellent loading capacity
- is 15 - 30% more efficient in viscosity reduction than Xylene

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Uses

ZemaSol is designed for a variety of uses and purposes.

- **ZemaSol can be used as a diluents for:**
  - paints
  - coatings
  - adhesives
  - resins
  - silicones
  - sealants
- **ZemaSol can also be used as a chemical diluent for:**
  - rubber
  - printing ink
  - adhesives
  - lacquers
  - plastics
  - perfumes
  - pesticides
  - leather tanning

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TBF ENVIRONMENTAL TECHNOLOGY

tel: +1 877 658 3681
info@tbfenvironmental.com
www.tbfenvironmental.com

Physical/Chemical Characteristics

Upper Explosive Limit (UEL %)	**15.18**
Lower Explosive Limit (LEL %)	**2.69**
Auto Ignition Temp (°C)	**461.8** (863.2°F)
Flashpoint (°C)	**4.0** (39.2°F)
Average Molecular Weight (g/mol)	**84.16**
Initial Boiling Point (°C)	**70** (158 °F)
Melting Point (°C)	**-88.3** (-126.9 °F)
Density (g/mL @ 25 °C)	**1.00** (8.35 lb/gal)
Viscosity (cP @ 25 °C)	**0.44**
Surface Tension (dynes/cm)	**24.2**
Specific Gravity	**1.00**
Solubility in H_2O (g/mL @ 25 °C)	**0.212**
Evaporation Rate (n-Butyl Acetate = 1)	**5.14**
Vapour Pressure (mm Hg @ 20 °C)	**147.85**
Vapour Density (mm Hg Air = 1)	**3.14**
Kauri Butanol (Kb) **Value**	**90.3**
Maximum Incremental Reactivity (MIR)	**0.079**
Purity (Wt % Min)	**99.5%**
Water Content (ppm)	**<320**
Colour (Alpha, max)	**10 (Clear)**
Volatility (%)	**100**
Heat of Combustion (btu/lb)	**8943.8**
(kcal/kg)	**4971.3**
Heat of Vapourization (btu/lb)	**156.8**
(kcal/kg)	**87.4**
(kJ/mol)	**30.8**
Specific Heat Capacity ($J\ g^{-1}\ K^{-1}$)	**1.9**
Molar Heat Capacity ($J\ mol^{-1}\ K^{-1}$)	**160.1**
VOC (g/L) (ASTM 313-91)	**1.59 *****
Global Warming Potential (100 year GWP)	**0**
Hansen solubility parameters, total $(MPa)^{1/2}$	**18.54**
δD (dispersion)	**15.26**
δP (polar)	**7.56**
δH (hydrogen bonding)	**7.17**

*SCAQMD – South Coast Air Quality Management District SCAQMD considers +/- 5 g/L VOC content to be "zero VOC" 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.
ZemaSol is considered comprised of 100% exempt material as per CEPA and NPRI.
In the European Union (EU), all components of ZemaSol are registered under REACH.

*** SCAQMD considers <5 g/L VOC content to be "zero VOC". ZemaSol 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.

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