KradaSol™

What is KradaSol?

KradaSol is a VOC-compliant, safe, efficient, solvent replacement for Hexane, Xylene, Cyclohexane, Toluene and Perchloroethylene.

KradaSol:

- is formulated to be benzene-free
- does not contain
  - hazardous air pollutants (HAPs)
  - environmentally hazardous ingredients
  - ozone depleting or creating chemicals
- is VOC-compliant throughout North America
- is REACH-compliant in European Union

Advantages

- specifically designed to slubilize many SBR, SBS, SIS type block polymers and Chlorinated Rubbers
- similar evaporation rate to Xylene, PCBTF, Hexane, n-Butyl Acetate and Cyclohexane
- exhibits superior solvency and solubility than Hexane, n-Butyl Acetate and Cyclohexane
- may be used as a VOC-compliant primary or co-solvent
- may be used in Aliphatic, Aromatic and Ketone applications and systems
- has higher flash point than Hexane and Cyclohexane
- dries completely and leaves no surface residue

Uses

KradaSol is designed for a variety of uses and purposes.

- **KradaSol can be used as a primary or co-solvent in:**
  - paints and coatings, inks and adhesives
  - automobile cleaning products
  - brake, electronic and contact cleaners
  - extraction of vegetables and essential oils
- **KradaSol can also be used as a dissolution:**
  - bi & try hydrogenated and non-hydrogenated block polymers
  - chlorinated rubbee compounds
  - polyolefins
  - glues
  - roofing and textile manufacturing
  - leather products

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Physical/Chemical characteristics

Upper Explosive Limit (UEL %)	15.57
Lower Explosive Limit (LEL %)	0.95
Auto Ignition Temp (°C)	431.5 (808.7 °F)
Flashpoint	20.7 (69.3 °F)
Molecular Weight (g/mol)	156.02
Initial Boiling Point (°C)	88 (190.4 °F)
Melting Point (°C)	-49.9 (-57.8 °F)
Density (g/ml @ 25 °C)	1.07 (8.93 lb/gal)
Viscosity (cP @ 25 °C)	0.69
Surface Tension (dynes/cm)	21.1
Specific Gravity	1.07
Solubility in H_2O (g/ml @ 25 °C)	0.0242
Evaporation Rate (n-Butyl Acetate=1)	1.4
Vapour Pressure (mm Hg @ 20°C)	36.83
Vapour Density (mm Hg Air=1)	5.60
Kauri Butanol (kb) Value	49.2
Maximum Incremental Reactivity (MIR)	0.0622
Purity (Wt % Min)	99.5%
Water Content (ppm)	<500
Colour (alpha, max)	5 (Clear)
Volatility (%)	100
Heat of Combustion (Btu/lb) (Kcal/kg) (Kj/Mol)	9905.3 5506.3 3594.0
Heat of Vaporization (Btu/lb) (cal/g) (Kj/Mol)	98.9 55.0 35.4
Specific Heat Capacity ($J\ g^{-1}\ K^{-1}$)	1.4
Molar Heat Capacity ($J\ mol^{-1}\ K^{-1}$)	224.4
VOC (g/L) (ASTM 313-91)	2.2***
Global Warming Potential (100 year GWP)	8
Hansen solubility parameters, total $(MPa)^{1/2}$ δD (Dispersion) δP (Polar) δH (Hydrogen bonding)	15.68 13.46 5.67 3.11

*SCAQMD - South Coast Air Quality Management District CARB - California Resources Board
**2014 NPRI reporting guide, the reporting requirements for the Part 4 Total VOCs:
http://www.ec.gc.ca/inrp-npri/default.asp?lan=En&n=1FAA2366-1
Should a facility have 20,000 emplouee 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.

KradaSol is considered comprised of 100% exempt materials as per CEPA and NPRI. In the European Union (EU), all components of ZemaSol are registered under REACH.

***KradaSol is a patented, proprietary blend of VOC-exempt materials and is therefore considered Zero VOC by the EPA.
***KradaSol is considered Ultra-Low VOC in SCAQMD.

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