TECHNICAL DATA SHEET

BerdeSol™

What is BerdeSol?

BerdeSol is a VOC-compliant, safe, low toxicity solvent that is an efficient, cost effective alternative to Heptane for use as a cleaner or co-solvent

BerdeSol:

- 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**

Advantages

BerdeSol:

- has high purity, very low toxicity and is biodegradable
- is zero-VOC and therefore eliminates Volatile Organic Compound (VOC) emissions
- offers better solvency and solubility than Heptane, requiring less solvent and decreasing costs
- has higher flash point than Heptane
- has similar evaporation rate to Heptane
- dries completely and leaves no surface residue
- has improved flow characteristics compared to Heptane
- has excellent loading capacity
- is 15 - 30% more efficient in viscosity reduction than Heptane

---

Uses

BerdeSol is designed for a variety of uses and purposes.

- **BerdeSol can be used as a cleaner and/or degreaser in:**
  - automotive, brake, adhesive and printing industries
  - electronic, contact and precision cleaning
- **BerdeSol can also be used as a primary or co-solvent in:**
  - paints, coatings and adhesives
  - rubber cement
  - water-proofing compounds
  - extraction of vegetable and essential oils
  - dissolution of a variety of polymers

Continued on next page

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

Physical/Chemical Characteristics

Upper Explosive Limit (UEL %)	**17.51**
Lower Explosive Limit (LEL %)	**1.46**
Auto Ignition Temp (°C)	**412.25** (744.1°F)
Flashpoint (°C)	**5.37** (41.7°F)
Average Molecular Weight (g/mol)	**117.2**
Initial Boiling Point (°C)	**59.0** (138.2 °F)
Melting Point (°C)	**-67.5** (-89.5 °F)
Density (g/mL @ 25 °C)	**0.94** (7.81 lb/gal)
Viscosity (cP @ 25 °C)	**0.58**
Surface Tension (dynes/cm)	**20.42**
Specific Gravity	**0.94**
Solubility in H_2O (g/mL @ 25 °C)	**0.0847**
Evaporation Rate (n-Butyl Acetate = 1)	**2.5**
Vapour Pressure (mm Hg @ 20 °C)	**80.6**
Vapour Density (mm Hg Air = 1)	**4.66**
Kauri Butanol (Kb) **Value**	**51.34**
Maximum Incremental Reactivity (MIR)	**0.047**
Purity (Wt % Min)	**99.5%**
Water Content (ppm)	**<3500**
Colour (Alpha, max)	**10 (Clear)**
Volatility (%)	**100**
Heat of Combustion (btu/lb)	**10898.0**
(kcal/kg)	**6058.0**
Heat of Vapourization (btu/lb)	**121.6**
(kcal/kg)	**67.7**
(kJ/mol)	**32.7**
Specific Heat Capacity ($J\ g^{-1}\ K^{-1}$)	**1.75**
Molar Heat Capacity ($J\ mol^{-1}\ K^{-1}$)	**205.6**
VOC (g/L) (ASTM 313-91)	**0.9 *****
Global Warming Potential (100 year GWP)	**9**
Hansen solubility parameters, total $(MPa)^{1/2}$	**15.66**
δD (dispersion)	**13.79**
δP (polar)	**4.48**
δH (hydrogen bonding)	**3.60**

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

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

TBF ENVIRONMENTAL TECHNOLOGY

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