VertecBio ELSOL™ - LQ

Patent Pending Blend of Biobased Solvents

- **100% Biobased Replacement for Butyl Acetate**
- **Outstanding Solvent for Lacquer Formulating and Cleaning**
- **High Solvating Power of Ethyl Lactate Without the Odor**
- **Greatly Increased Solvating Power vs. Ethyl Alcohol (Ethanol) Alone**
- **Dries Three Times Faster Than Ethyl Lactate Alone**
- **Ideal Wipe Solvent**
- **Better Cleaning Power and Reduced Solvent Usage vs. Butyl Acetate**
- **Precision Cleaning Solvent, Dries Completely and Leaves No Residue**
- **High Performance, Versatile Solvent Blend for Formulations**
- **Excellent Solvency for Paint, Coating and Ink Formulations**
- **20% - 30% More Efficient in Viscosity Reduction than Butyl Acetate**
- **Moderate Vapor Pressure and High Loading Capacity**
- **100% Biodegradable to Carbon Dioxide and Water**
- **Sustainable Chemistry – No Impact on Global Warming ("Carbon Neutral")**
- **Easy and Inexpensive to Distill/Recycle**
- **EPA Approved SNAP Solvent – No Ozone Depleting Chemicals**
- **No Environmentally Hazardous Ingredients**
- **Safe, Non-Toxic, Non-Carcinogenic**
- **No HAP's – No Hazardous Air Pollutants**

GENERAL PHYSICAL PROPERTIES

VERTECBIO ELSOL-LQ

Flash Point ..66 F ASTM D3278 (Setaflash)
Vapor Pressure……...38 mmHg @ 68 F
PH of Water Dispersion…..……4
Specific Gravity……..…..……0.896
Evaporation Rate…….……..….0.74
Boiling Point Range……..…171-305 F

8/6/08

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Vertec BioSolvents ELSOL™-LQ Performance Sheet

Suggested Replacement for Butyl Acetate

Introduction

Butyl acetate's largest uses are in industrial coatings applications, primarily in coil, extrusion, wood furniture and fixtures, containers and closures, automotive finishes and machinery. Formulators have been seeking an alternative to these hazardous solvents due to employee exposure concerns and increased legislative pressure geared toward reducing the use of these solvents.

Vertec BioSolvents suggests a replacement blend with renewable, carbon neutral biobased solvents. These biobased solvents are derived from corn, soybeans, citrus fruits and other renewable feedstocks, and have reduced toxicity profiles.

Reformulation Solvents

Hazardous Solvents	Butyl Acetate
BioBased Replacement	ELSOL- LQ

The solvent blend shown is only a suggested starting point for developing alternative systems. All blends should be thoroughly evaluated to determine suitability for specific applications

	Relative	Flash	Hansen Solubility Parameters			
	Evaporation Rate	Point(°F)	Dispersion	Polar	H Bonding	Total
ELSOL™ - LQ	**.74**	**66**	**7.7**	**4**	**5.4**	**11.7**
Butyl Acetate	1	72	7.7	1.8	3.1	8.5

Reformulation Solvents Typical Properties

Blend	Environmental	Uses	Comments
ELSOL - LQ	Non Hap	Paint, coatings	Renewable, carbon neutral
	Non SARA reportable	cleaners, adhesives	Reduced toxicity profile

Conclusion

Formulators and applicators are looking for alternatives to hazardous solvents as more regulations are enforced. This can be seen in many industries including paint and coatings, adhesives and inks. Formulators are not only feeling the pressures at the federal and state level, but abroad as well. The suggested replacements using the sustainable, carbon neutral, biobased solvents above should assist in meeting your performance requirements and the regulatory challenges.

06/24/08, klm

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Butyl Acetate Replacement

Specifications

Item	Unit	Specification
Appearance		Free From Insoluble and Haze
Specific Gravity	20/20° C	0.896
Acidity	Wt % as Acetic Acid, Max.	0.05
Purity	Wt % Min.	99.5
Water Content	Wt % Max.	0.20
Viscosity	cps @ 20° C	1.4
Color	APHA, Max	10

Physical Properties

Item	LQ
Molecular Weight	66.29
Specific Gravity 20/20° C	0.896
Boiling Point	171° – 305°F
Flash Point	66°F
Viscosity @ 20°C (cps)	1.4
Evaporation Rate	0.74
Vapor Pressure, mm Hg, @20°C	38

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