



# VertecBio ELSOL™ - ISR

Patent Pending Blend of Biobased Solvents

- Biobased Replacement for Isophorone
- Reduced Solvent Usage vs. Isophorone
- 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 Isophorone
- Provides Excellent Flow Characteristics When Used in Formulation
- High Loading Capacity
- Easy and Inexpensive to Distill/Recycle
- Shelf Life > 1 year, Does Not Degrade Like Isophorone
- Sustainable Chemistry – Reduced Impact on Global Warming
- EPA Approved SNAP Solvent – No Ozone Depleting Chemicals
- No Environmentally Hazardous Ingredients
- Safe, Non-Toxic, Non-Carcinogenic
- No HAP's – No Hazardous Air Pollutants
- Manufactured in the United States

## GENERAL PHYSICAL PROPERTIES

### VERTECBIO ELSOL- ISR

Flash Point .147 F ASTM D3278 (Setaflash)  
Vapor Pressure.....1.5 mmHg @ 68 F  
PH of Water Dispersion.....4  
Specific Gravity.....0.989  
Evaporation Rate.....0.15  
Boiling Point Range.....154-204 C

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## Vertec BioSolvents ELSOL™ ISR Performance Sheet

### Suggested Replacement for Isophorone

#### Introduction

Isophorone's largest use is in industrial coatings application. For coatings formulators looking to achieve further HAPS (hazardous air polluting solvent) reductions. Vertec BioSolvents blend is an ideal replacement for Isophorone in a wide array of coatings formulations.

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 a reduced toxicity profile.

#### Reformulation Solvents

Hazardous Solvents	Isophorone
BioBased Replacements	<b>ELSOL™ ISR</b>

The solvent blends shown are only suggested starting points for developing alternative systems. All blends should be thoroughly evaluated to determine suitability for specific applications

	Relative Evaporation Rate	Hansen Solubility Parameters			Total
		Dispersion	Polar	H Bonding	
<b>ELSOL™ ISR</b>	<b>.15</b>	<b>8.1</b>	<b>2.5</b>	<b>4.7</b>	<b>9.7</b>
Isophorone	.02	8.1	4.0	3.6	9.7

#### Reformulation Solvents Typical Properties

Blend	Environmental	Uses	Comments
<b>ELSOL™ ISR</b>	Non Hap	Paint, coatings	Renewable, carbon neutral
	Non SARA reportable	cleaners, adhesives	Reduced toxicity profile

#### Conclusion

Formulators and applicators are looking for a sustainable technology that is an alternative to hazardous solvents. 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 requirements and the regulatory challenges.



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## Isophorone Replacement

### Specifications

Item	Unit	Specification
Appearance		Clear, substantially Free From Suspended Matter
Specific Gravity	20° C	0.989
Acidity	Wt % as Acetic Acid, Max.	0.05
Purity	Wt % Min.	99.5
Water Content	Wt % Max.	0.20
Viscosity	cps @ 25° C	1.9 – 2.1
Color	Pt. Co.	10 Max.

### Physical Properties

Item	ISR
Molecular Weight	125.23
Specific Gravity 20/20° C	0.989
Boiling Point Range	154° - 204° C
Flash Point	147°F
Viscosity @ 25°C (cps)	≈1.9 – 2.1
Evaporation Rate	0.15
Vapor Pressure, mm Hg, @20°C	1.50