

# PURASOLV® Superior solvency for agrochemical formulations



- ▶ Excellent solvency
- ▶ Good wetting properties
- ▶ Safe: low toxicity and phytotoxicity, low odor
- ▶ FIFRA registered
- ▶ Biobased

PURASOLV® are a range of lactate esters that enhance solvency in agrochemical formulations. With multifunctional properties, they can also enhance the performance of formulations to create outstanding and unique additional qualities, such as wetting properties. Depending upon the specific formulation, PURASOLV® formulations can offer other benefits, such as low evaporation rate, good penetration on natural surfaces, bio-enhancing effect and low COD/BOD (Chemical Oxygen Demand/Biological Oxygen Demand).

PURASOLV® are biobased, non-toxic solvents, characterized by low toxicity, phytotoxicity and low odor. As FIFRA (Federal Insecticide, Fungicide and Rodenticide Act)-registered products, they are one of the safest solutions currently available on the market.

## Solvency

PURASOLV® esters are excellent solvents for many active ingredients and can be used as bio-based and non-toxic replacements for potentially unsafe solvents, such as xylene, toluene, isophorone and N-Methyl-2-pyrrolidone (NMP). PURASOLV esters are perfect for use in pesticide formulations, such as Emulsifiable Concentrates (EC) or Dispersible Concentrates (DC). PURASOLV esters can offer multiple functionalities in these formulations including:

- ▶ Co-solvent to improve solubility properties of active ingredients for emulsion concentrates (EC) and Dispersible Concentrates (DC).
- ▶ Enhance efficacy of active ingredients
- ▶ Good solvent for mixtures of water soluble and water insoluble active ingredients.

Corbion Products	
PURASOLV® ML	Methyl L-lactate
PURASOLV® EL	Ethyl L-lactate
PURASOLV® NPL	n-Propyl L-lactate
PURASOLV® BL	n-Butyl L-lactate
PURASOLV® EHL	2-Ethylhexyl L-lactate

	PURASOLV ML	PURASOLV EL	PURASOLV NPL	PURASOLV BL	PURASOLV EHL
<b>Herbicides</b>					
desmedipham	-	19	17	16	6
ethofumesate	-	38	37	35	10
2,4D-dimethyl ammonium	> 80	> 80	65	68	38
<b>Fungicides</b>					
tebuconazole	32	33	32	31	23
propiconazole	84	84	83	83	81
IABC	47	52	48	45	31
imazalil	72	70	68	71	58
<b>Insecticides</b>					
chorpyrifos	64	67	70	66	62
cypermethrin	86	84	85	83	70
endosulfan	31	42	46	48	40
dimethoate	-	70	65	64	49

Table 1. PURASOLV Solubility w/w% (20°C)



# PURASOLV® Superior solvency for agrochemical formulations

## Wetting properties

PURASOLV® lactate esters demonstrate good wetting properties and are able to penetrate waxy outer surface areas. Together with low evaporation rates, PURASOLV® lactate esters offer many benefits when used as solvents in pesticide formulations.

## Phytotoxicity

Phytotoxicity tests with PURASOLV® lactate esters were performed on Tomato seedlings, which respond strongly to foliar-applied chemicals. PURASOLV® lactate esters did not show any sign of phytotoxicity at concentrations of up to 0.5% (w/w) in the spray mixture.

## Registrations

PURASOLV® esters are registered with FIFRA as inert. Under this stringent, well-respected regulation, PURASOLV® EL and BL are classified as list 4A, PURASOLV® NPL and EHL as list 4B. Registration at this level ensures that PURASOLV® solvents are some of the safest available.

## Biobased solution

PURASOLV® are a range of esters derived from natural lactic acid and are clear, colorless liquids. To produce agrochemicals more sustainably, choose PURASOLV® lactate esters. These solvents are stereochemically pure and offer optimal efficacy, naturally.

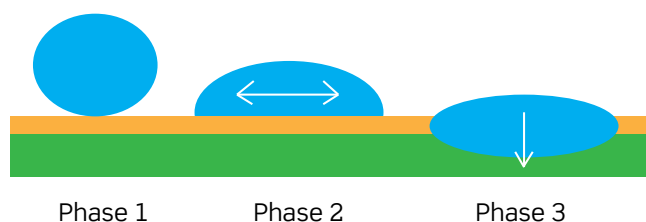


Figure 1: Wetting properties of PURASOLV®

## Conclusion

PURASOLV® solvents are proven, high performance solvents for active ingredients, which can enhance the efficacy of many pesticides. PURASOLV® products have an outstanding toxicological- and environmental profile that makes the solvents a perfect fit for the agro chemicals market.

## Recommendations

EC formulations: Purasolv BL and EHL  
DC formulations: Purasolv ML, EL and NPL

Physical properties	MW	Density	Flash Point	Viscosity	Vapor Pressure	Evaporation Rate	Surface Tension	Hildebrand (J/cm <sup>3</sup> ) <sup>1/2</sup>	Hansen Solubility Parameters (J/cm <sup>3</sup> ) <sup>1/2</sup>			Solubility in water	Solubility of water	Partition Coefficient
	g/mol	g/m (20°C)	°C/°F	mPa.s (20°C)	mbar (20°C)	n-BuAc=1	mN/m (25°C)	δ	δ <sub>d</sub>	δ <sub>p</sub>	δ <sub>n</sub>	w/w% (20°C)	w/w% (20°C)	log (octanol/water)
PURASOLV ML	104	1.092	58/136	3.1	3.4	0.26	34.2	23.3	16.3	9.1	13.7	miscible	miscible	-0.50
PURASOLV EL	118	1.033	59/138	2.8	2.2	0.22	30.6	21.7	16.0	7.5	12.5	miscible	miscible	0.03
PURASOLV NPL	132	1.005	69/156	3.3	1.0	0.05	30.4	20.6	15.9	6.9	11.2	miscible	miscible	0.55
PURASOLV BL	146	0.984	79/174	3.9	0.4	0.03	29.5	19.9	15.8	6.5	10.2	4.5	13.9	1.08
PURASOLV EHL	202	0.939	113/235	7.7	0.0	0.00	29.8	18.4	15.7	4.5	8.5	0.03	3.5	3.12



### Request your free sample

Samples and detailed usage instructions, delivered right to your doorstep.  
[corbion.com/samples](http://corbion.com/samples)



### Sample Support

With R&D facilities on every continent, we are always close by to help you with your application development.  
[corbion.com/contact](http://corbion.com/contact)

Interested in solutions for biobased chemicals? Go to [corbion.com/BiobasedChemicals](http://corbion.com/BiobasedChemicals)



[biobased@corbion.com](mailto:biobased@corbion.com)

For chemical industry, Corbion offers Lactic Acid, Lactide and Lactic Acid derivatives like lactate esters, mineral and metal salts. Corbion's products are highly cost-effective, safe for human beings and readily biodegradable, enabling manufacturers to develop environmentally safer and more sustainable formulations and processes. Our products are successfully used as solvents, intermediates, process aids and polymer additives within diverse markets such as Agrochemicals, Plating, Textile, Oilfields and Packaging.