

The biobased, gentler solvent for nail polish removers



- Milder effect on skin and nails
- 100% natural
- Suitable for vegan formulations
- Milder smell
- Safer due to lower flammability

With conscious consumerism reshaping the beauty industry, makers of personal care products are shifting to greener formulas that help skin and hair look their best without posing risks to overall health. This challenge is particularly acute in the nail care space, where formulators are looking for a milder alternative to acetone or ethyl acetate that help keep nails and surrounding skin healthy, and are highly effective at dissolving varnish while moisturizing nail beds.

A greener alternative for nail polish removers

Although acetone is effective in removing nail polish, it strips the skin of water and natural oils. It is also flammable and evaporates rapidly. Currently, most acetone-free removers contain ethyl acetate, which is somewhat less irritating and drying to skin compared to acetone.

As a derivative of lactic acid produced via fermentation, PURASOLV® EL serves as a greener and safer alternative to conventional acetone- or ethyl acetate-based nail polish removers.

Ethyl lactate for biobased nail polish removers

Corbion's PURASOLV® EL, based on ethyl lactate, enables formulators to use a solvent in a nail polish remover formulation more environmentally friendly and safer in use. This 100% natural, non-toxic solvent has ECOCERT/COSMOS approval and can be used in vegan formulations.

The olfactory factor

Despite the efficacy of acetone-based formulations, they carry an odor many find strong and unappealing. PURASOLV® EL has a much milder smell compared to acetone and ethyl acetate, which makes more easily compatible with essential oils and natural fragrances.

A green solvent milder to the skin

With consumers demanding greater transparency regarding what's in the products they purchase, ingredient choice is extremely important for formulators. For this reason, alternative solvents that evaporate quickly without drying out the nail bed are needed; drying the nail bed leads to nail weakness and breakage, disrupts the integrity of cuticles, and dehydrates the skin around the nails. But Corbion's PURASOLV® EL has a milder and friendlier effect on the skin; it will not, for instance, leave stains when applied to nails as acetone and ethyl acetate can.

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Manufacturing procedure

The following formulations are offered here as a guideline. Removal efficacy can be further improved by optimizing the ratio of solvents.

Base formulation A:

- Prepare a mixture of 40 wt% PURASOV® EL with 60 wt% ethanol as base formulation
- Add essential oils, natural fragrances

Base formulation B:

- Prepare a mixture of 40 wt% PURASOV® EL with 17 wt% isopropanol + 43 wt% propylene carbonate as a base formulation
- Add essential oils, natural fragrances

NOTE: PURASOLV® EL tends to hydrolyze in the presence of water. However, small amounts of water could be added to the formulation if it contains a significant fraction of ethanol next to PURASOLV® EL. This will help to prevent hydrolysis of the lactate ester.

Example base formulation A

Ingredient	INCI	WT%	Supplier
PURASOLV EL	Ethyl lactate	40%	Corbion
Ethanol	Ethanol	60%	Acros Organics
Essential oils			
Natural fragrances			

Example base formulation B

Ingredient	INCI	WT%	Supplier
PURASOLV EL	Ethyl lactate	40%	Corbion
Isopropanol		17%	Acros Organics
Propylene carbonate		43%	Acros Organics
Essential oils			
Natural fragrances			

Nail polish removal tests with PURASOLV® EL

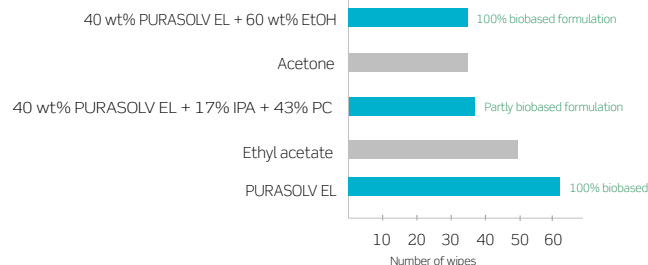


Figure 1: Removal efficacy for different nail polish remover formulations based on PURASOLV® EL versus benchmark solvents (acetone and ethyl acetate). Removal efficacy was determined by counting the number of average wiper with a cotton pad that were needed to remove the nail polish (base coat - nail polish - top coat) from fake nails.



Photo 1. PURASOLV® EL is mild for the skin. Applying PURASOLV EL to nails does not leave stains, in contrast to acetone and ethyl acetate.



PURASOLV® EL Life Cycle Assessment available on request.



Request your free sample

Samples and detailed usage instructions, delivered right to your doorstep.
corbion.com/PersonalCare



Sample Support

With R&D facilities on every continent, we are always close by to help you with your application development.
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For personal care industry, Corbion offers Lactic Acid, Lactates and emulsifiers that are some of the most natural, safe and cost-effective ingredients that formulators can use. These products are widely known for their moisturizing, anti-aging, sebum control, pH adjustment and antimicrobial functions.

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