

UVLINE

Industrial

The development of UV varnishing technology has made our company create and continually perfect the range of products for industrial applications.

Types of UV varnishes

- Solvent-free UV varnishes.

As in the case of varnishes used in printing, the basic formulation is as follows:

UV GLOSS OPV

Polymers	30 – 70%
Monomers	30 – 50%
Amine (Acrylated or Free)	8 – 10%
Photoinitiator	4 – 10%
Levelling/ slip additives	1 – 2%
Wax	1 – 2%
De-foamer	0 – 1%

- Solvent UV-containing organic solvent.

The varnish composition is similar to 100% UV varnishes. In addition, there is an organic solvent in the varnish that is not polymerized under the influence of UV radiation. It is necessary to evaporate the solvent from the UV curing process.

- Water-based UV- solvent in these varnishes is water. Usually does not contain monomers (most are insoluble in water). As with solvent-based varnishes, water must be evaporated prior to polymerisation.

Application

Varnishes for industrial applications (wood, various plastics, glass, metal, cement) can be applied by equipment known from the printing industry, as well as by dipping paint or spray.

Cure

If we consider the curing process, the important factor influencing the choice of drying system is the thickness and number of layers applied in the process as well as the type of substrate. The most commonly chosen lamps are

- standard mercury lamp (for low application thicknesses)
- mercury lamp with iron or gallium (when more penetration into the substrate is required)
- LED lamp - is a low-energy and low-temperature process.

Adhesion

Due to the variations in inks, substrates and application methods, it is necessary to select suitable varnish for a specific type of application.

Yellowing

This is caused by wrong selection of raw materials during formulation process and has a very negative effect on the quality of the final product (especially on bright colours or transparent systems).

Abrasion resistance/hardness

When high rub resistance/hardness is demanded, this effect will be done by the proper choice of topcoat.

The best rub resistance effects are obtained by using polyurethane and suitable waxes.

Gloss/matt effect

In industrial varnishes an important factor is the proper gloss selection. Increasingly, the choice is matt products, from deep matt to silk .

Orange Peel

Orange peel is the name given to the 'wavy' result achieved when the film weight of lacquer, which has been applied, is too high. This can be the result of incorrect viscosities, or exaggerated application.

Excessive film weight of lacquer can lead to insufficient flow out, and can therefore be remedied by a reduction in viscosity, film weight, or press speeds, therefore increasing flow out times.

Foaming

In order to overcome such a problem, it may be necessary to make an addition of de-foamer, although it may also be beneficial to turn off pumps during make ready and therefore reduce the initial generation of foam.

Odour

Fully cured UV varnishes are generally low in odour, however products with very low odour can be formulated for special requirements.