



- **Pot life of TP/UV-D is approx. 12 h (at 20°C).**  
Higher temperatures will reduce pot life.
- We do not recommend processing the inks for longer than the pot life as adhesion and resistance properties will then continually deteriorate, even if the ink still seems to be liquid and processable.

### THINNERS / RETARDERS

Depending on local conditions, the ink is adjusted for printing by addition of 10 to 20 % by weight thinner or retarder.

**Generally, the thinner suitable for TP/UV-D is Additive A!**

The additional products listed below should only be used if the required printing quality/ink transfer cannot be achieved using Additive A (e.g. drying too slow or too fast).

For adjustment of pad inks TP/UV-D, the following products are available:

<b>Thinner:</b>	<input type="radio"/> Additive C	Extremely quick thinner, good solving power
	<input type="radio"/> Additive B	Quick thinner, good solving power
	<input checked="" type="radio"/> <b>Additive A</b>	<b>Standard thinner</b>
	<input type="radio"/> Additive U	Standard thinner, free of cyclohexanone
	<input type="radio"/> VD 60	Slow thinner
<b>Retarder:</b>	<input type="radio"/> TPD	Very slow retarder
■= Preferred    ○= If required		

**Note:** For printing with thick and thin steel clichés sensitive to corrosion

<input type="radio"/> Additive A/00	Standard thinner with anti-corrosion additive
<input type="radio"/> Additive B/00	Quick thinner with anti-corrosion additive

Depending on printing conditions, the products listed above can be mixed into the inks individually or as mixtures. Thinner/retarder should be mixed into the ink thoroughly using a mixer or agitator. In addition, inks should be stirred well prior to each processing to obtain a homogeneous dispersion of all ingredients.

### ADDITIONAL AUXILIARY AGENTS

Application	Product	Addition in % by weight	Additional Information
Antistatic paste	LAB-N 111420	Max. 10%	Possibly slightly reduced gloss
Viscosity increase	Thickening powder	Max. 3%	Stir with mixer
Matting	Matting powder	Max. 5%	Stir with mixer
Flow agent	VM 1	1 - 5%	Do not overdose!

### OVERPRINTING

Generally, it is not necessary to overprint TP/UV-D inks with varnish. Basically overprinting to achieve an enhanced protection of ink layers is possible with TP/UV-D-E50.

### BRONZE COLOURS, MIXING OF BRONZE INKS

For technical reasons bronze colours AB and MG are not available.

Printers can mix bronzes themselves using bronze pastes B 75 to B 79. For examples of colour shades please refer to our Bronze Colour Card.

These "B" bronze pastes are mixed with varnish TP/UV-D-E50 prior to processing.

Mixing ratios in parts by weight:

Gold bronze paste	to	TP/UV-D-E50	=	1 : 3
Silver bronze paste	to	TP/UV-D-E50	=	1 : 4

**These bronze mixtures have no shelf life and have to be processed within 24 hours after mixing.**

These bronze prints tend to oxidation. Therefore they should be overprinted, e.g. with TP/UV-D-E50.

Note: When overprinting bronze colours with varnish or other colour shades it is essential to carry out pre-tests to check intermediate adhesion of the ink layers (fingernail test, tape test).

**DRYING / HARDENER REACTION**

1. Processing **WITHOUT** addition of hardener (possible but not recommended):  
Ink dries (cures) only with UV-radiation.
2. **Processing WITH addition of hardener TP 219/N:**  
First, ink dries under UV-radiation followed by chemical cross-linkage reaction.  
**Drying and reaction temperature of hardener must be at least 20°C using TP 219/N!**

**Drying / UV-Curing**

- TP/UV-D inks only cure under UV-radiation.
- Suitable UV-driers with Hg medium-pressure lamps (250 – 400 nm) and an efficiency between 80 and 400 W/cm have to be used.
- Preferably, use reflectors with a focussed radiation.
- Ensure an even radiation (intensity/distance to the lamps) of the whole printed image.
- TP/UV-D inks cure with an energy of approx. 500 – 1000 mJ/cm<sup>2</sup> (measured with Kühnast UV-integrator).
- The UV-energy required depends on the thickness of the printed ink layer, colour shade and type of substrate. Hence, printers should determine the exact required energy with their own UV-drier.
- Adhesion should only be checked after several minutes after curing. Due to the post-curing process of the inks and depending on the substrate, sufficient adhesion may sometimes only be achieved after up to 24 hours.

**Hardener Reaction**

Basically, the increased adhesion and resistance properties of the printed ink film are only achieved after UV-curing followed by chemical cross linkage reaction between ink and hardener. This cross linkage reaction depends on time and temperature. Minimum requirement is 72h/20°C.

Cross-linkage reaction will be quicker using higher drying temperatures on suitable substrates: 80°C/60 minutes.

**Resistance Tests**

Resistances should not be checked before completion of curing and cross-linkage.

Processing without hardener: after 24 hours

Processing with hardener: after 72 hours

**CLICHÉ**

All commercial types of clichés (polymer, thin and thick steel, ceramic) are suitable for processing TP/UV-D inks. For TP/UV-D inks use clichés with a depth between 16 and 18µ.

**CLEANING**

If not exposed to UV-radiation clichés, ink pots and tools can easily be cleaned. When processed with hardener, the longer inks dry on clichés, pots and tools the harder will be their removal due to the chemical cross-linkage reaction. Therefore, always remove ink residues as soon as possible using our universal cleaning agents URS, URS 3 or thinner VD 40.

**PACK SIZE**

Pad printing inks TP/UV-D are delivered in 1 litre containers. Other pack sizes are available upon request.

**SHELF LIFE**

In closed original containers, TP/UV-D inks generally have a shelf life of 2 years from date of production. Hardener TP 219/N has shelf life of 14 months from date of production, also in closed original containers. For exact date of expiry, please refer to the label.

**SAFETY DATA SHEETS**

Read safety data sheet prior to processing

Safety data sheets comply with Regulation (EC) No. 1907/2006 (REACH), Appendix II.

**CLASSIFICATION AND LABELLING**

Hazard classification and labelling comply with Regulation (EC) No. 1272/2008 (CLP/GHS).

