

Series 600 Auxiliaries

Auxiliaries for modifying product group 600

Printcolor’s 2-component screen printing inks are supplied in a form that only requires individual on-site adjustment of the inks with thinners and retarders. For chemically and physically hardening inks, a hardener must also be incorporated into the inks. As a general rule, our color settings are ideal for processing under normal printing conditions. The addition of auxiliaries is not necessary and usually does not make sense. With the exception of the hardener in 2-component ink systems, we incorporate the auxiliaries into the ink formulations during production. Therefore, it is not necessary and in some cases

it is actually counterproductive to increase the dosage of auxiliaries for standard applications. However, if unfavorable factors come into play due to printing parameters, environmental influences or the quality of the material, it can be advisable and helpful to modify the printing ink on the press. This technical data sheet offers a clear and complete range of auxiliaries to solve different problems and challenges. Detailed information on the recommended addition ratios can be found in the technical data sheet of the respective ink series.

Important note

The addition of auxiliaries should not be estimated. Always use scales or graduated containers. Overdosing often leads to undesirable and sometimes irreversible problems; in the case of leveling agents, the expected effect can even be reversed (impaired leveling). Thinners and retarders should

ideally be added and incorporated while stirring. Use quantities above 10% by weight should be added gradually; otherwise there is a risk of gelling/flocculation.

Thinners, accelerators and retarders

Thinners, accelerators and retarders are used to adapt the printing inks to the requirements of different applications.

Interpretation of the evaporation rate: The evaporation rate indicates how quickly a solvent evaporates. For example, an evaporation rate of 40 means that the thinner evaporates 40 times slower than diethyl ether (evaporation rate 1 according to DIN 53170). The Series 600-017 universal thinner with an evaporation rate of 107 is therefore approx. 3.3 times faster than the Series 600-018 universal retarder (evaporation rate 341).

Traditional auxiliaries

Our traditional universal thinners have proven their usefulness over decades:

Item number	Designation	Evaporation rate
600-017	Universal thinner	107
600-018	Universal retarder	341
600-019	Accelerator, fast	68

Modern, user-friendly auxiliaries

Modern versions of universal thinners contain less harmful solvents. Among other things, they are free of PAHs (polyaromatic hydrocarbons), cyclohexanone and aromatic compounds:

Item number	Designation	Evaporation rate
600-037	Universal thinner, medium, free of aromatic compounds	190
600-038	Universal retarder, slow, free of aromatic compounds	1200

Special auxiliaries

The Series 10-0330 thinner can improve adhesion to plastics and coatings and supports the curing of the ink film.

Item number	Designation	Evaporation rate
10-0330	Aggressive thinner	40

Hardeners

Hardeners react with the binder of the printing ink. This means that the ink can only be processed for a limited period of time from this point onward. This period is called the pot life. In most cases, the printing ink becomes thick and rubbery after the pot life has elapsed. In some cases, however, the expiry of the pot life is not so clearly visible. The printing ink should always be replaced if the processing time specified in the technical data sheet has been exceeded.

Curing is a chemical reaction between the printing ink and the hardener, which requires temperature and time. If printed parts are stored at too low a temperature, the reaction stops and the curing process remains incomplete. The higher the temperature and the longer the reaction time, the better the curing of the ink films. How long the curing process takes depends heavily on the type of ink used. Moisture (e.g. condensation) on the printed parts should be avoided, as the hardeners react with water and are then no longer available for film formation.

Series 600-HDI: Hardener for indoor applications

The highly reactive Series 600-HDI standard hardener achieves very high mechanical and chemical resistance. The pot life is a little shorter than with other hardeners and the ink films a little less elastic. The temperature should not fall below 15 °C during curing. As the hardener tends to yellow, it should not be used for outdoor applications.

Highly suitable for	Series 650 and 658
Can be used with	Series 630, 631 and 632

Series 600-HDR: Hardener for outdoor applications, quick-drying, solvent-free

The Series 600-HDR hardener enables fast physical drying and meshing with all Printcolor screen printing inks. Series 600-HDR is touch-dry after 2 minutes and is therefore ready for further processing faster. Compared to Series 600-HDA (see below), the mechanical and chemical resistance is only slightly lower, and the outdoor resistance is very good. The hardener is solvent-free and contains less than 0.1 % diisocyanate, which allows it to be handled without proof of training. Curing should take place at a temperature of at least 20 °C.

Highly suitable for	All screen printing inks from Printcolor
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Series 600-HDA: Hardener for outdoor use

The cured ink films offer excellent mechanical and chemical resistance. The temperature should not fall below 20 °C during curing.

Highly suitable for Series 640 and 660

Can be used with Series 650 and 658

Series 600-HDS: Special hardener, highly resistant, solvent-free

Series 600-HDS is an extremely durable hardener that produces a highly resistant, very flexible ink film. Series 600-HDS can be used where the durability of the Series 600-HDA hardener is not sufficient for outdoor applications or where forced drying is required at high temperatures without yellowing. Due to its modern, solvent-free formulation, the hardener is extremely user-friendly. Series 600-HDS is particularly suitable for forced drying at up to 180 °C; requires a minimum temperature of at least 23 °C for seven days for complete curing, which is why forced drying at up to 180 °C is recommended.

Highly suitable for Series 640 and 660

Can be used with Series 650 and 658

Series 600-GL: Glass hardener

This hardener can be used to produce chemically highly resistant films on glass, ceramics, metals and duroplasts. The mixing ratio is 20:1.

Standard hardener for Series 630 and 632

Series 600-GLH: Glass hardener, extended pot life

With this hardener, the pot life can be further increased compared to Series 600-GL. Ink mixtures with Series 600-GLH are preferably dried at a higher temperature, without yellowing. The mixing ratio is 10:1.

Hardener for Series 630 and 632

Series 600-HDT: Oven-drying hardener, can be activated by temperature

Finished mixtures have a pot life of up to six months when stored at room temperature in suitable containers. The ink films offer excellent chemical and mechanical resistance. Curing takes place for 20 minutes at approx. 140 °C. The hardener only reacts at a temperature of approx. 120 °C. If the curing times are too short, the curing remains incomplete.

Hardener for Series 640

Anti-static additives

Anti-static additives can be used to avoid splashes in the printed image. In addition to adequate thinning, a sufficiently high air humidity (approx. 50 to 60 % relative humidity) is a prerequisite for avoiding splashes:

Item number	Designation
600-AMS	Liquid anti-static agent to increase the conductivity of printing inks. The amount added is 0.5 % to 1 % by weight. For 2-component ink series, the use of Series 600-AMS can result in a shorter pot life.
10-VP	The Series 10-VP is a thickening paste with broad compatibility and easy incorporation. It is used to adjust print viscosity and print sharpness. The amount added is 5 % to 10 % by weight.

Leveling and wetting agents

In the event of ink film defects that cannot be attributed to technical printing defects, the following auxiliaries can be helpful:

Item number	Designation	Addition ratio
600-VMS	Leveling agent for eliminating surface defects such as bubbles.	1–2 %
600-BMS	Wetting agent for the correction of film defects such as orange peel.	0.5–2 %

Other auxiliaries

Problem	Item number	Designation
Matting	10-MP	The Series 10-MP is a matting paste with broad compatibility and easy incorporation. It is used to adjust gloss/matte levels. The usual amount added is between 10 % and 30 % by weight, depending on the desired degree of gloss and the product.
Matting	10-0913	The matting powder is usually used when a product is to be heavily matted, and the matting paste is not sufficient. The powder must be incorporated with high shear forces. The usual amount added is 3 % to 10 % by weight.
Thickening	10-VP	The Series 10-VP is a thickening paste with broad compatibility and easy incorporation. It is used to adjust print viscosity and print sharpness. The amount added is 5 % to 10 % by weight.
Thickening	10-02043	The thickening powder is incorporated with an addition of 1 % to 3 % by weight at high shear forces.

Other

Container sizes	On request
Certificates / Standards	www.printcolor.ch/certificates
Other	Stir well before use.
	Information on shelf life can be found on the cover label.

Safety information

For all products mentioned in this technical data sheet, current safety data sheets according to EC Regulation 1907/2006 are available.

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Important information

Our technical advice in verbal, written and experimental form represents the current state of our knowledge and is intended to provide information about our products and their possible applications. It does not represent a guarantee of particular properties of the products or their suitability for a specific purpose and therefore does not exempt you from your own responsibility to assess the products supplied by us in terms of their suitability for the intended processes and purposes. We have no control over the application, use or processing of the products. Responsibility for these activities therefore remains entirely with the user. We accept no liability for process-related technical problems. Should liability nevertheless arise, this is limited for all damages to the value of the goods delivered by us and used by you. This technical data sheet replaces and voids previous data sheets.