

Series 700

Additives for modification of product group 700

All 1- and 2-component pad printing inks are produced in such way, that only an individual on-site adjustment of the inks by means of thinners and retarders may be necessary. Additionally, hardeners for chemically/physically bonding inks must be added to the inks. Basically: under normal printing conditions, our ink settings are ideal for processing. A further addition of auxiliaries is not necessary and most of the times not useful. With the exception of the hardener in 2-component ink systems, the additives are already incorporated during production. It is therefore not necessary - or in some cases even

counterproductive—for standard applications to increase the dosage of the additives.

If however unfavorable factors like printing parameters, environmental conditions or material texture have to be considered, it is quite appropriate and helpful to modify the ink during the printing process.

This technical data sheet offers a clear and complete range of additives to solve different problems and challenges. Please see details on recommended added quantities from the specific technical data sheet of the ink series.

Important Notice

Measuring of additives should not be “guessed”. Always use a balance or a scaled vessel. Overdosing often leads to undesired and sometimes not reversible problems; overdosing of leveling agents can even lead to a “turn-around” of the expected reaction (leveling disturbances). Thinner and retarder must ideally be worked into by

stirring. In any case and especially at an addition ratio of more than 10 % by weight, dosing should be realized step-by-step since otherwise the risk of undesired reciprocal reactions like gelling / flocculation could occur.

Thinner, Accelerator and Retarder

Thinners, accelerators and retarders are used to adjust the inks to the requirements of the various applications.

Interpretation of evaporation rate: The evaporation rate indicates how fast a solvent evaporates. So does the evaporation rate 40 for example indicate that thinner evaporates 40 times slower than ethyl ether (evaporation 1). The very fast special accelerator Series 700-041 with an evaporation rate of 12 is thus about 3,3 times faster than the universal thinner Series 700-017 (evaporation rate 40).

Traditional Additives

Our traditional universal additives have proven themselves for decades.

Article Number	Description	Rate of Evaporation
700-017	Universal thinner, slow	40
700-018	Universal retarder	180
700-019	Accelerator, fast	30
700-020	Special accelerator, very fast	12

Modern, user-friendly additives

Modern versions of the universal thinners contain less harmful solvents. They are among other things, free of cyclohexanone and aromatics:

Article Number	Description	Rate of Evaporation
700-037	Universal thinner, free of aromatics	40
700-038	Retarder, free of aromatics	142
700-039	Accelerator, fast, free of aromatics	25
700-041	Special Accelerator, very fast, free of aromatics	12
10-02459	Universal thinner, medium	190

Special Additives

Thinners Series 10-0330 can improve adhesion on plastics and coatings and promotes adhesion of the ink film.

Article Number	Description	Rate of Evaporation
10-0330	Aggressive thinner	40

Thinners of Series 310-017 and retarders of Series 700-021 are used for printing of plastics, sensitive to solvents. They are especially useful for material that is prone to stress cracking.

Article Number	Description	Rate of Evaporation
310-017	Thinner, mild	30
700-021	Retarder, mild	80

Please note: All these special additives cannot be processed with isocyanate-containing hardeners (for example, 700-HDI, 700-HDA, 700-HDG, 700-HDS).

Hardener

Hardeners react with the binder of the printing ink. This means that the ink can only be processed for a limited period from this time. This time is called potlife. In most cases after expiration of the potlife, the ink will turn thick and rubberlike. In some cases expiration of potlife is not clearly obvious. The inks should in any case be replaced when the process time mentioned in the technical data sheet has expired.

Curing is a chemical reaction between the ink and the hardener which is temperature and time consuming. If printed parts are stored at too low temperatures, the reaction is stopped and curing remains incomplete. The higher the temperature and the longer the reaction time is, the better cured ink films can be obtained. Duration of curing is extremely depending on the used ink. Humidity (e.g. condensation) on printed parts should be avoided since the hardeners are reaction with water and therefore will not be available for film formation.

Series 700-HDI: Hardener for indoor use

A high mechanical and chemical resistance is achieved with this highly reactive standard hardener Series 700-HDI. Potlife is slightly lower than with other hardeners and the ink films are a little less elastic. During curing, the temperature should not fall below 15 °C. Since the hardener tends to yellowing, it shall not be used for outdoor applications.

Excellent for	Series 750, Series 751 and Series 752
Use possible	Series 711, Series 784 and Series 792

Series 700-HDA: Hardener for outdoor use

The cured ink film convinces by excellent mechanical and chemical resistance. During curing, the temperature should not fall below 20 °C.

Excellent for Series 711, Series 784, Series 786 and Series 792

Use possible Series 712, Series 750 and Series 751

Series 700-HDS: Special Hardener, highly resistant

Extremely resistant hardener to reach long term outdoor durability. The hardener of Series 700-HDS can be used where the resistance of Series 700-HDA is not sufficient. However, to achieve complete curing, this hardener system requires a minimum temperature of 23 °C. The curing time of more than one week at room temperature is however relatively long

Series 700-HDG: Hardener, fast drying

Hardener of Series 700-HDG can be combined with all pad printing inks from Printcolor. It allows fast physical drying. This means that printed parts are quickly dry on the surface and can thus be processed further. The chemical reaction lasts between 2 and 5 days (depending on the ink system used). The mechanical and chemical resistance is only slightly lower compared to Series 700-HDA, the external resistance is very good. Curing shall be at a temperature of a minimum of 20 °C.

Series 700-GL: Glass Hardener

With this hardener, very resistant ink films can be achieved on glass, ceramics, metals and duroplastics (thermosetting plastics). Mixing ratio is 20:1.

Standard hardener for Series 750 and Series 751

Series 700-GLH: Glass Hardener, extended potlife

Compared to Series 700-GL, with this hardener potlife can additionally be extended. Color blends with Series 700-GLH are preferably dried at a higher temperature. Mixing ratio is 10:1.

Hardener for Series 750 and Series 751

Series 700-HDT: Oven-drying hardener, activated by temperature

Finished mixtures have a potlife of up to six months if they are stored at room temperature in suitable containers. The ink film convinces by excellent chemical and mechanical resistance. Curing takes place for 20 minutes at approx. 140 °C. A reaction of the hardener takes place only above a temperature of approx. 120 °C. Too short baking times result in incomplete curing.

Hardener for Series 750, Series 751, Series 784 and Series 786

Series 700-HDR: Hardener

This universal hardener was specially developed for applications with high resistance requirements. Compared to standard products such as Series 700-HDA or Series 700-HDI, the addition of Series 700-HDR significantly improves the adhesion and resistance of the ink film. The hardener is solvent-free and aliphatic-based, which means it can be used in various ink series. In addition to the mechanical and chemical properties, Series 700-HDR also increases the visual quality by increasing the gloss of the end products.

Antistatic Additives

Antistatic additives can be used to prevent splashing of the applied ink film (spider-webs). Besides sufficient dilution, especially a sufficiently high humidity (50–60 % relative humidity) is a prerequisite for avoiding splashes:

Article Number	Description
700-032	Antistatic paste for use with all pad printing inks from Printcolor. Addition ratio is between 5–10 % by weight, without noticeably change of ink characteristics.
700-042	An aromatic-free version of the antistatic paste Series 700-032.
700-AMT	Liquid antistatic agent to increase conductivity of the printing inks. Addition ratio is between 0,5 and 1 % by weight. In 2-component ink series, use of Series 700-AMT can result in decreased potlife.

Leveling and Wetting Agent

The use of the following auxiliaries can be useful in conjunction with ink film errors that cannot be attributed to technical printing defects:

Article Number	Description	Addition Ratio
700-VMT	Leveling agent to eliminate surface defects, such as bubbles.	1–2 %
700-BMT	Wetting agent to eliminate film defects, such as orange peel effect.	1–2 %

Cleaning Agents

For a clean and precise print image, we recommend using the two cleaners from the 700-URT series and the 700-BRT series for intermediate cleaning of the clichés.

When cleaning, please note that the cloth quickly becomes saturated with the removed ink, which can lead to recontamination of the area being cleaned. Therefore, the cleaning agents should be changed promptly or disposable wipes should be used. Additionally, cleaning should always be done in a well-ventilated environment.

Series 700-URT: Universal Cleaner

The Series 700-URT is a universal cleaner with excellent cleaning performance and high compatibility with common pad printing inks.

This versatile cleaner is highly effective in removing all types of contaminants without leaving any residue. It reliably dissolves migration substances from protective films and eliminates adhesive residues, film residues, and grease from various plastics and metals.

The suitability for stress-sensitive substrates must be tested on a case-by-case basis, but it is generally suitable.

Excellent for	All series of PG 700
Use possible	All series of PG 700

Series 700-BRT: Biological Cleaner

The biodegradable Series 700-BRT is excellent for the residue-free removal of all types of contaminants on various plastics and metals. The Series 700-BRT, for example, eliminates migration substances from protective films and cleans adhesive residues, film residues, and grease.

The suitability for stress-sensitive substrates must be tested on a case-by-case basis, but it is generally suitable.

Additionally, this bio cleaner is characterized by its low labeling requirement.

Excellent for	All series of PG 700
Use possible	All series of PG 700

More Additives

Problem	Article Number	Description
Abrasion	700-RCA	Tampon prints are often tested for abrasion resistance. The additive Series 700-RCA significantly increases resistance with the addition of 5–10 % by weight. Series 700-RCA is universally applicable, but the cured ink films cannot be overprinted anymore.
Flooding	700-AAA	Some color blends tend under special circumstances to "flooding" of a mixed color. This is particularly frequently observed in yellow-black or white-blue blends. The addition of 1–3 % of the universally applicable additive Series 700-AAA significantly reduces this problem.
Adhesion on PP	700-PP	The adhesion promoter Series 700-PP can be used together with ink series Series 711, Series 712, Series 752 and Series 784 in order to allow adhesion to non-pretreated polypropylene (PP). Addition ratio is between 10 and 20 % by weight. The resistance of the ink (especially to e.g. gasoline and hand sweat) are affected by the use of Series 700-PP.

Other

Delivery	Upon 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

Actual Material Safety Data Sheets according to EC-Regulation 1907/2006 are available for all products mentioned in this data sheet.

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Important Information

Our technical advice whether spoken, written, or through test trials corresponds to our current knowledge to inform about our products and their use. This is not meant as an assurance for certain properties of the products nor their suitability for each application. You are, therefore, obliged to conduct your own tests with our supplied products to confirm their suitability for the desired process or purpose. The selection and testing of the ink for specific applications is exclusively your responsibility. Should, however, any liability claims arise, such claims shall be limited to the value of the goods delivered by us and utilized by you with respect to any and all damages not caused intentionally or by gross negligence.