

# 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. Because a lot does not always help much. 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 "turnaround" 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, slow free of aromatics	40
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.

<b>Excellent for</b>	Series 750, 751 and 752
<b>Use possible</b>	Series 711, 784 and 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.

<b>Excellent for</b>	Series 711, 784, 786 and 792
<b>Use possible</b>	Series 712, 750 and 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 take place at a temperature of minimum 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.

<b>Standard hardener for</b>	Series 750 and 751
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**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.

<b>Hardener for</b>	Series 750 and 751
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**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.

<b>Hardener for</b>	Series 750, 751, 784 and 786
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### 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 percent 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 %

### More Additives

Problem	Article Number	Description
Abrasion	700-RCA	Tampon prints are often tested for abrasion resistance. The additive 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 711, 712, 752 and 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

<b>Delivery</b>	Upon request
<b>Certificates / Standards</b>	<a href="http://www.printcolor.ch/certificates">www.printcolor.ch/certificates</a>
<b>Other</b>	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.

Issued on	Revised on	Edited by	Version
02.05.2016	16.08.2018	T06 / T12	5

### 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.