

Thinner, Additives & Agents

Universally usable additives for modification of pad printing inks

Overview

All Printcolor 1- and 2-component pad printing ink Series are formulated with a spectrum of additives designed to ensure high performance, trouble free running in the press with only the addition of thinner to correct for local conditions. Under normal circumstances the addition of auxiliary agents is not necessary, and in most cases not useful, however difficult printing conditions and/or substrates may generate printing issues such as pin-holing, static or poor ink transfer. This range of additives are designed to help you obtain the best printing results under unfavourable environmental influences (heat or humidity), on poor substrates, or other production stresses.

NOTE

When using auxiliary agents it is important to measure additions accurately, and NOT exceed the recommended dose. Overdosing inks may produce undesired and irreversible problems such as reduced adhesion.

When mixing agents with ink systems it is important to add step-by-step mixing thoroughly at each step as they may be a risk of flocculation (i.e. solvent shock), gelling or other adverse reactions.

THINNER

Series 700-017 medium thinner

700-017 thinner is formulated to maintain optimum ink rheology under varying printing conditions created in open ink well and closed cup pad printers. 700-017 is a universal thinner suitable for use in all Printcolor pad printing inks. It is added at a ratio of 10 – 20% by weight to attain the ideal ink viscosity and transfer under production conditions.

The medium evaporative speed of 700-017 is designed to balance drying times with image transfer viability in multi colour machines or print cycles with longer processing times. The solvent composition of Printcolor 700-017 thinner is chosen to minimise chemical attack on printing pads. Its gentle wear on pad surfaces facilitates trouble free print transfer and longer pad life.

Printcolor 700-017 is Quality Assured to ISO 9002 Standards and offers the best value for money on the market. The unique mixture of solvents in 700-017 will help maintain ink consistency over long runs and throughout jobs having slow printing cycles and/or frequent stoppages. The medium evaporative speed of 017 ensures good ink viscosity while retaining print transfer speeds, making it ideal for wet-on-wet multi colour printing.

700-017 gives consistent performance and can be mixed with faster thinner to optimise print transfer speed in high speed production, or with retarder for slow cycle applications or screen printing.

THINNER

Series 700-018 slow thinner

Printcolor 700-018 is medium retarder suitable for use in all Printcolor pad printing inks running in closed cup or open ink well machines. Evaporation time of the whole system can be slowed by adding 700-018 retarder. Retarder slows drying of ink layer, lengthening transfer time where print cycles are slow, or operate under extreme operational conditions (elevated heat or humidity for example). Printcolor 700-018 is formulated from solvents chosen to minimise chemical attack on printing pads. Its gentle wear on pad surfaces will extend pad life and performance.

Precautionary Measures

Read the Material Safety Data Sheet (MSDS) prior to processing. The MSDS contain indications of hazardous ingredients, TLV-level and instructions for precautions when processing, handling and storing as well as first aid. The information given in the MSDS refers to processing as described in this technical leaflet. The statements in these leaflets have been made to the best of our knowledge and are given without any obligation. These Technical Sheets serve to advise, but it is absolutely

necessary to undertake your own printing tests under local conditions with regard to intended purpose prior to starting the printing job. The application, use and processing of the products delivered by Colour Components are beyond our control and imply no liability or guarantee on our part. Issue 1; 04/06

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The evaporation rates of solvents in 700-018 medium retarder are combined to retain print pick-up and transfer without necessitating blow-drying / hot air ventilation of the print. Retarding evaporation slows print transfer and lengthens touch-dry time on the substrate, for this reason adding more than 10% of 700-018 (by weight) is not advisable under normal printing conditions. In such cases a combined use of thinners and retarders is the best way to optimise ink flow and transfer.

Printcolor 700-018 is specifically formulated to retard ink used for pad and screen printing applications and is Quality Assured to ISO 9002 Standards. The addition ratio for 017 is generally between 10 and 20% by weight, specific recommendations are noted in the Technical Data Sheet for each ink Series.

THINNER

Series 700-019 fast thinner

700-019 is a universal thinner suitable for use in all Printcolor pad printing inks, particularly in closed cup applications as well as open ink well machines. 700-019 has been developed for fast drying on the substrate and high speed print production. 700-019 is a mixture of highly efficient solvent with a fast evaporation rate that facilitates a quick ink tack-off on the pad and fast drying on the print substrate. Printcolor 700-019 is a popular thinner for rotary pad printing and ink-cup machines and can be mixed with other 700 Series thinner to vary ink speeds to achieve the very best printing results under your production conditions.

The fast evaporative rate of 700-019 is designed to speed print transfer and drying in high speed print cycles with short processing times. Printcolor 700-019 is formulated from solvents chosen to minimise chemical attack on printing pads. Its gentle wear on pad surfaces facilitates trouble free print transfer and longer pad life. 700-019 thinner is Quality Assured to ISO 9002 Standards.

It 700-019 is generally added at a ratio of 10 – 20% by weight to attain the ideal ink viscosity and transfer. Refer to dose recommendations noted in the Technical Data Sheet for each ink Series.

THINNER

Special Thinner Series 10-0330

This is a special mixture of thinners to improve print adhesion to polystyrene materials and it's modifications like ABS, SAN, etc., as well as PET and the co-polymerised plastics like PET-A, PET-E or PET-G. On these plastics Series 10-0330 acts much like an adhesion promoter, improving the adhesion of all printcolor ink series.

NOTE

HARDENERS must always be used with special care and attention. Large deviation in the ink-to-hardener ratio can lead to problems which may only become apparent during a long term end-application. Such issues may be reduced resistance, brittleness and loss of adhesion. Always dose to the amount recommended in the Technical Data Sheet for each in Series.

A rest-period of approximately 15 minutes is recommended after mixing in the hardener and following dilution with thinner (this mixing sequence is very important) so that optimal wetting of the print substrate and print levelling can occur. High humidity and warmth can reduce the pot life 2-component ink systems, and can lead to a "self-bonding" reaction of hardeners. As such it is recommended that hardener cans/bottles should be immediately re-sealed after use.

Addition ratios of hardeners are specific to each ink series and can vary with application and substrate, please refer to the relevant Technical Data Sheets for details.

HARDENER

700-HDa

Printcolor 700 HDa hardener is based on aliphatic components that combine the characteristics of high chemical resistance and extremely good abrasion resistance. It is based on a highly reactive bonding compound that produces an extremely durable cured ink layer with high chemical and mechanical resistance.

Printcolor 700 HDa is engineered for UV stability and to be yellowing-free even after prolonged outdoor exposure. HDa produces a glossy cured link layer that is highly flexible, allowing it to bend with flexible

substrates without becoming brittle. Printcolor 700 HDa can be used with most pad printing and many screen printing inks. However, to take full advantage of the UV stability and flexibility possible with HDa the best ink partners are the pad printing Series 752, Series 784, Series 792 and Series 711.

The unique chemical crosslinking that gives HDa it's flexibility and outdoor stability takes more time or temperature to reach full cured hardness compared with internal hardeners like 700-HDi. Mixed ink has an average pot life of 6-8 hours (and often longer) depending on the ink Series in use and ambient conditions. Printcolor HDa requires temperatures above 15 degrees C for chemical cross-linking to take place, ideal curing conditions are at room temperature – 20 degrees or higher. You can increase print durability and reduce curing time by oven baking the printed product.

Mixing ratios of ink to HDa will vary with the on ink series your using and your end application, these are listed in the Technical Data Sheets and on ink can labels.

HARDENER 700-HDi

Printcolor 700 HDi hardener is formulated for industrial/commercial printing applications intended for indoor use. It is based on a highly reactive bonding compound that produces an extremely durable cured ink layer with high chemical and mechanical resistance. Ideal ink partners for 700 HDi hardener are Printcolor two component pad printing ink Series 750, Series 752 and Series 784. HDi can also be added to Printcolor Series 711 and Series 712 to increase print durability.

700 HDi is a universal hardener designed to work with all Printcolor 700 Series pad printing inks and many of Printcolor screen printing inks too. As a reactive hardener prints cure reasonably quickly making it ideal for fast throughput applications and tight print-to-pack turnarounds. Ink mixed with HDi has an average pot life of 4-8 hours depending on your ink type and ambient conditions.

HDi produces a rigid ink layer best suited to hard surfaces such as plastics and metals as it may crack if flexed or applied to soft materials (See 700-HDa for flexible applications). HDi requires temperatures above 10 degrees C for chemical bonding to take place, ideal curing conditions are at room temperature – 20 degrees or higher. You can increase print durability and reduce curing time by applying heat to the printed product using a drying tunnel or oven.

Mixing ratios of ink to HDi will vary according to the ink Series and end application. Ink/hardener mixing ratios are listed in the Technical Data Sheets for each Series and on ink labels.

HARDENER 700-GL

Printcolor 700 GL is specifically formulated for used with Series 750 epoxy based pad printing ink. 700 GL epoxy cross-linking produces an extremely resistant and adhesive bond onto glass and ceramic, as well as high luster metal surfaces like chrome and brass. Pad printed drinkware is commonly referred to as a 'low-fire' brand and not recommended for use on items subjected to abrasive commercial dish washing.

The high reactivity of GL hardener means only a small amount is required for to achieve maximum print adhesion. Ink may be adjusted to optimum print consistency using standard Printcolor thinner 700-019 fast thinner and/or 700-017 medium thinner. 700 GL has an excellent pot life and will give you trouble free printing for up to 8 hours or more depending on ambient conditions. A mixing ratio of 20:1 is recommended for most jobs (5% by weight to a maximum of 10% for demanding applications). Maximum cured hardness and water resistance is achieved by heat curing (baking) in an oven at 140 – 160 degrees C for 20 to 30 minutes.

HARDENER 700-HDS Solvent Free Hardener

This highly reactive hardener based on aliphatic components that combines the best characteristics of Hda and Hdi hardener systems. HDS hardener is totally outdoor resistant, yellowing-free and cures to a highly resistant ink film. The solvent-free hardener exhibits a fast bonding and high gloss. Flexibility of the cured ink layer is very good. It is important to note that HDS has a minimum curing temperature of >23°C, higher if possible. Series 700-HDS represents the most modern and effective bonder formulation based on Isocyanate. Its solvent-free composition makes it especially user-friendly and desirable in some sensitive production environments.

HARDENER 700-HDF Yellowing Free Hardener

This highly reactive hardener system is characterised by its yellowing-free properties under prolonged outdoor exposure. It was developed for its colour and gloss persistence and for a high resistance to brittleness. 700-HDF has greater flexibility and elasticity than all other systems. However, due to its very high reactivity, limited pot life may be a consideration in some production environments. The best ink partners are Series 752, 754, 784, 792 and for some applications 711

NOTE When using auxiliary agents it is important to measure additions accurately, and **NOT** exceed the recommended dose. Overdosing inks may produce undesired and irreversible problems such as reduced adhesion.

When mixing agents with ink systems it is important to add step-by-step mixing thoroughly at each step as there may be a risk of flocculation (i.e. solvent shock), gelling or other adverse reactions.

ADDITIVE 700-BMT Wetting Agent

Printcolor 700 BMT can be used to improve the wetting characteristics of contaminated or problematic substrates. Ink adhesion can be improved on protection foils, oxidised metals and plastics with minor contamination from release agents and silicone residues. In such cases BMT is added to reduce the interfacial energy of the ink, facilitating bonding despite these substrate problems, positively improving adhesion when properly implemented.

Addition ratios should be restricted to only 0.5% to 1% up to a maximum of 2% by weight. It is important that 700 BMT is properly blended into the ink system for proper performance.

ADDITIVE 700-PP Adhesion promotor for untreated polypropylene

Printcolor 700-PP ink additive designed to improve print adhesion to untreated polypropylene (PP) in combination with pad printing Series 711, Series 712, Series 752 and Series 784 inks. 700-PP is added at a rate of 10 to 20% by weight to the ink, plus hardener at the ratio suited to the ink Series to be used. The additive has no apparent effect on pot life, but in some cases a reduction of chemical resistance is possible.

700-PP is effective on pure PP and often on recycled plastics blended with polypropylene materials. As the formulation of "PP" plastics, and the inclusion of recycled materials varies from product to product, it is advisable to conduct your own ink tests before production.

ADDITIVE 700-RCA Additive to improve adhesion and abrasion resistances

Printcolor 700-RCA is an ink additive formulated specifically to improve the abrasion and scratch resistance of pad and screen printing inks on substrates such as PVCs, styrenes, polycarbonates, treated polyesters, coating and paints, wood and paper products. Used with the appropriate ink for your substrate, 700-RCA considerably increases surface resistance of the ink film to mechanical wear.

700-RCA is a universal additive compatible with all Printcolor Series 700 pad print inks and solvent based screen print inks added in concentrations of 10 to 25% by weight.

ADDITIVE 700-VMT Levelling Agent

Printcolor 700 VMT is a highly concentrated silicone additive characterised by its levelling improving effect and a certain enhancement of gloss of the cured ink layer. Typical problems like bubbling, pinhole or orange-peel effects in the printed image can be rectified. 700 VMT will often also influence the wetting characteristics of the substrate too, which can be used positively to improve adhesion when properly implemented.

Addition ratios should be restricted to only 0.5% up to a maximum of 1% by weight. 700 VMT must properly be blended into the ink system for proper performance. Caution should be used if the ink layer is to be over-printed or lacquered as the addition of VMT may lead to wetting problems for post-printing processes.

ADDITIVE 700-032 Antistatic paste

Printcolor 700-032 anti-static paste has been developed to solve static problems in pad printing know as spider webbing or stringing that is characterised by uneven ink deposit, poor pad transfer and splashing of the printed ink film. The addition of between 5 % and 20% of the 700-032 paste will significantly reduce or completely eliminate the effects of spider webbing caused by unfavorable conditions such as low humidity, high ambient temperatures and the electrostatic charge that develops on some plastics. Printcolor 700-032 anti-static paste is suitable for all Printcolor pad printing inks, it has no influence on the adhesion properties of the ink.

PRIMER 10-PP Wipe primer for untreated polypropylene

Printcolor Series 10-PP is a chemical wipe primer for use on polypropylene (PP) to achieve adhesion of pad and screen printing inks. It is an effective and inexpensive method of treating short run jobs, or items that are difficult to pretreat by corona or flame. 10-PP primer can be used in combination with Printcolor screen printing ink Series 630, Series 640, Series 650 and Series 665 and with pad printing ink Series 750, Series 752, Series 754 and Series 784. Ink should be mixed with the thinner and hardener ratio described in the relevant technical data sheets.

Printcolor 10-PP chemical primer is receptive to printing for days, months and years after application provided the dried primer film is stable. While it will not loose its priming effect over time, it is recommended that parts are printed within a few days of treatment in order to avoid damage to the primer film by chemicals or mechanical abrasion. The primed plastic can be printed as soon as the solvent carrier has evaporated from the primer, leaving a dry film. 10-PP is formulated with a fast solvent so your part can be printed within seconds of being primed.

REMOVER 10-002 Cleaner/Remover

Printcolor 10-002 is a solvent based cleaning agent developed for the treatment of printed PVC and tarpaulin materials. The substrate is wipe over with 10-002 to dissolve grease, dust and residues, and to prepare the material for further printing. This unique solvent mix is designed so that the common coating of PVC fabric foils is not adversely effected, retaining their plasticity and flexibility and resistance to brittleness.

Printcolor 10-002 can also be used as a gentle cleaner to remove wet and partially cured pad and screening inks.

WASH-UP 700-URT Solva Wash

7 00-URT is a cleaning agent used to remove one and two component solvent pad and screen printing inks from machinery parts and plates. Solva Wash is formulated for high cleaning efficiency and residue free evaporation of the solvent from clean parts. It free of greasing / residue so that parts can be used again immediately after wash up without further cleaning.

700-URT Solva Wash is free of acid or alkaline materials, does not contain any chlorinated or fluorinated components. Refer to the Technical Information and 700-URT MSDS documents for more details.



Printcolor screen printing ink lines Series 700-HDA

fulfils following regulation (1) / is free of (2)

- (2) Heavy metals according to DIN EN 71, part 3
- (2) Heavy metals according to ASTM Standard F 963 (2003)
- (2) Chlorinated organic compounds (f.e. PCB, PCN, chlor. paraffins, other chlorinated org. compounds; blue and green contain phthalocyanine pigments)
- (2) Listed Azo compounds
- (2) Tin (Sn) and silver (Ag) and such alloy's
- (2) Formaldehyd (exception: fluorescent colors)
- (2) Vinyl chlorid or monomeric VC
- (2) Diisononyl Phtalate; n-Butylacetate; Toluene diisocyanate
- (1) EU-Richtlinie 2002/95/EG (Restriction of Hazardous Substances / RoHS)
- (1) EU-Richtlinie 2002/96/EG (Waste Electrica and Electronic Equipment amending / WEEE)
- (1) EU-Richtlinie 2005/84/EG (Phthalates in toys and baby articles)
- (1) EU-Richtlinie 2003/11/EG (Brominated organic compounds, f. e. PBB, TBBP-A-bis, Pbdiphenylethers)
- (1) Verordnung (EG) Nr.1907/2006 (Reach – including SVHC: CMR, PBT, vPvB – October 2008)
- (1) DIN 53160 (Saliva and sweat resistance test of coloured toys)
- (1) 5th Alteration of "Bedarfsgegenständeverordnung" (engl. Consumer goods regulation)
- (1) EU-Richtlinie 2000/53/EG („Altfahrzeuggesetz“)
- (1) SS-002259 (free of listed materials)

Member of IMDS / IMDS-ID 9448512

SONY Green Partner since 2003

May 6, 2009

Printcolor Screen Ltd.

CERTIFICATE



Richard Gähwiler
HSE Manager



Dieter Hermann
CEO



Printcolor auxiliary agents Series 700-HDI

fulfils following regulation (1) / is free of (2)

- (2) Heavy metals according to DIN EN 71, part 3
- (2) Heavy metals according to ASTM Standard F 963 (2003)
- (2) Chlorinated organic compounds (f.e. PCB, PCN, chlor. paraffins; blue and green contain phthalocyanine pigments)
- (2) Listed Azo compounds
- (2) Tin (Sn) and silver (Ag) and such alloy's
- (2) Formaldehyd (exception: fluorescent colors)
- (2) Vinyl chlorid or monomeric VC
- (1) EU-Richtlinie 2002/95/EG (Restriction of Hazardous Substances / RoHS)
- (1) EU-Richtlinie 2002/96/EG (Waste Electrica and Electronic Equipment amending / WEEE)
- (1) EU-Richtlinie 2005/84/EG (Phthalates in toys and baby articles)
- (1) EU-Richtlinie 2003/11/EG (Brominated organic compounds, f. e. PBB, TBBP-A-bis, Pbdiphenylethers)
- (1) Verordnung (EG) Nr.1907/2006 (Reach / including SVHC Candidate List 2008)
- (1) DIN 53160 (Saliva and sweat resistance test of coloured toys)
- (1) 5th Alteration of "Bedarfsgegenständeverordnung" (engl. Consumer goods regulation)
- (1) EU-Richtlinie 2000/53/EG (Altfahrzeuggesetz)
- (1) SS-002259 (free of listed materials)

Member of IMDS / IMDS-ID 9448512

SONY Green Partner since 2003

June 2, 2009

Printcolor Screen Ltd.

CERTIFICATE



Richard Gähwiler
HSE Manager



Dieter Hermann
CEO



BVQI

Certificate
For

printcolor 

high performance inks

PRINTCOLOR SCREEN AG
CH-8965 BERIKON / SWITZERLAND

Bureau Veritas Quality International (BVQI)
hereby confirms that the management system of the above-mentioned
organisation has been assessed and complies with the requirements set out in the
following standards / regulations.

Standards/Regulations

SN EN ISO 9001 : 2000

The management system comprises:

**DEVELOPMENT, MANUFACTURING AND
DISTRIBUTION OF SCREEN AND PAD PRINTING INKS,
INKJET INKS AND AUXILIARY MATERIALS**

Date of initial certification: **10.05.1999**

The requirements of the standards / regulations must be complied with throughout the period of validity of this certificate.
This will be ensured through regular monitoring by BVQI.

Date of certification: **31.10.2005**

Valid until: **31.10.2008**

BVQI will provide information on the validity of this certificate on request at any time.
Additional information on the management system and the area of applicability should be obtained from the organisation itself.

Date: **09.02.2006**

Certificate number: **174915/A**

N. Loidat

Bureau Veritas Quality International (Switzerland) AG/SA
Vor Ort 25, CH-8104 Weiningen/Zurich



SCESm 003



CH-8965 Berikon, 18-07-2011

REACH - SVHC

The raw materials used by Printcolor Screen Ltd. for production are pre-registered with respect to REACH-conformity.

On the basis of the knowledge of the raw materials and the manufacturing process we confirm that none of the substances listed in

the ECHA SVHC Candidate List (June 2011)

is actively added as ingredient in our Screen- and Pad Printing Inks and Printing Ink Related Materials (Additives, thinners, hardeners and others).

Yours Faithfully

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