



Coates Screen

Product Data Sheet

SCREEN PRINTING INKS HG

APPLICATION

For all kinds of thermoplastics, especially polymethacrylates (such as Perspex, Plexiglass, Resartglass etc.) rigid and plasticized PVC, cellulose acetobutyrate, various types of polystyrene and polycarbonate.

CHARACTERISTICS

Screen printing inks HG are quick drying to a high gloss finish and are excellent jet dry inks. The degree of gloss depends on the substrate and, in some cases also on the colour shade.

Screen printing inks HG are weather resistant, can be processed easily and they have a relatively mild odour.

The colour shades of HG series are highly brilliant despite the fact that they are limited to those pigments which provide maximum light fastness and resistance to plasticizers and solvents. Opacity is medium.

As all air drying screen printing inks retain solvents to a certain degree (solvent retention) tests for adhesion and durability on the substrate should not be carried out until one or two days after printing.

Due to the aggressive solvents contained in gloss inks HG plastics likely to form tension cracks should be decorated only in sheet form. Also, care must be taken to avoid tension corrosion with mouldings (especially polystyrene and acrylics).

PIGMENTS AND LIGHT FASTNESS

Screen inks HG are suitable for outdoor use.

Only lead free pigments with a light fastness of 7-8 on the wool scale (DIN 16 525) are used for screen printing inks HG. If base shades are mixed with a high content of white or varnish light fastness is reduced.

HG inks can be reduced to semi-transparent shades by adding transparent paste HG/TP or binder HG/B. If, however, the colour shades are reduced a lot, light fastness is reduced as well. Mixing ratio of printing ink to transparent media should not exceed 1 : 1.

The colour shades of HG-NT inks show heavy-metal free pigmentation and correspond to the requirements of EN 71, part 3, safety of toys, migration of certain elements.

ADJUSTMENT FOR SCREEN PRINTING

Screen printing inks are delivered in semi-paste form. Depending on printing conditions they are adjusted to a ready-to-print consistency by addition of 15-20% thinner. To take advantage of the very quick drying properties of this ink series only the special thinners may be used.

These are:

Thinner HG/V
Retarder HG/D for printing of fine details
or Universal Retarders UV1, UV2, UV3 and UV4.

ADJUSTMENT FOR SPRAYING

To spray coat acrylics, use series HG inks with spray thinner HG/VSP.

DRYING

Screen printing inks HG are evaporative inks which air dry in 10-15 minutes at room temperature (20°C; 68°F) or jet dry in 30-60 seconds in a continuous dryer at 50°C (122°F). Of course drying time also depends on the air stream applied to the prints within the dryer. Due to the quick evaporation of solvents distortion of the printed materials is reduced to a minimum.

Special care should be taken in multi-layer printing when printing onto two sides of the same substrate. When rack drying these inks, quick air circulation is required in order to prevent solvent build-up within the rack, which results in longer drying times.

ADDITIVES

In general no additives are required for processing HG gloss jet inks. Only the transparent colours have to be reduced with special transparent paste HG/TP, depending on the fabric used. For details please refer to section "Four colour process printing."

If, in some cases, degree of gloss has to be increased we recommend addition of binder HG/B. However, opacity of the plastic inks mixed with this binder is reduced, so that this additive is only recommend for light substrates. If problems due to static charge appear use the proper additives (Wicostat).

MISCIBILITY

Screen printing inks HG are miscible with all plastic screen printing inks of our program, such as screen printing inks SG, PK, PK-Jet and J. Due to their miscibility in any ratio the properties of the individual printing ink types may be combined efficiently.

The opacity of screen printing inks HG and SG e.g. may be improved by addition of printing ink types PK, PK-Jet and J, while gloss of the latter may be improved by addition of HG or SG. However, when mixing the individual screen printing inks consider that the properties of the original printing ink change in reference to drying and conduct towards the substrate.

BRONZE INKS

For printing of metallic decorative inks, binder HG/B mixed with the bronze pastes B 75 to B 79 (rich gold, rich-pale gold, copper and silver) is used.

Mixing ratios are as follow:

Gold bronze paste	:	HG/B	=	1	:	3-4
Silver bronze paste	:	HG/B	=	1	:	4-5

When overprinting bronze inks with a regular screen ink consider that in most cases screen inks with a regular opacity do not have sufficient adhesion on the bronze coating. This problem is often solved by adding approx. 10% binder HG/B to the screen ink prior to overprinting. It will also help if the bronze content is as low as possible.

As bronze prints tend to oxidation we recommend overprinting with clear varnish HG/E50 or SG/E50. When overprinting bronze inks with regular pigmented screen inks or clear test for adhesion (finger nail test, tape test) prior to starting a print run.

There is also a readily mixed AB bronze available which is relatively resistant against oxidation and weathering.

FOUR COLOUR PROCESS PRINTING

Processing of the transparent inks with a low specific weight is very easy. Due to the high light fastness of pigments total compliance with the standard process shades was not possible. Depending on halftone fineness, mesh count, squeegee hardness and pressure etc. the transparent shades have to be reduced with transparent paste HG/TP depending on the job. Mixing ratio of process ink to transparent paste has to be determined by pretests. For grey or added depth prints use black HG 65 also reduced with transparent paste HG/TP.

OVERPRINTING

Like all gloss inks HG inks are generally not overprinted. As gloss inks often contain flow agents there is a risk of pinholes in overprinting applications.

Should overprinting be required, however, clears HG/E50 or PK-Jet/E50 or SG/E50 can be used. For further improvement of weather resistance of HG prints we recommend varnish PK 70/36.

STENCILS

Due to their binder plastic inks like HG contain aggressive solvents. Therefore only water based stencils and photomechanical stencils can be used.

HEAT RESISTANCE AND FORMING

HG inks are generally well suited to forming applications on appropriate materials. As the applied screen printing ink film does not stick to the forming punch thermoplastics printed with these inks are easily deep drawn with matrix and negative matrix systems.

Generally it is not necessary to add binder or elastifying agent to HG jet inks. White and white dependant colours are the exception and a bit of additional elasticity is helpful here.

All HG inks can withstand temperatures of 180-200°C (356-392°F) for approx. 15 to 30 minutes without changing the colour shade, thus making them ideal for even the most complicated forming work with long periods of heat application. Of course, testing is recommended in all forming applications.

CLEANING OF STENCILS AND TOOLS

Screen printing inks HG can be easily removed from stencils and tools using universal cleaning agent URS.

PACKING

HG inks do not skin in long-term storage. They come in 1 liter, 5 liter and 30 liter containers (approx. 1.06 qts., 1.35 gallons and 6.5 gallons).

SHELF LIFE

For information regarding shelf life please see tin label.

MARKING

Read material safety data sheets prior to processing.

The material safety data sheets according to 91/155/EWG contain marking in compliance with the regulation on dangerous working materials as well as instructions for precautions when processing, handling and storing as well as first aid.

The information given in the material safety data sheet refers to processing as described in this technical leaflet.

STANDARD SHADES

citric yellow	HG 10/NT	marine blue	HG 35/NT
medium yellow	HG 11/NT	violet	HG 36/NT
dark yellow	HG 12/NT	light green	HG 40/NT
light orange	HG 14/NT	fir green	HG 41/NT
orange	HG 15/NT	brilliant green	HG 42/NT
ochre yellow	HG 17/NT	reseda green	HG 43/NT
light red	HG 20/NT	grass green	HG 44/NT
red bright	HG 21/NT	light brown	HG 50/NT
carmine red	HG 22/NT	dark brown	HG 51/NT
dark pink	HG 24/NT	white	HG 60/NT
light blue	HG 30/NT	white, highly opaque	HG 60/HD-NT
medium blue	HG 31/NT	black	HG 65/NT
ultra marine	HG 32/NT	black, highly opaque	HG 65/HD-NT
dark blue	HG 33/NT	blackboard ink	HG 67
turquoise	HG 34/NT		

PROCESS COLOURS ACCORDING TO EUROPE SCALE

yellow	HG 180/NT
magenta	HG 181/NT
cyan	HG 182/NT

C-MIX 2000 BASE COLOURS

primrose	HG/Y30	violet	HG/V50
golden yellow	HG/Y50	blue	HG/B50
orange	HG/O50	green	HG/G50
scarlet	HG/R20	black	HG/N50
red	HG/R50	white	HG/W50
magenta	HG/M50	varnish	HG/E50

C-MIX-2000 BASE COLOURS (extra lightfast)

primrose	HG/Y30-XL	scarlet	HG/R20-XL
golden yellow	HG/Y50-XL	red	HG/R50-XL

BRONZE INKS

intermediate silver	HG 74
rich gold	HG 75/AB
rich-pale gold	HG 76/AB
pale gold	HG 77/AB
copper	HG 78/AB
silver	HG 79/AB
transparent paste	HG/TP
matting paste	HG/MP
bronze binder	HG/B
colour paste	HG 65/22

METAL GLOSS INKS

rich gold	HG 75/MG
rich pale gold	HG 76/MG
pale gold	HG 77/MG
copper	HG 78/MG
silver	HG 79/MG

The statements in our leaflets and safety data sheets are based on our present experiences, however they are no assurance of product properties and do not justify a contractual legal relationship. They serve to advise our business associates, but it is absolutely necessary to make your own printing tests under local conditions, with regard to the intended purpose prior to starting the job. - All former leaflets are no longer valid. OCTOBER 2000 – VERSION No. 1

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