

Technical Information

14.M.002 | Conventional Offset Systems | Metallic Inks, Pearlescent Inks

ALCHEMY
co-engineered with ECKART

ALCHEMY Silver

for offset printing

Application

Metallic-effect printing inks open up great possibilities for the design of a print job. Particularly in segments such as high-quality labels, brochures and packaging, they enable printers to create and produce excellent effects. Silver effects are produced by using pigments based on aluminium.

One-component inks

As a rule, silver inks are supplied ready to use. The advantage of one-component inks is to be found in their uncomplicated handling, because there is no need for labour- and time-intensive mixing of paste and varnish as is the case with two-component systems. In developing our ALCHEMY product range, we have succeeded in bringing their printability and the metallic effect obtainable up to the same high standard as that of two-component inks.

One-component Silver	Sales code	Fastness properties per ISO 12040 / ISO 2836			
		Light BWS	Alcohol	Solvent mixture	Alkali
ALCHEMY Silver	46 A 3000	8	+	+	-
ALCHEMY Silver	46 A 3100	8	+	+	-
ALCHEMY Silver PANTONE 0877	46 A 0877	8	+	+	-
ALCHEMY Silver non-leafing	46 G 5120	8	+	+	-

Special silver for post-finishing

- ALCHEMY Silver 46A3100 for subsequent water-based coating.
- ALCHEMY Silver non-leafing 46G5120 is particularly suitable for subsequent processing such as UV-varnishing or celloglazing / film laminating. We recommend a subsequent test under production conditions.

One-component Silver	Sales code	Optical density (wet)	Filter
ALCHEMY Silver	46 A 3100	Ca. 0,9 – 1,0	C
ALCHEMY Silver non-leafing	46 G 5120	0,6	C

Two-component inks

In this case, the silver ink is mixed by the pressman himself from pigment paste and varnish immediately prior to the print run. When preparing the ink, care must be taken not to „overstress“ it, i.e. the components must be mixed as gently as possible. High-speed agitators and excessive heating of the ink during mixing have a negative effect on its quality and must therefore be avoided at all costs. If the conditions cited above are complied with, you will obtain very good metallic effects.

We recommend the following ink for sheet-fed offset:

		Paste	Varnish
ALCHEMY	Silver	46 A 3050	10 A 0030

Under normal circumstances, we recommend a mixture ratio of 35 parts paste by weight and 65 parts varnish by weight.

This ratio can, however, also be varied:

- More pigment paste gives a greater metallic effect with lower rub resistance.
- More varnish improves the transfer characteristics and rub resistance but reduces the metallic effect.

Processing

The best metallic effect is obtained on coated stocks that have a uniform, smooth surface. Tests have revealed that uncoated and matt-coated substrates are not particularly well suited to printing with metallic inks because the rub and smudge resistance of the inks on these substrates is inadequate. For this reason, you should determine - prior to beginning production - the extent to which the print will be subjected to mechanical stress. Depending on the substrate, application of a finish coating or varnish is imperative.

In view of the fact that the systems possess excellent coverage properties, it is neither recommended nor necessary to try to enhance the effect by increasing the ink delivery. As a rule, this simply leads to printing problems such as piling on the press, poor stackability, long drying times and insufficient smudge resistance. One rule that has proven useful, especially in solid image areas, is never to print silver ink from the last printing unit. Smoothing the print with an additional rubber blanket helps to enhance coating quality.

Metallic pigments are susceptible to corrosion. That said, this does not have a negative influence on the appearance of silver inks, because the aluminium oxide that forms has little influence on the metallic effect of the ink. Despite this, we do recommend, when printing with silver inks also, that you do not set the pH of the fount solution any lower than 5.5, because this has a positive influence on the drying characteristics of the ink. To this end, we particularly recommend to use our fount concentrate COMBIFIX 8039 or the likewise as good as neutral fount concentrate COMBIDRY 8200. Delivery of the fount solution on the press must be kept to an absolute minimum - particularly when the level of ink application is low - in order to prevent excessive emulsification and the poor coating quality associated with this.

Surface finishing always results in a reduction of the metallic effect. The best solution is to coat the print with ACRYLAC water-based emulsion coating.

Silver inks should not be printed on films or film-like substrates without prior testing, because adhesion problems can arise depending on the substrate.

Printing black on silver inks

If a preprinted silver image area is to be overprinted, inks that have been specially formulated with respect to their drying and ink trapping characteristics must be used due to the particular nature of the silver surface. Our **Special Black 49 N 5135** (coatable) has proven to be a good choice. This ink also offers the best conditions for wet-on-wet printing. Subsequent printing should only be performed once the print sheet in the bottom part of the stack are also thoroughly dry.

Finishing instructions

When finishing metal-pigmented offset inks - by coating with ACRYLAC, laminating or UV varnishing, adhesion problems can arise between the ink film and the finish. These are caused by stabilisers and lubricants that have to be added during pigment production and which adhere to the metal pigment surface. We therefore recommend you test the coating/varnish-trapping and adhesion characteristics between the ink film and the finish thoroughly prior to beginning the print run. The converter must be informed of the fact that the print to be finished has been produced using metallic inks.

Special instructions

Aluminum pigments are sensitive to moisture and especially so to acids or lye. For this reason, ink left over in the ink fount (pan) after completion of the print run must not be kept for re-use, because the fount solution it contains can cause the left-over ink to produce and give off gases.

All Silver inks listed in this technical information are stable for 12 months from the date of delivery with the exception of 46A3100, which is stable for 6 months.

Classification

Safety Data Sheet available on request.