



Technical information

OFFSET PRINTING INKS

In 1971 the production of graphic chemicals was complemented by printing inks for offset and letterpress printing techniques. Attaining foreign license provided a successful start in the production of printing inks and auxiliary printing mediums.

In 1982 Cinkarna started the production of vehicles for offset printing inks as a result of joint research work. This way the foundations for independent research work and production were laid. Years of experience in the production of offset printing inks and team work have made it possible to keep pace with up-to-date printing demands.

Following the interests and demands of the printing houses, we are constantly improving and adjusting our production line to suit the market demands. We are striving for different quality printing inks to be used in various different printing conditions and for a whole line of different materials. Auxiliary mediums which are added to inks to eliminate difficulties and to improve the quality of imprints have wide range of use.

The following offset printing inks can be found in our range:

1. four-colour Process inks - sheet fed offset
2. Pantone colour matching system
3. SCC colour matching system
4. metal inks
5. white inks
6. printing varnishes
7. additives.

SET 40 OPTILINE

SET 40 Optiline are offset printing inks produced on vegetable oil base. They are new, modern inks produced intended for four- colour printing. Inks have the widest possible field applications. These inks are suited for almost any type of printing machines and are suitable for printing on any coated or uncoated paper and cardboard.

The Series 40 OPTILINE is characterised by:

- excellent runability
- good cylinder rolling
- excellent ink/water balance
- high intensivity
- good rub resistance
- good gloss
- duct fresh



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Vegetable oil based inks	Light Fastness	Opacity	Resistance to		
			Ethanol	Nitro	Alkalis
G 6040 OPTILINE INK YELLOW / RUMENA	5	○	+	+	+
P 6140 OPTILINE INK MAGENTA / RDEČA	5	○	+	+	-
B 6240 OPTILINE INK CYAN / MODRA	8	○	+	+	+
S 6940 OPTILINE INK BLACK / ČRNA	8	●	+	+	+

Legend: 1-8 light fastness; ○ transparent; ● opaque; + yes; - no

PANTONE COLOUR MATCHING SYSTEM

Beside existing SCC colour matching system (System of Cinkarna Celje) of offset inks, also PANTONE® shades and basic inks are produced at Cinkarna Celje d.d.. PANTONE® system was launched in Cinkarna due to follow the demands of modern designing and printing. To the market PANTONE® system was introduced already in 1963. Today, the PANTONE® system is worldwide represented as a means of colour communication. Compared to other systems on the market, PANTONE® does not have the aim to illustrate one colour shade on different papers but to illustrate a standard ink formulation on different kinds of paper. Therefore, by the means of the system offered by PANTONE®, a worldwide colour communication is possible: e.g. PANTONE® 1235 C in Germany looks like PANTONE® 1235 C in Slovenia or in any other country in the world.

In order to work with the PANTONE® matching system 13 basic inks (+ black and transparent white); together 15 basic inks are needed. Basic inks are mixed according to the formulations from PANTONE® formula guide. It can be assumed that the colour shade in the middle of each page of the guide shows a starting mixture out of the basic inks. On the same page of the guide this mixture is shown in three gradations darker (adding black ink) and three gradations brightener (adding transparent white).

Vegetable oil based inks	Light fastness	Alcohol	Nitro	Alkali	Opacity	UV print varnish	Disp. varnish	Laminating
PANTONE® YELLOW	5	+	+	+	-	+	+	+
PANTONE® YELLOW 012	5	+	+	+	-	+	+	+
PANTONE® ORANGE 021	5	+	+	+	-	+	+	+
PANTONE® WARM RED	3	+	+	-	-	-	-	-
PANTONE® RED 032	6-7	+	+	+	-	+	+	+
PANTONE® RUBINE RED	5	+	+	-	-	~	~	~
PANTONE® RHODAMINE RED	4	-	-	-	-	-	-	-
PANTONE® PURPLE	4	-	-	-	-	-	-	-
PANTONE® VIOLET	4	-	-	-	-	-	-	-
PANTONE® BLUE 072C	5	-	-	-	-	-	-	-
PANTONE® REFLEX BLUE	3	-	-	+	-	-	-	-



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PANTONE® PROCESS BLUE	8	+	+	+	-	+	+	+
PANTONE® GREEN	8	+	+	+	-	+	+	+
PANTONE® BLACK	8	+	+	+	+	+	+	+
PANTONE® MIXING WHITE		+	+	+	-	+	+	+

Legend: 1-8 light fastness; - no, + yes, ~ semi-resistant

IT IS GOOD TO KNOW

Despite the fact, that PANTONE® system is known as worldwide colour communication it is necessary to take into consideration following factors, which can influence on the shade differences. The tolerances from edition to edition of formula guide are up to +/- 5% in the density of each colour. Each formula guide has its limited shelf life of use (light influence, ageing). As standard we use guide PANTONE PLUS - First Edition, Second Printing 2010©).

• **Different printing surfaces:** different kinds and qualities of printing paper/surface can lead to a difference in observance of the colour shade with identical ink formulation.

• **Optical brighteners in papers - printing materials:** optical brighteners, which provides suitable brightness of certain papers and cardboards are not completely resistant to light influence and this can cause differences in the surface of printing material. Therefore, by ageing the surface of printing material is visually changing what influences also on appearance of colour shade, which can become yellowish and dirtier.

• **Ink layer thickness:** colour shades of PANTONE® guide have been printed with a very high ink layer thickness (more than 2 g/m²), which can often only roughly be achieved in regular/standard printing. If you want to achieve exact shade from formula guide, it should be printed twice or new special formulation for this shade should be made. Therefore with new special formulation in regular/standard printing with lower ink layer thickness (1,2 – 1,4 g/m²) the same effect can be achieved.

• **Light resistance:** the PANTONE® system is a pure means of communication and is not a colour standard.

When colours with higher light fastness than regular are required, we suggest ordering them in our mixing unit in Cinkarna. Inks with requirement of higher light fastness are then formulated out of basic inks which have higher light resistance.

• **Fastness properties of inks:** if colour shades with certain resistance for certain finishing method are required, we suggest ordering them in our mixing unit in Cinkarna, where colour shades with higher resistance are provided.

• **Print finishing:** if the print product is later however, varnished or laminated, this may lead to changes in colour shades.

• **Differences between C and U:** as PANTONE® prints the same formula on different kinds of paper the colour shade also looks different.

• **Special colour shades:** on requirement, we can make any colour shade according to the sample. When ordering special colour shade it is necessary to define printing material (coated or uncoated).



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SCC INKS – COLOUR MATCHING SYSTEM

Following the formulations from SCC Catalogue we can produce 84 shades of colour from 9 basic colours and black and transparent white. When mixing colour shades, basic colour fastness has to be considered to obtain the desired shade. This is done precisely to the catalogue scale.

Light fastness of particular shade is the same as the lowest light fastness of added basic colour. Lightening with transparent white results in lower light fastness.

SCC vegetable oil based inks	Light Fastness	Alcohol	Nitro	Alkalis
3	3-4	+	+	+
7	6	+	+	+
13	5	+	-	+
25	5	+	+	-
27	3	-	-	-
33	3	-	-	-
43	4	-	-	-
47	8	+	+	+
53	7	+	+	+
88	8	+	+	+

Legend: 1-8 light fastness (1 is the lowest); + yes; - no

METALLIC INKS

They are suitable for printing on coated and uncoated paper and cardboard. They dry normally. Printing with thicker ink film requires lower print piles and dusting.

Mineral oil based inks	Light Fastness	Opacity	Resistance to		
			Ethanol	Nitro	Alkali
2703 SILVER / SREBRNA	8	●	+	+	+
PANTONE 877 C SILVER / SREBRNA	8	●	+	+	+
3708 GOLD / ZLATA	8	●	+	+	+

Legend: 1-8 light fastness (1 is the lowest); ● opaque; + yes; - no



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WHITE INKS

C-343 TRANSPARENT WHITE / TRANSPARENTNA BELA

This is transparent white ink with normal drying properties. Its formulation makes it suitable for toning and lightening shades by SCC ink mixing system. Ink is produced on vegetable oil based.

C-345 OPAQUE WHITE / POKRIVNO BELA

This ink has an outstanding covering property that is why it is used for colour toning of all inks when we want to improve opacity. It is used for printing on all sorts of paper and cardboard. Ink is produced on mineral oil based.

PRINTING VARNISHES

C-378 GLOSS / PRINTING VARNISH - LAK

- mineral oil based offset printing varnish – glossy
- low yellowing
- very good rub resistant
- printing with and without water
- dry support of IR drying allows a faster finishing
- suitable for printing wet on wet and wet on dry
- when varnishing coated paper, we recommend lower piling with moderate dusting

C-379 MAT / PRINTING VARNISH - LAK

- mineral oil based offset printing varnish – matt
- normal printing quickness , suitable for wet on wet
- suitable for gloss coated paper and cardboard
- suitable to full-print (without water) or to partial coating (with water)
- for printing with water we recommend additive of drier
- all offset inks can be over printed; drying depends on the coating thickness and the substrate.

ADDITIVES

C-321 PRINTING OIL L / TISKARSKO OLJE L

This additive prevents paper surface splitting during printing and reduces ink tackiness. It is used for printing on impermeable paper, metal and plastic foils in offset, letterpress and metal foil printing. When more than 2 % of C 321 is added, it is necessary to add the drying agent.

C-322 PRINTING OIL M / TISKARSKO OLJE M

This is an additive used for improving ink penetration, and it reduces ink tackiness. It is used in offset printing on absorbent paper. We recommend adding 2 % of it.

C-331 DRIER R / SUŠILO R

This is a combined liquid drier used in single-colour print, or as an additive to the last colour in multicolour print. The quantity of added drier depends on printing material and on ink coat thickness.

When mixing it with ink, add 3 % of it at most.



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STORAGE

All printing inks and auxiliary mediums come with one year guarantee subject to the following conditions:

- Proper storing
- following the instructions for use

The instructions are based on our own experience and expertise. Before using the products, test them to suit your own purpose.