



OPALTONE®

OpalTone Europe

JOIN THE COLOR REVOLUTION



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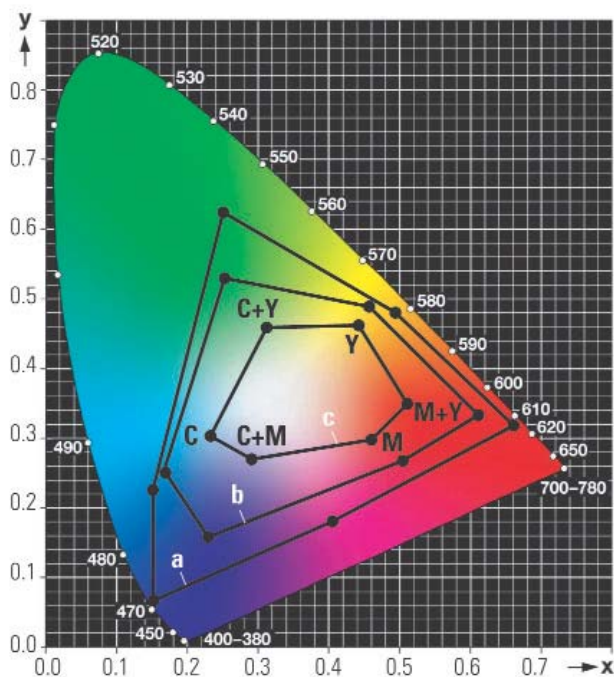


Figure 1. The CIE colour triangle with the colour spaces of a transparency (a), high quality offset (b) and newsprint (c).

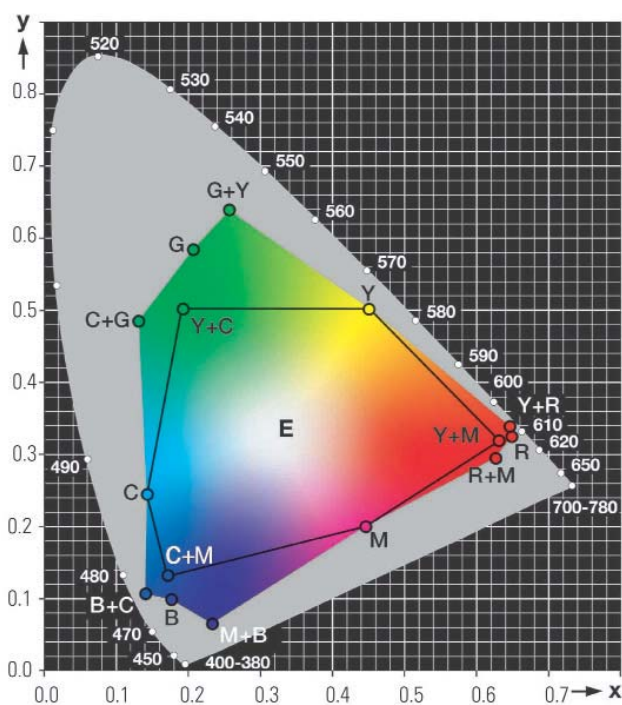


Figure 2. The CIE colour triangle with the colour space of Opaltone for offset.

The producers of high quality labels and packages are under continuous pressure to improve their print quality. The colours have to be more natural and the spot colours more attractive. However, the colour space provided by cyan,

A new seven colour revolution?

A few years ago Hexachrome attracted much interest among printers, but the six colour process never became a real success. From Australia now comes Opaltone, which is based on seven standard colours. Will this system bring the solution for a larger colour space in printing? **Durk Schilstra** reports

magenta, yellow and black is limited. Therefore the interest in printing with more than four colours is increasing. Hexachrome did not become the standard some predicted – its use has been limited to special projects. The opportunities for Opaltone might be better.

It is an Australian development, which already has been promoted in Australia, Asia and the USA. Marthin Flokstra, managing director of Van Ginneken & Mostaard Verpakkingen in Amsterdam (a leading Dutch prepress company for ►



“With Opaltone the same colours remain on-press so there is no need to change the anilox rolls and clean the inking system”

package printing) saw Opaltone in the USA. Back in Holland he did a number of tests with the system and became convinced of its benefits. Further contacts with Opaltone Graphic Solutions Pty. Ltd. in Australia resulted in the acquisition of the European dealership by the Brouwer Group to which Van Ginneken & Mostaard Verpakkingen belongs. A new company was founded: Opaltone Europe BV based in Amsterdam with Augusto Cordero Berends as its manager.

Additional colours

What makes Opaltone so special? In fact, it is the choice of the extra colours. They have been chosen in such a way, that they extend the colour space at those places where the standard three colours, cyan, magenta and yellow show their greatest limitations. The two CIE-colour triangles of Fig. 1 and Fig. 2 illustrate this. Fig. 1 displays the colour spaces of a transparency, high quality offset and newspaper printing. Fig. 2 reproduces the colour space of Opaltone in offset. Opaltone adds to the secondary colours cyan-yellow (green), yellow-magenta (red) and magenta-cyan (blue) the true colours green (G), red (R) and blue (B).

The principle is comparable to the use of black in four colour printing. When printing only cyan, magenta and yellow, the blacks usually become a kind of muddy brown. By overprinting it with black ink a black hue is realised. Moreover, the density increases and shifts, for example, from 1.5 to 1.8. Opaltone has the same influence on the secondary colours. By overprinting yellow and magenta with red, a full red with a high density is created. Also the saturation of the colour increases which gives a better resemblance with the original colours of the transparency. The same effect is realised when overprinting secondary green with real green and secondary blue with real blue.

Skeleton structure

The comparability with black goes even further. The four colour printing process often uses a so called skeleton black: black is only applied to the darker tones. The Opaltone separations for green, red and blue could in the same sense be named skeleton colours. The light tints are secondary colours; where the tint grows darker the real colour is added.

These extra colours cause spectacular results: in offset and gravure, but most of all in flexo. Opaltone is, therefore, mainly positioned for the label and packaging industry, where flexo and gravure are the dominant printing techniques. For labels and packaging many spot colours are used, which up till now were usually printed by special inks of that colour. Many of these spot colours can be reproduced by Opaltone.

In label printing eight or 10 colour presses are not exceptional, so many presses can be used for the seven colours of Opaltone. The strength of Opaltone is that the three extra colours are optional. With one or two extra colours, depending on the colours of the image to be reproduced, already great improvements can be realised. Due to the use of standard colours it is also possible to combine different labels with various spot colours in one print run.

Advantages in flexo

The big improvements Opaltone offers are shown in the table.

TABLE. DENSITIES IN FLEXO PRINTING

Colour	CMYK	CMYK+RGB
Magenta	1.25	1.25
Red	1.50	1.80+
Yellow	0.95	0.95
Green	1.50	1.80+
Cyan	1.25	1.25
Blue	1.50	1.80+
Black	1.30	1.30

Working with seven standard colours offers the flexo printer a number of advantages. Each colour usually requires its own special anilox roll. When changing colours on a press, the anilox roll has to be changed and cleaned. With Opaltone the same colours remain on-press and so there is no need to change the anilox rolls and clean the inking system. Moreover, the stock of left-over inks in the storage room decreases.

No changes in CMYK

The table also makes it clear that the solid densities for cyan, magenta and yellow do not change. For Opaltone the common CMYK-separations are used. The digital data of the CMYK scan separations are used to calculate the extra separations for red, green and blue, since the scan data contains quite ▶



some extra 'space'. The scanner output consists of data with eight bits per channel, from which a grey scale with 256 grey levels is composed. Due to the screening systems this number is reduced in print to around 100 grey levels. Thus the scanner output contains two and a half times as much data as is printed on the press. From this 'superfluous' information the additional printing images for red, green and blue can be derived. By doing so the range of grey levels is doubled up to 200.

Available software

The software for the colour separations is a plug-in for Photoshop (6.0 and up), which has been developed by Opaltone. The original CMYK file is separated into seven colours and stored in the DCS 2.0 format. For the succeeding processing one has to use a system with software which is able to compose a printing image of more than four colours. At this moment this applies to ArtPro, Barco and QuarkXpress. In QuarkXpress the Multi-Ink function is used. Most advanced is ArtPro, which has programs for all Opaltone colours. In the near future a version will be released which further automates the processing.

Two sets of colour books

All 2,800 Opaltone spot colours have been recorded in two sets of three books. They form the Opaltone Matching System. The book '4000 Series' shows all combinations of red with magenta, yellow and black, the '5000 Series' all combinations of green with cyan, yellow and black and the 'Series 6000' all combinations of blue with cyan, magenta and black. Each book features 960 special colours. There are separate Opaltone Color Swatch Books for offset and flexo. The colour books for flexo have been printed with the lower densities common in flexo. Thus Opaltone offers a large number of extra colours compared to the Pantone colours.

It will not always be necessary to print all seven colours. If an image consists of only some difficult red or orange colours, then one can apply only red as an extra colour next to CMYK.

Fixed screening angles

A subject of discussion is often the screening angle of the separations for the special colours. This discussion is redundant with Opaltone. One uses the same screening angles as those of the complementary colour. So red has the same screening angle as cyan. This is possible because where cyan is printed no red will be printed and the same in reverse. Green has the same screening angle as magenta and blue the black screening angle – but note not yellow. The latter has to do with the difference of


only 15 degrees in the screening angle for yellow. By applying that screening angle to blue the appearance of moiré is likely. FM screens can be applied when using Opaltone.

Proofing

For proofing Opaltone separations only DuPont's analogue Cromalin and Waterproof or real printing come into consideration. With analogue Cromalin the Opaltone colours can be reproduced by approximation. Waterproof gives the most reliable proofing results. On a proofing press the real Opaltone colour inks can of course be used. Digital proofing systems give no accurate results, as all systems are based on the use of four basic colours for inks or toners.

Warrants

All process components are secured by Opaltone. In due time a website will be launched showing all suppliers licensed by Opaltone. Inks have to meet the specifications of Opaltone with regard to hue, saturation, brightness and solid density. When the products meet the requirements of Opaltone, the ink maker becomes an authorized dealer and may stick official Opaltone labels to his tins. Prepress companies are licensed to acquire the software. Printers can, if they wish, be mentioned on the website as an 'Opaltone member', for a small fee.

In this way Opaltone guarantees that the Opaltone system is implemented according to the official specifications. Standardisation and predictability with respect to colour and communication are warranted. This guarantees to clients that the special colours in their labels correspond with the selected colours from the Opaltone Matching System.  **No.203**

Harper and Opaltone

Global anilox roll supplier Harper Corporation of America is the distributor of Opaltone throughout the Americas, focusing on flexography for the first 12 months. Harper will provide the complete support infrastructure that includes seven color process swatch books, multicolor separation software and an industry standard seven color process ink set.

Harper and Opaltone initiated their alliance by sponsoring a technical symposium at the Harper National Flexographic Center of Central Piedmont Community College in Charlotte, NC. Over 40 technically trained professionals attended the symposium to learn more about the color process.