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Color Management in PageMaker

Contents

Optimal view:

Zoom 100% or 200% with 72 dpi

1. Introduction

There are mainly two applications of color management (CMS) in PageMaker:

1. Show CMYK images with reasonable quality.
2. Print on calibrated desktop printers using an ICC profile.

Photoshop and InDesign use the Adobe Color Engine ACE. PageMaker uses the Kodak Color Engine. The two systems are not exactly compatible, minor discrepancies for the appearance of CMYK images can be expected. But altogether the CMYK preview is fairly good.

Essentially we can discern three different workflows:

1. Make documents for offset printing and print previews on a desktop printer Images are in CMYK. Use CMS in PageMaker for good appearance of CMYK images. No CMS for Export to PDF. Colors for text and vector graphics are chosen by CMYK numbers, preferably according to offset swatch books (monitor previews are not reliable).
2. Make documents for a desktop printer. Images are in RGB. Use CMS in PageMaker if an ICC profile for the printer is available. Colors for text and vector graphics are chosen by RGB numbers by appearance. Mixing RGB and CMYK can lead to confusion.
3. Make documents for a large format printer (e.g. posters for exhibitions). Images are in RGB. Colors for text and vector graphics are chosen by CMYK numbers according to a swatch book for the large format printer [1]. No CMS by PageMaker for Export to PDF. Posters are printed by RIPs (raster image processors) on calibrated printers. CMS is applied by the RIP. This mode is used for proof printing (offset PDFs) as well.

In any color managed printing system we have to choose

1. Source profiles for RGB and CMYK for images and vector graphics. Grayscale is mostly not well defined. This can lead to unexpected results.
2. A destination profile for the actual printer.

A few words about embedded profiles:

It is quite nonsensical to embed a profile in each RGB or CMYK image. Profiles for vector and text cannot be embedded anyway.

It is quite nonsensical to use *different* RGB profiles or *different* CMYK profiles for images in one document.

It is absolutely sufficient to tell the receiver of the document the names of the RGB and CMYK profiles. These are always common profiles which are available everywhere.

A PDF can have *one set* of embedded profiles for RGB, CMYK, Grayscale (one each), as defined by the CSF file in Photoshop's color settings. At present this does not work reliably.

A few words about vector and text colors:

RGB or CMYK colors are used by numbers. Spot colors (solid colors) are used by names (e.g. Pantone) and shown by a preview which is not necessarily reliable. For InDesign and Photoshop the spot colors are defined by CIELab values. PageMaker tries to simulate spots if CMS is on.

Replacing spots by CMYK requires a cross-reference swatch book or tests by Photoshop.

2. Color Management in PM for Offset Printing

This chapter describes a standard workflow for desktop publishing by PageMaker.
Images are prepared by Photoshop.

The final product is printed by offset. Tests can be done by a desktop printer (PC printer, composite printer). This is in limits valid for proof printing if a good ICC profile is available.

Photoshop

Choose working space for RGB images. E.g. sRGB or AdobeRGB(98).

Choose a CMYK process for the conversion from RGB to CMYK, according to specifications by the service provider/printer. E.g. Euroscale Coated v2.
Convert all images to CMYK and save as TIFFs.

Use a monitor profile as measured by Adobe Gamma or - much better - by an instrument.
If no profile is available then adjust the monitor by test patterns [4] and use sRGB (valid only for PC, gamma=2.2).

PageMaker

Use CMYK colors by numbers for all vector graphics and for text according to an offset swatch book.

Color Management	CMS on
Monitor Simulates	Separation printer
New Items Use	None
Monitor	ICC profile for monitor or sRGB
Composite Printer	ICC profile for desktop printer
Separation Printer	ICC profile for CMYK process / Euroscale Coated
RGB Image Source	Working space for RGB / sRGB or AdobeRGB(98)
CMYK Image Source	ICC profile for CMYK process / Euroscale Coated

In the document check all items:

Selected CMYK Image	CMS on / Euroscale Coated / Rendering intent default
Selected RGB Image	The doc should not contain RGB images
CMYK Colors	No CMS source / CMYK colors by numbers

3. Color Management in PM for Desktop Printing

This chapter describes a standard workflow for desktop publishing by PageMaker.
Images are prepared by Photoshop.

The final product is printed by a desktop printer (PC printer, composite printer).

Photoshop

Choose working space for RGB images. E.g. sRGB or AdobeRGB(98).

Choose a CMYK process for the conversion from RGB to CMYK, according to specifications by the service provider/printer. E.g. Euroscale Coated v2.
Convert all images to CMYK and save as TIFFs.

Use a monitor profile as measured by Adobe Gamma or - much better - by an instrument.
If no profile is available then adjust the monitor by test patterns [4] and use sRGB (valid only for PC, gamma=2.2).

PageMaker

Use RGB colors for all vector graphics and for text.

Color Management	CMS on CMS off if no printer profile is available
Monitor Simulates	Composite printer
New Items Use	None
Monitor	ICC profile for monitor or sRGB
Composite Printer	ICC profile for desktop printer
Separation Printer	ICC profile for CMYK process / Euroscale Coated
RGB Image Source	Working space for RGB / sRGB or AdobeRGB(98)
CMYK Image Source	ICC profile for CMYK process / Euroscale Coated

In the document check all items:

Selected CMYK Image	The doc should not contain CMYK images
Selected RGB Image	CMS on / sRGB or AdobeRGB(98) / Rend. Intent Default
CMYK Colors	The doc should not contain CMYK colors

4. Color Management in PM for RIP Printing

This chapter describes a standard workflow for desktop publishing by PageMaker.
Images are prepared by Photoshop.

The PageMaker doc is exported to PDF.

The PDF is printed by a large format printer, using a RIP (raster image processor).

Photoshop

Choose working space for RGB images. E.g. sRGB or AdobeRGB(98).

Choose a CMYK process for the conversion from RGB to CMYK, according to specifications by the service provider/printer. E.g. Euroscale Coated v2.
Convert all images to CMYK and save as TIFFs.

Use a monitor profile as measured by Adobe Gamma or - much better - by an instrument.
If no profile is available then adjust the monitor by test patterns [4] and use sRGB (valid only for PC, gamma=2.2).

PageMaker

Use CMYK colors for all vector graphics and for text according to a swatch book for the large format printer [1].

Color Management	CMS off
Export to PDF	Input File None / Leave Color Unchanged / Rendering Intent Default or Relative Colorimetric No downsampling / No compression

Raster Image Processor (RIP)

Input profile for RGB images	sRGB or AdobeRGB(98)
Input profile for CMYK images	The doc should not contain CMYK images Euroscale Coated for proof printing (offset simulation)
Input profile for Grayscales	Mostly undefined Sometimes the RGB input profile is used, print by K-only
Input profile for RGB vector	The doc should not contain RGB vector graphics and text sRGB or AdobeRGB(98)
Input profile for CMYK vector	None or the same as output profile
Output profile	Actual profile for large format printer

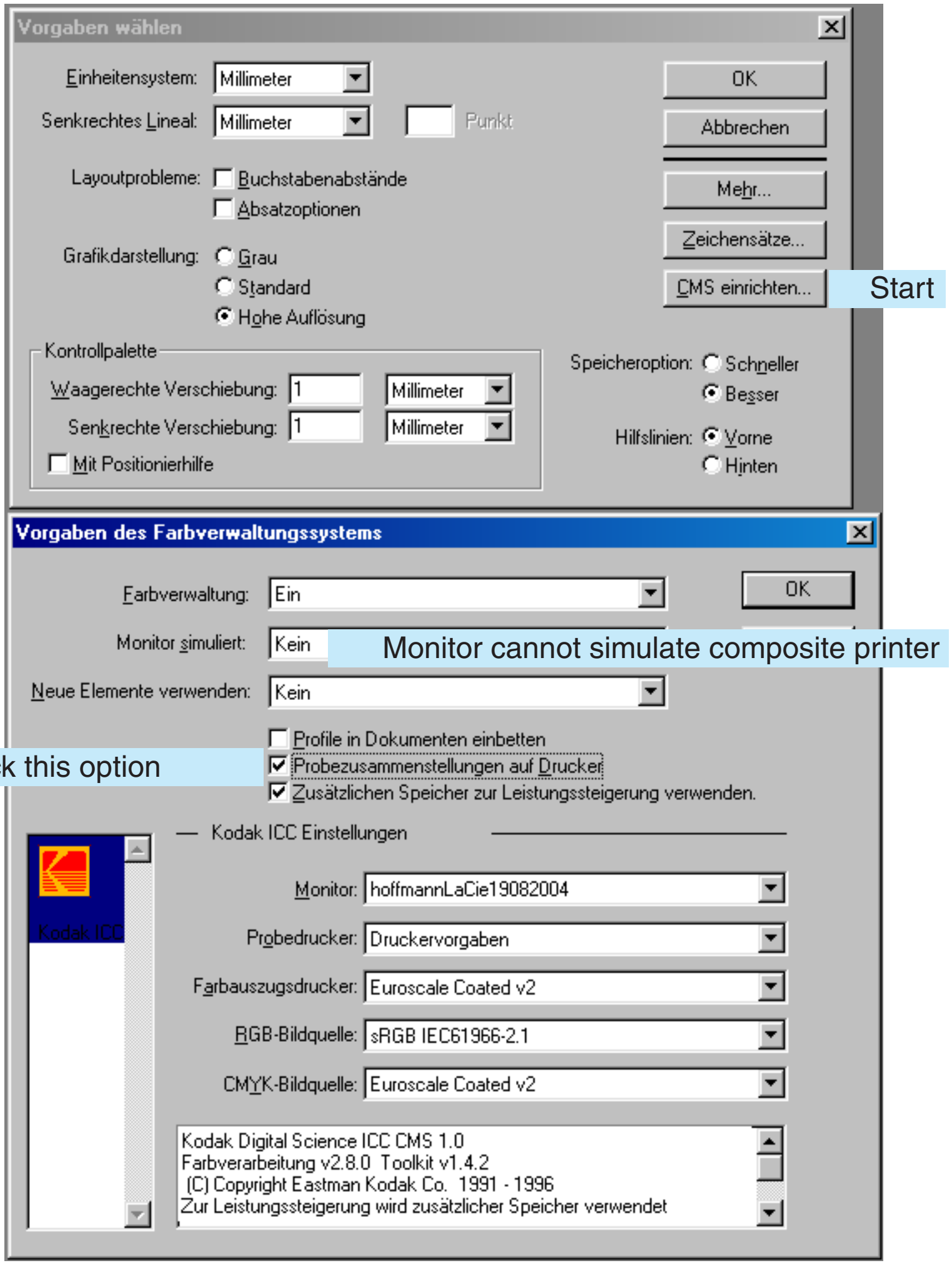
5. Color Management in PM by PostScript CRD

This chapter describes the settings if the color management should be executed in a PostScript Level 2/3 printer by a so-called Color Rendering Dictionary (CRD) instead of using a host based ICC profile.

This was for a while not recommended because the internal CRD could not be modified easily by a measured printer ICC profile. Actual information for a new laser printer is here [3].

PageMaker

Zoom 100%



6. Export to PDF

The PDF should retain all images as they are: RGB or CMYK. According to recommendations in the introduction a doc should contain either RGB or CMYK but not both types.Exceptions are tutorials like this or general printer test pages.

Therefore we have to take care that nowhere any color management is applied.

PageMaker	
Color Management	CMS off
PM65 Export to PDF	CMYK mode RGB images are retained EPS components are retained PageMaker RGB vector colors are converted to CMYK

Distiller Joboptions		
Color Settings	Settings File None Leave Color Unchanged Rendering Intent Default	
Downsampling	Web docs Offset Here	72 or 144 dpi if above none or 288 dpi if above 72 dpi
Compression	Web docs Offset	LZW-JPEG medium automatic none

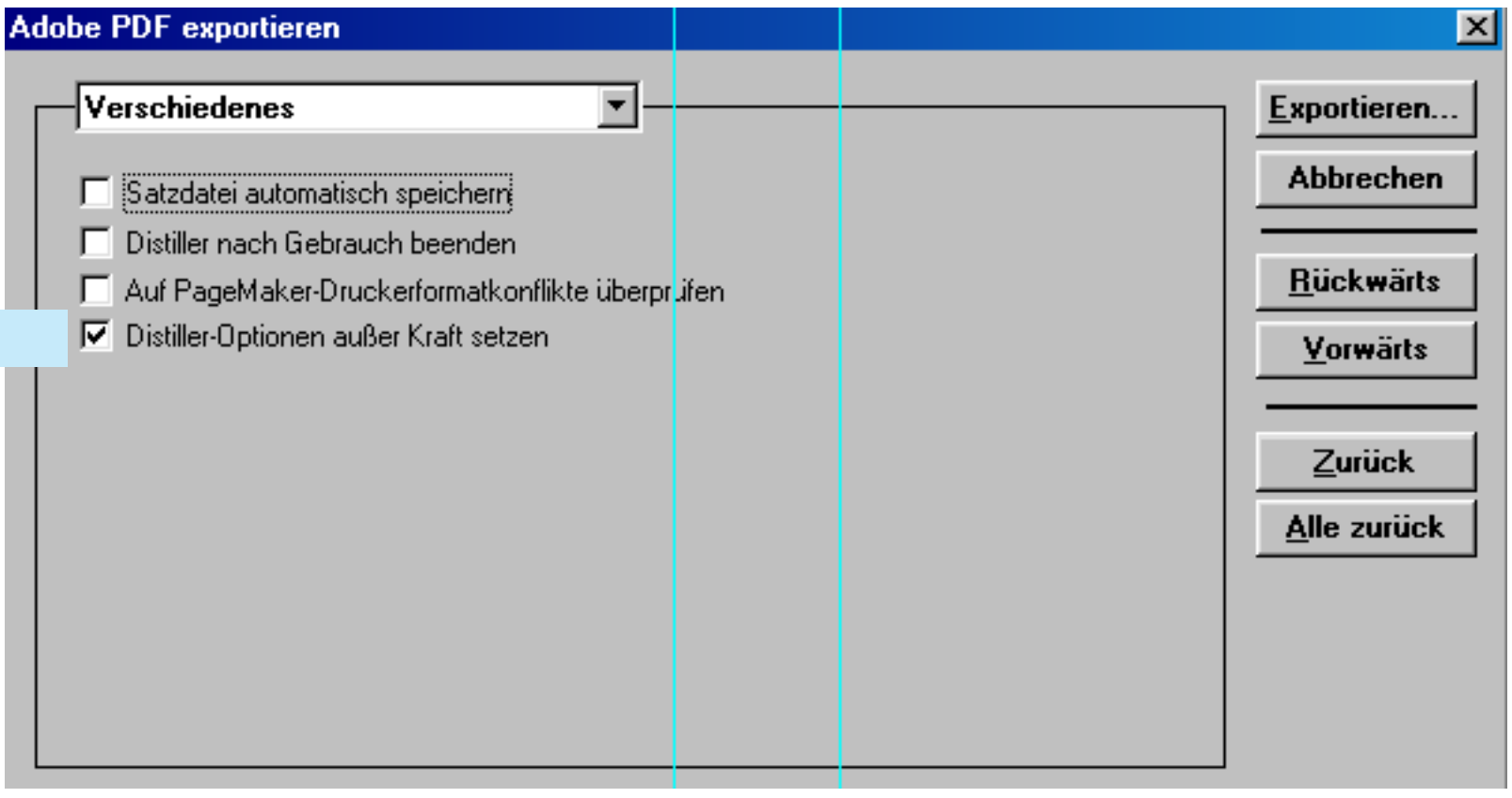
The color settings are strictly parts of the actual joboption mode, like security settings.

Export to PDF by PM6.52 allows do define downsampling and compression independent of the actual Distiller joboption settings.These settings will become a part of the PM file.

Check ‘Override Distiller Settings’ in the last menue.

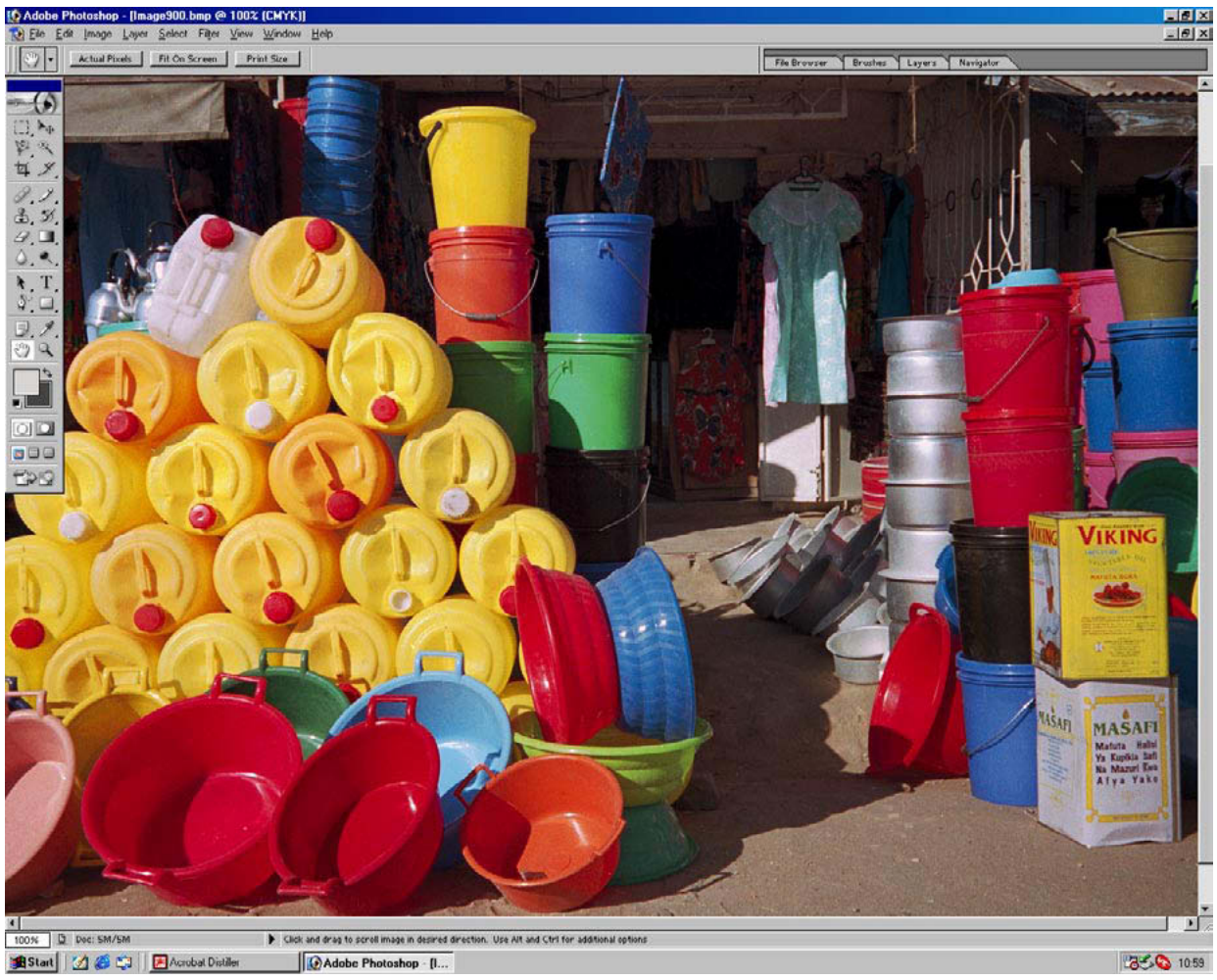
Zoom 100%

Check



7. CMYK Appearance

An RGB image was converted by Photoshop into CMYK Euroscale Coated and saved as TIFF.
A screenshot was saved as RGB-BMP. Then placed in PM (top).
The CMYK-TIFF was placed in PM (bottom). A screenshot was saved as RGB-BMP. Then placed in PM (bottom). The CMYK-TIFF was removed. Now we can compare the appearance on the screen: top Photoshop, bottom PM screen view. Both images look alike.



Photoshop CMYK Screenshot
RGB
BMP placed in PM
CMS on
RGB source sRGB

Photoshop CMYK
TIFF placed in PM
CMS on
CMYK source Euroscale C.
Screenshot RGB
BMP placed in PM *over* TIFF
TIFF removed
CMS on
RGB source *now* sRGB

This rather complex test shows that the CMYK preview in PageMaker is fairly good - if CMS is enabled and handled correctly.

8. RGB-CMYK Conversion

This example shows an sRGB image (left) and a CMYK image by Euroscale Coated v2 (right).

The color of the chair and some other blues and cyans cannot be reproduced accurately by CMYK.

Photoshop sRGB / Directly placed in PM
CMS on
RGB source sRGB

Photoshop CMYK / Directly placed in PM
CMS on
CMYK source Euroscale Coated

9. References

[1] G.Hoffmann
Digital swatch book / 14641 patches sorted by CMYK numbers
http://docs-hoffmann.de/swatch22112002.pdf

[2] Informations by D.Gruener and L.Hewitt in the Adobe Forum PageMaker
http://www.adobeforums.com

[3] G.Hoffmann
PostScript Color Management for OKI C9600
http:// docs-hoffmann.de/oki-ps-28082005.pdf

[4] G.Hoffmann
http://docs-hoffmann.de/caltutor270900.pdf

This doc:
http://docs-hoffmann.de/colorman12032002.pdf

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