

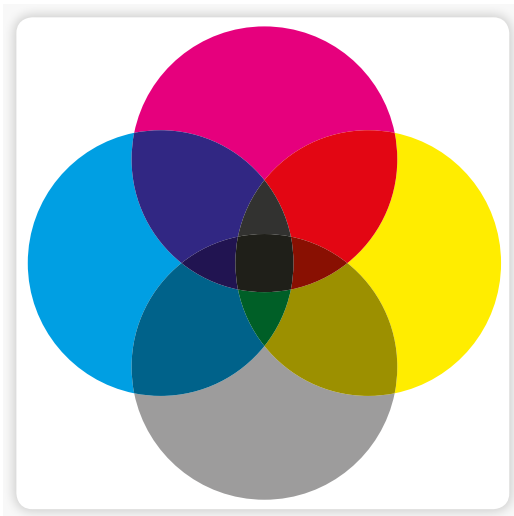
### In this guide

This guide details the differences between RGB and CMYK colour gamuts, explaining why CMYK should be used for commercially printed documents and finally showing how to check colour settings in various popular software packages. Please note when ordering that we do not check documents colour set up and automatically convert all colours to CMYK, in certain cases this can cause noticeable colour variation.

1. Colour Gamut Differences - CMYK v RGB
2. Converting RGB files and re-balancing colour
3. Creating Files In CMYK
  - a. Adobe Photoshop
  - b. Adobe InDesign
  - c. Adobe Illustrator
  - d. Microsoft Publisher
4. DOs and DON'Ts - Checking Your Files before sending

### 1. Colour Gamut Differences

With RGB colours the graphics are made up from Red, Green and Blue, with CMYK the colours are made up from Cyan, Magenta, Yellow and Black.



#### CMYK colours

are subtractive meaning the starting canvas is white and colours are added to block out parts of the spectrum



#### RGB colours

are additive meaning that the starting point is a black canvas (i.e. a computer screen) and colours are added to create the final image.

### Why Print files need to be CMYK

The RGB colour spectrum is much larger than the CMYK spectrum. i.e. there are colours that can be created in RGB that are not available CMYK. This problem is most apparent with very bright colours such as a fluorescent orange or green. Commercial presses print onto white paper using CMYK colours, in order to get the best results files should be prepared with this in mind. Below shows examples of files submitted in RGB colour that have been automatically converted into CMYK before printing.



RGB



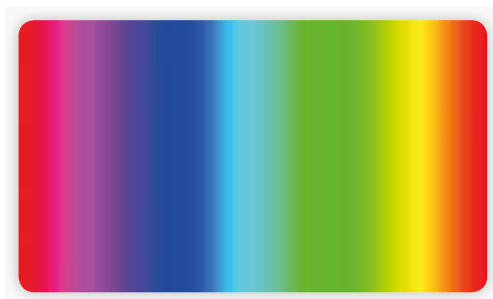
CMYK



RGB



CMYK



Converting files to CMYK before submitting them to print will avoid any surprises with colour when the final product is produced.

### 2. Converting RGB files to CMYK and re-balancing colour

Using software such as photoshop is possible to readjust the colour balance after conversion to more closely match the intended colour output. If using RGB elements i.e. images in the design stage it is worth converting the elements into CMYK and rebalancing the colours during the design process.



**RGB** - Original image to be used.  
(Notice the vibrancy of the blues)

**CMYK** - Colours are converted straight to CMYK

**CMYK** - Colour levels are adjusted to match in photoshop.

### 3. Creating Files In CMYK

When designing any file it is important to set up and design the document in CMYK colour. This will save any problems in trying to adjust colours afterwards which can be very difficult if not impossible. Not all software is able to create files in CMYK colour mode. For example Microsoft Word and Powerpoint are only able to create documents in RGB which must be converted before printing. If you send us a native Word or Powerpoint files we will convert them into a CMYK pdf and will send a proof for checking.

Software shown in guide

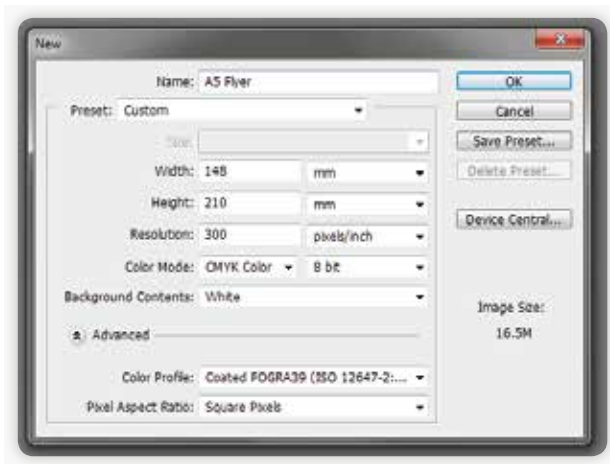
- a. Adobe Photoshop
- b. Adobe InDesign
- c. Adobe Illustrator
- d. Microsoft Publisher

### Other software

The software shown above represents the most commonly used desktop publishing software for creating print files however documents can be created in many other packages. If using other software key settings are as follows; **Colour mode CMYK (Sometimes called process colours)**. **Colour profile: Fogra 39 (ISO 12647-2:2004)**. Where possible export as a PDF/x-1a:2001

### a. Adobe Photoshop

Colour settings in photoshop are determined when the document is created, the screen below shows the correct colour settings. You can also check colour settings when a document is open by clicking on image, then mode as shown by the screen on the right.



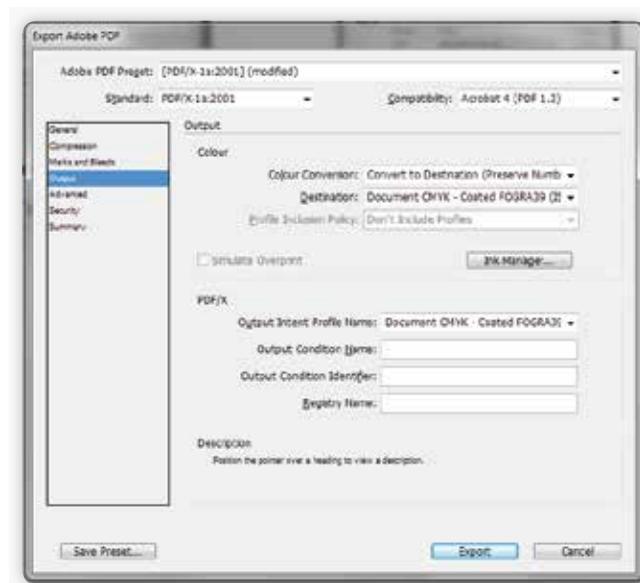
When creating a document set to CMYK



Checking when document is open

### b. Adobe InDesign

With inDesign the colours are converted when the file is exported to pdf. Selecting pdf/x-1a:2001 preset will ensure that the document is CMYK.



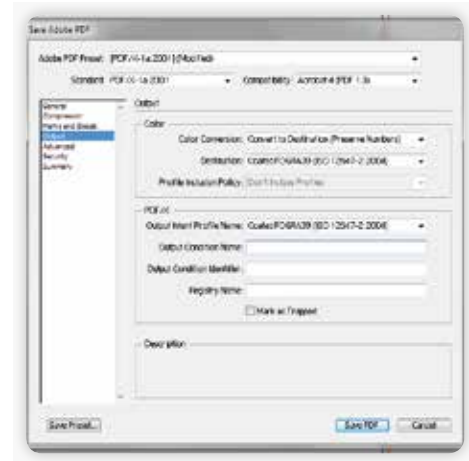
When exporting select pdf/x-1a2001 preset

### c. Adobe Illustrator

In adobe illustrator the colour mode is set when the document is created. When saving as a pdf select pdf/x-1a:2001 from the drop down presets list.



When creating the document select CMYK in the colour mode.



When saving the document as a pdf select pdf/x-1a2001 preset

### d. Microsoft Publisher

When the document is open click file - info - commercial print settings - choose colour model. This will allow you to set the colour mode that you would like the document to be set up in.



From the file menu select "choose colour model"



Select "Process colours (CMYK)"

### 4. DOs and DON'Ts - Checking Your Files before sending

Finally, a couple of quick pointers to help you understanding the issue and assist in checking.

- DO check proofs on screen using a colour calibrated monitor (if possible). Be aware that with uncalibrated screens colours will vary from monitor to monitor.
- DO print samples using a commercial proof printer ensuring the target profile is set to Fogra 39
- DO use the acrobat pro output preview tool to check how the file will look when output to Fogra 39.
- DO use printed CMYK colour swatches to check colours if unsure.
- DO ask for a printed sample if you are unsure of your document's colour setup. Samples cost £10 and can be ordered by calling the office. Turnaround is one working day for production + one working day for delivery.
- DON'T check colours against desktop printer samples as their profiles will generally try to emulate RGB colours as opposed to printing the true CMYK colours.