

*Permaset*<sup>®</sup>

**EDUCATIONAL  
RESOURCES**

**WORKING WITH COLOUR**

## Part 1 — Reductions: Getting to know PERMASET Textile Screen Printing Inks

Most artists and designers begin their artistic journey by exploring the colour palette. Of particular interest is how a purchased colour is expressed as its intensity is reduced.



PERMASET AQUA Turquoise 100% (left) to 0.3% (right)

PERMASET Screen Printing Inks are highly pigmented and dilutions, or more correctly “reductions”, are achieved by mixing with PERMASET Print Paste. Adding any PERMASET Ink to Print Paste reduces the intensity of the colour producing a lighter colour called a reduction.



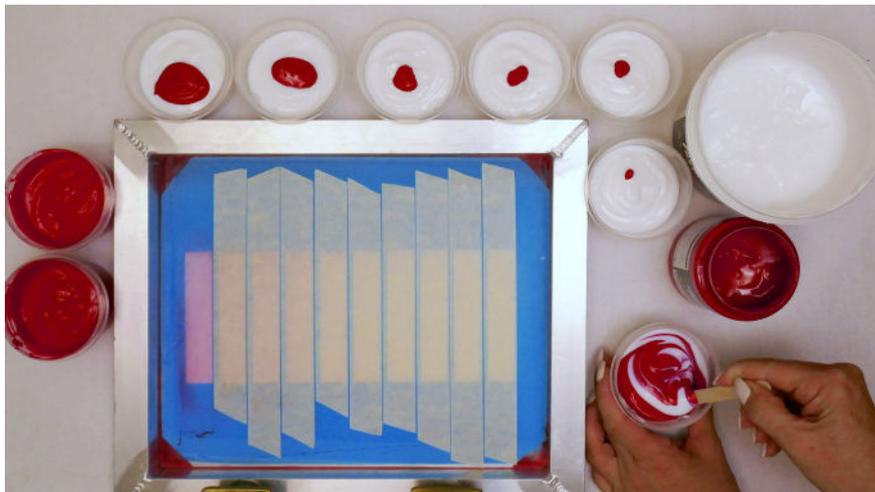
PERMASET Turquoise reductions with Print Paste (100%, 50%, 23%, 12%, 6%, 3%, 1%, 0.6% and 0.3%)

PERMASET Inks are transparent and reductions will appear as tints when printed on white fabric. Tints can also be achieved by mixing PERMASET Inks with PERMASET White. If your design incorporates tints, then consider the following when deciding whether to use PERMASET Print Paste or PERMASET White:

1. Reductions made with Print Paste will:
  - a. appear as tints when screen printed on white fabric,
  - b. appear as tones when printed on grey fabrics,
  - c. have a soft handle when dry and
  - d. require less PERMASET Ink to make up a particular tint because the ink is dispersed into a transparent medium. Less ink used saves you money in raw materials, time and energy in the dryer, and for all these reasons, has a lighter environmental footprint.
2. A reduction made with PERMASET White will:
  - a. appear as a pastel,
  - b. have a slightly harder handle,
  - c. have a higher opacity so the colour of the fabric will not show through as much and
  - d. require more PERMASET Ink to make up a particular tint because the ink is dispersed into an opaque medium. This will have a heavier environmental footprint.

The final screen printed colour is also dependent on screen mesh size, squeegee hardness and shape, number of strokes and pressure applied during the stroke. When assessing colour it is important to make test prints and assess colour after curing.

Watch how PERMASET Bright Red is reduced with Print Paste on our [YouTube channel](#):



To save you time, a full set of PERMASET Reductions is available as an [e-book](#) that you can down load and have on hand for easy reference.



**PURPLE**  
**Reductions\***  
with Print Paste

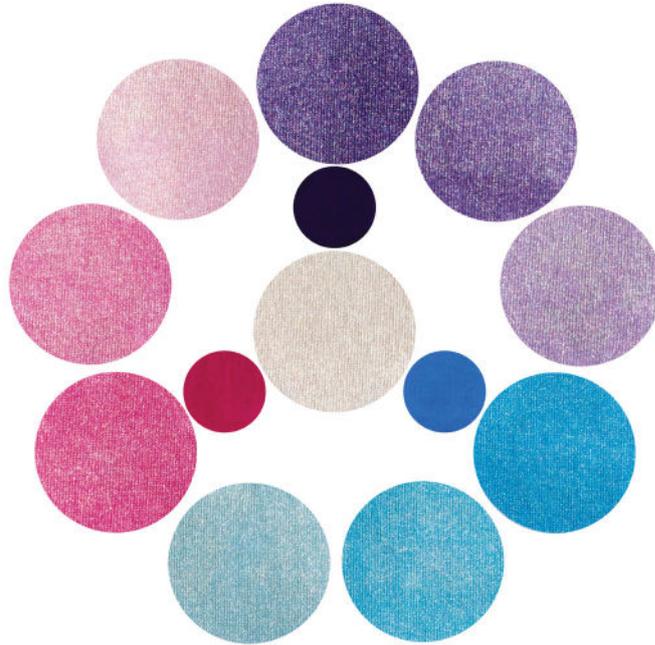
100%  
50%  
23%  
13%  
6%  
3%  
1%  
0.6%  
0.3%  
0.1%

\* Colours of reductions shown are a guide only and are as close as RGB and CMYK processes allow. When colour is critical, test printing is essential.

15

The image displays a vertical column of ten horizontal bars, each representing a different percentage reduction of the color purple. The bars are arranged from top to bottom in descending order of percentage: 100%, 50%, 23%, 13%, 6%, 3%, 1%, 0.6%, 0.3%, and 0.1%. The 100% bar is a solid, dark purple. As the percentage decreases, the bars become progressively lighter and more translucent, showing the underlying white background. The bars have a slightly textured, brush-like appearance.

Reductions can be made with **PERMASET Pearl White** too. All PERMASET Standard and Metallic Inks are intermixable. Mix PERMASET Metallic Pearl White with PERMASET Standard Colours to create a wide range of metallic colours.



Create shimmering metallic colours by mixing any PERMASET standard colour with PERMASET Metallic Pearl White.

Shown are 25%, 12% and 6% PERMASET Purple, 25% 12% and 6% PERMASET Light Blue and 25%, 12% and 6% PERMASET Rose.



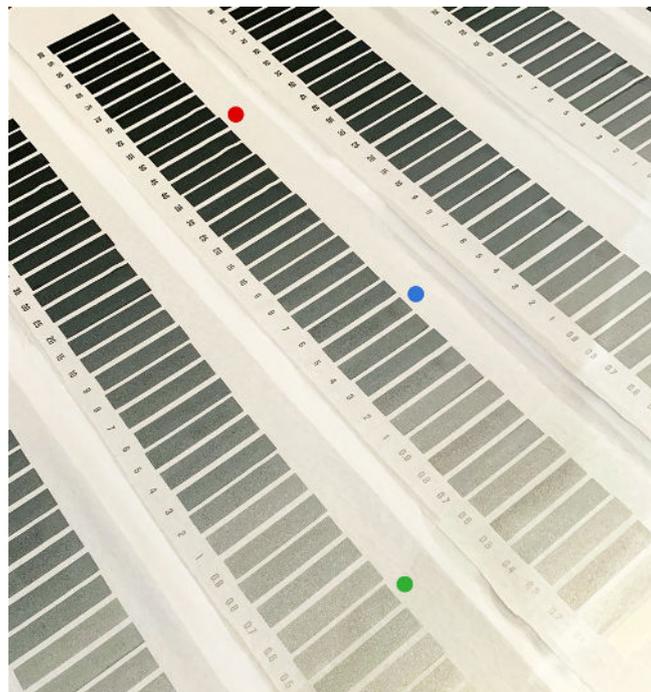
T-towel design incorporating a metallic light blue by reducing PERMASET Blue B with Metallic Pearl White.

Rose Gold is trending in popularity and is seen in jewellery, shoes and even hair colour! It is very easily made by mixing PERMASET Metallic Copper with Metallic Pearl White.



PERMASET Metallic Copper Reductions with Metallic Pearl White (100%, 50%, 23%, 12%, 6%, 3%, 1%, 0.6% and 0.3%)

PERMATONE® Screen Printing Inks are part of the PERMASET range and are used for colour matching. PERMATONE inks have a high pigment value. The following image shows PERMATONE Black reductions with PERMASET Pearl White. A 50% PERMATONE Black with PERMASET Pearl White (at the red dot) reduction is still quite black as shown in the image below. A mid grey is achieved around the 5% mark (at the blue dot). Even at 0.5% PERMATONE Black with 99.5% PERMASET Pearl White the black is still quite strong (at the green dot).



PERMATONE Black reductions with PERMASET Pearl White.

TIP: When mixing a reduction always add the coloured ink to the Print Paste in small increments until you reach the desired tint.

## Case Study: Flowering Gums Design for Linen T-towels



A Margaret Preston inspired design was developed for screen printing on linen t-towels. The initial print run used 100% PERMATONE Black and 100% PERMATONE Magenta in keeping with the strong blacks and colour blocks typical of Margaret Preston's linocuts.



Flowering Gums on Linen with 100% PERMATONE Black and 100% PERMATONE Magenta

The design developed had a delicate feel and suggested a softer approach to colour. A series of print runs were made each time halving the strength of PERMATONE inks in the reductions until settling at 6% PERMATONE Magenta and 3% PERMATONE Black. At these levels the reductions gave the desired delicate effect reminiscent of flowering gums.



Flowering Gums on Linen with 3% PERMATONE Black and 6% PERMATONE Magenta

PERMATONE Inks are highly intense and even at 3% Black and 6% Magenta the reductions retained the vibrant colour of PERMATONE Inks. The PERMATONE range has been granted approval by the Soil Association in the UK, having successfully met the requirements of the Global Organic Textiles Standards (GOTS) for non-organic chemical inputs for use in organic textile processing.



PERMASET Reductions: A little bit of ink goes a long way!

## Part 2 — How to Create Great Colour Schemes for your Screen Print

In Part 1, we looked at getting to know PERMASET Screen Printing Inks by working with reductions to produce a range of tints from each colour in the PERMASET range. In this part, we'll look at some tried and tested colour schemes for screen prints to get that perfect colour combo for your next project. So read on and get inspired!

Standout colour combinations are an effective way for your design to get the attention that it deserves. Printing colour on textiles, paper and other substrates can be tricky if you're creating your designs digitally, so it's always a good idea to screen print colour samples when assessing a colour scheme.

### The Basics of Colour – The Colour Wheel

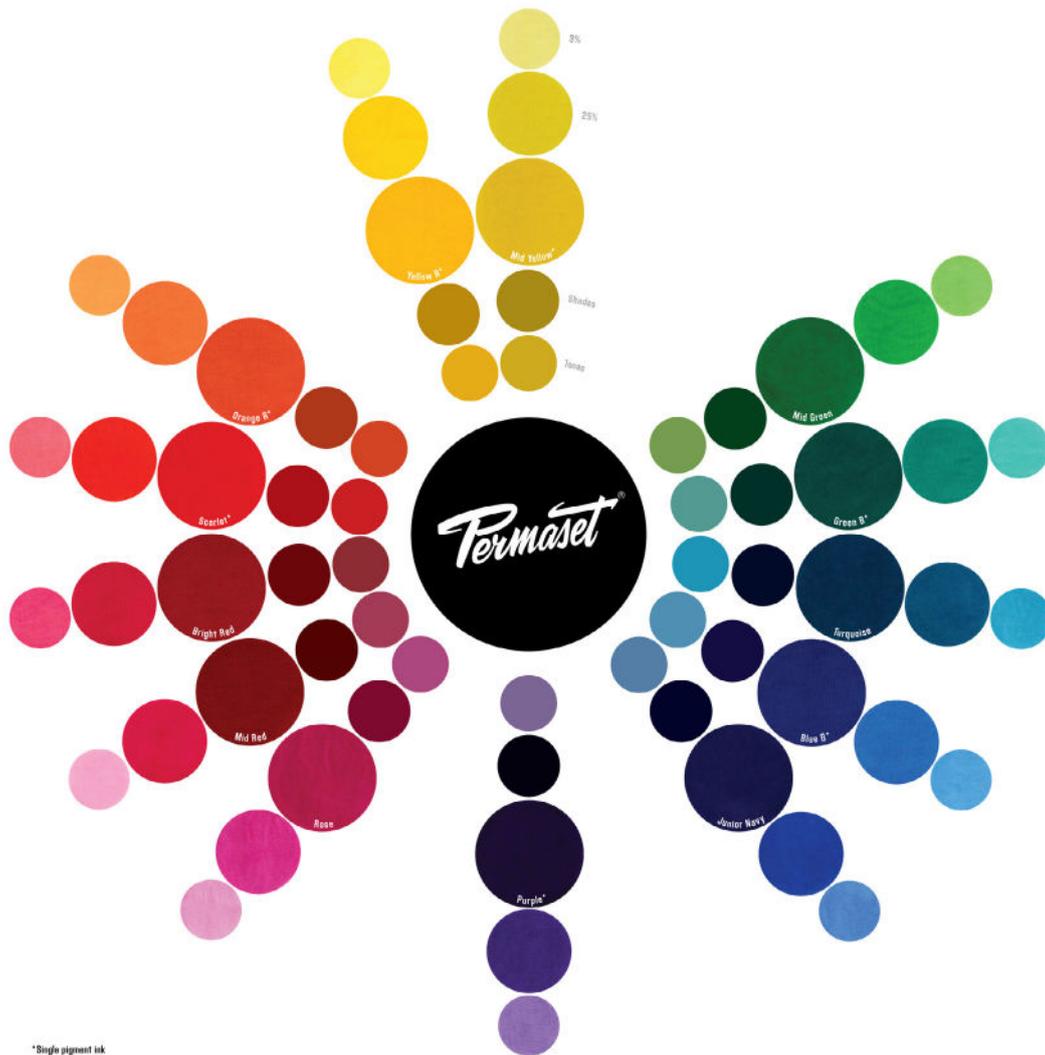
Most people are familiar with the colour wheel which we learned in school and is made up of primary red, blue and yellow. These primary colours, when mixed, produce the secondary colours of purple, green and orange.



PERMASET Mid Red, Orange R, Mid Yellow, Mid Green, Blue B and Purple

Understanding the colour wheel and how it can be used to create colour harmonies is central to creating standout colour combinations.

The colour wheel can be further expanded by including 13 of the 19 PERMASET Standard Colours. (The PERMASET Standard Colours not shown on the colour wheel are White, Jet Black, Venetian Red, Brown R and Dark Brown.)



PERMASET Standard Colours arranged on the colour wheel

Also shown on the PERMASET colour wheel are tints (or reductions) at 25% and 6%, tones and shades. Tints (or reductions) are shown on the outer two rings and tones and shades are shown on the inner two rings. Tones are created by mixing grey (white and a little black ink) and shades are created by adding a little bit of black to the colour. Read Part 1 to know more about reductions. We will use unreduced (pure) PERMASET inks and their tints (reductions) in our colour combinations later on.

As you can see on the colour wheel above, there are some gaps and these should be filled in so we have a more complete range of colour choices when creating our colour combinations.

We prepared PERMASET Ink mixes of:

- 94% Yellow R and 6% Orange R
- 75% Yellow R and 25% Orange R
- 75% Mid Yellow and 25% Mid Green
- 50% Mid Yellow and 50% Mid Green
- 50% Blue B and 50% Purple
- 50% Rose and 50% Purple
- 75% Rose and 25% Purple
- 50% Mid Red and 50% Purple

These were printed and added to the colour wheel. The exact ratios of PERMASET Ink mixes don't matter that much – they are rough estimates to create colours to fill the gaps in the colour wheel. You can create your own blends to fill the gaps.

So now our colour wheel is ready to use to create vibrant colour combinations.



PERMASET Expanded Colour Wheel

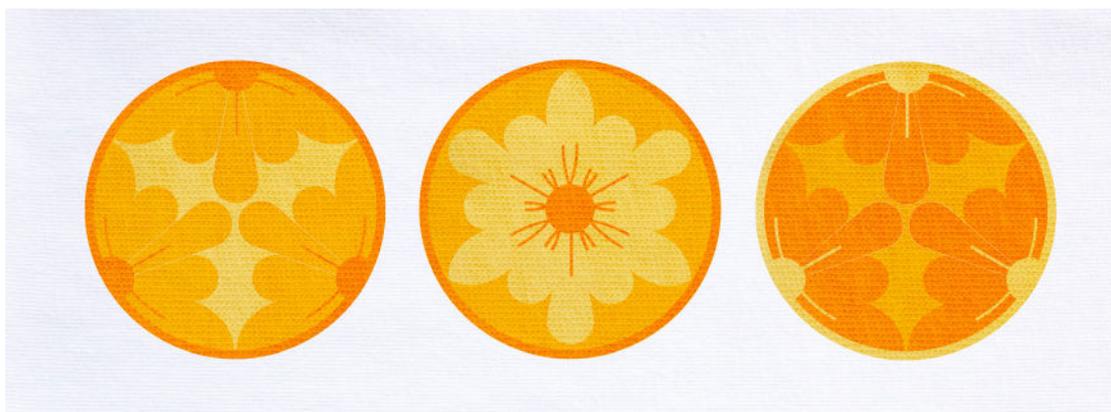
## The Four Basic Colour Harmonies

The simplest colour harmony, the **Monochromatic palette**, is based on the tints, tones and shades of the same colour or hue



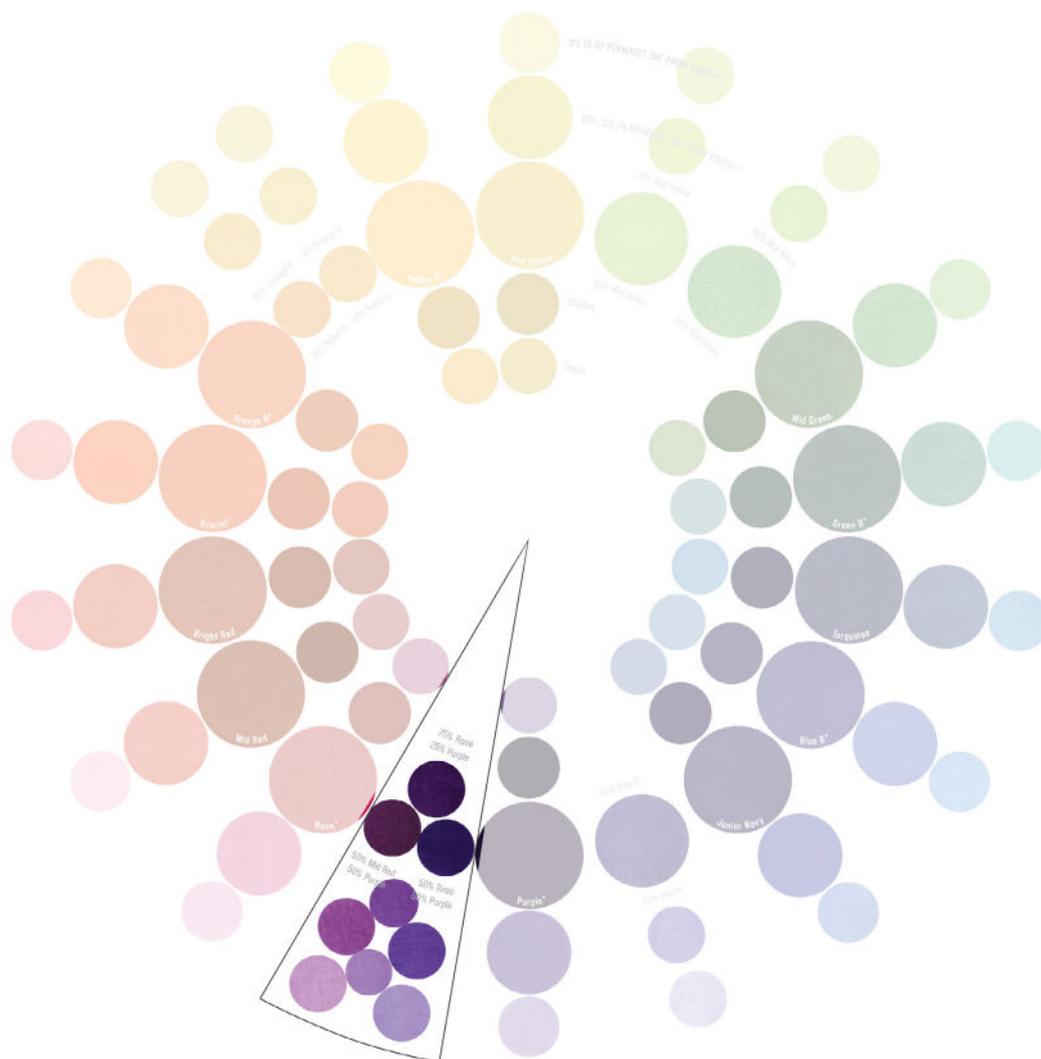
A Monochromatic Colour Harmony based on a single hue

Monochromatic colour palettes are gentle and soothing. Create interest by varying the brightness (or value) of adjacent colours in your design. This creates colour combinations with good contrast.



Monochromatic colour scheme using a 25% Orange R and 75% Yellow R mix at 100%, 25% and 6% reductions

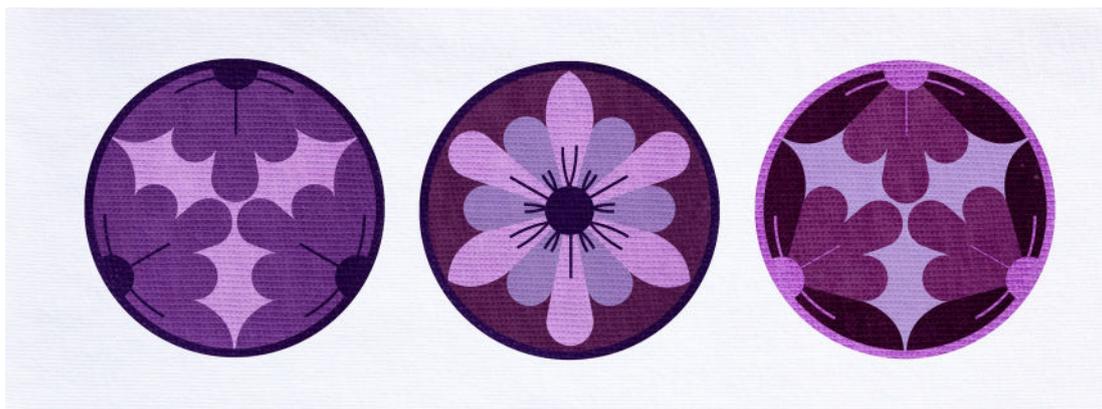
**Analogous colour palettes** are based on three or more colours that are next to each other on the colour wheel.



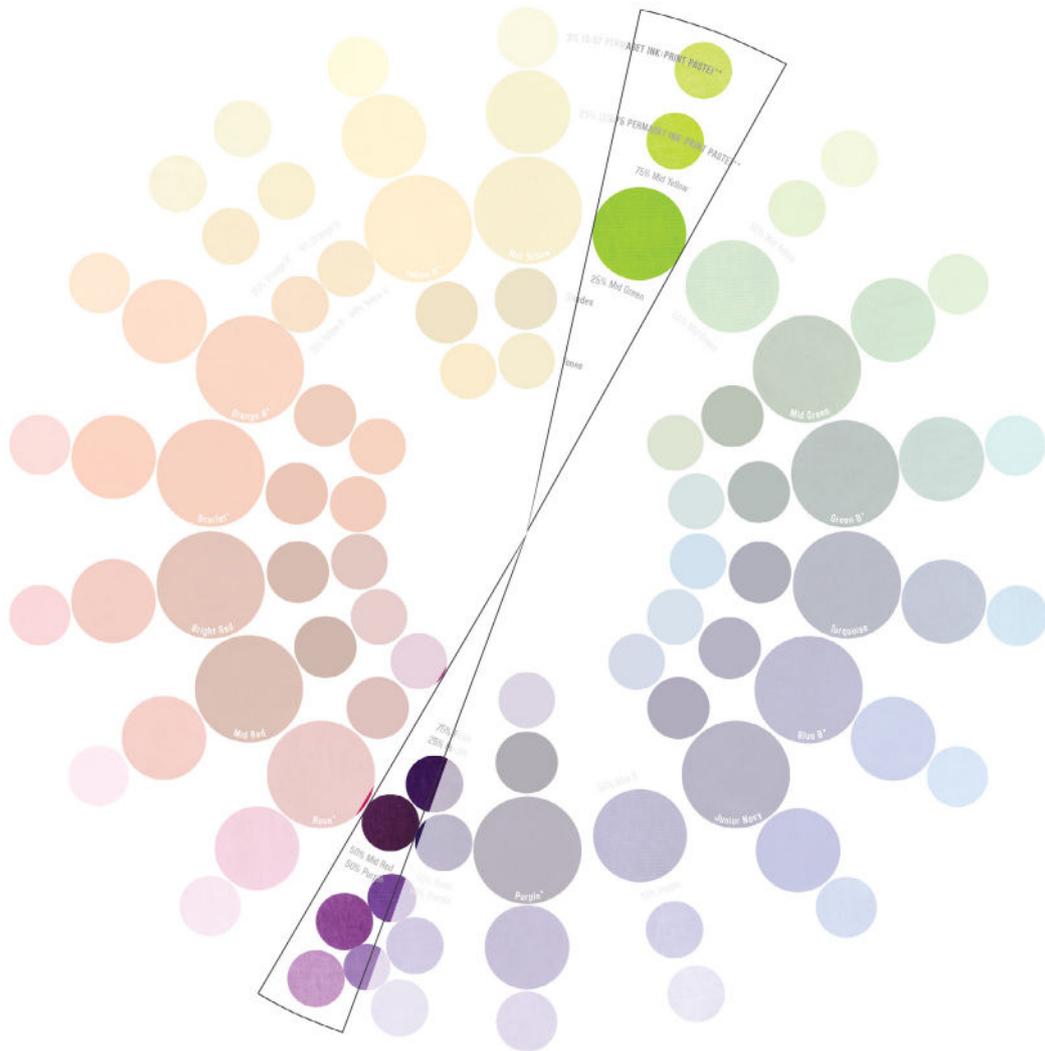
Analogous Colour Harmony based on three adjacent colours

Analogous colour combinations give a sense of harmony and balance .

The design shown below is made up of colours blended from 50% Rose and 50% Purple, 75% Rose and 25% Purple, 50% Mid Red and 50% Purple at 100%, 25% and 6% reductions. Remember to create interest by varying the brightness (or value) of the adjacent colours in your design.



To achieve colour combinations of high contrast, **complementary colour harmonies** are created. These are colour schemes based on colours chosen from opposite sides of the colour wheel.

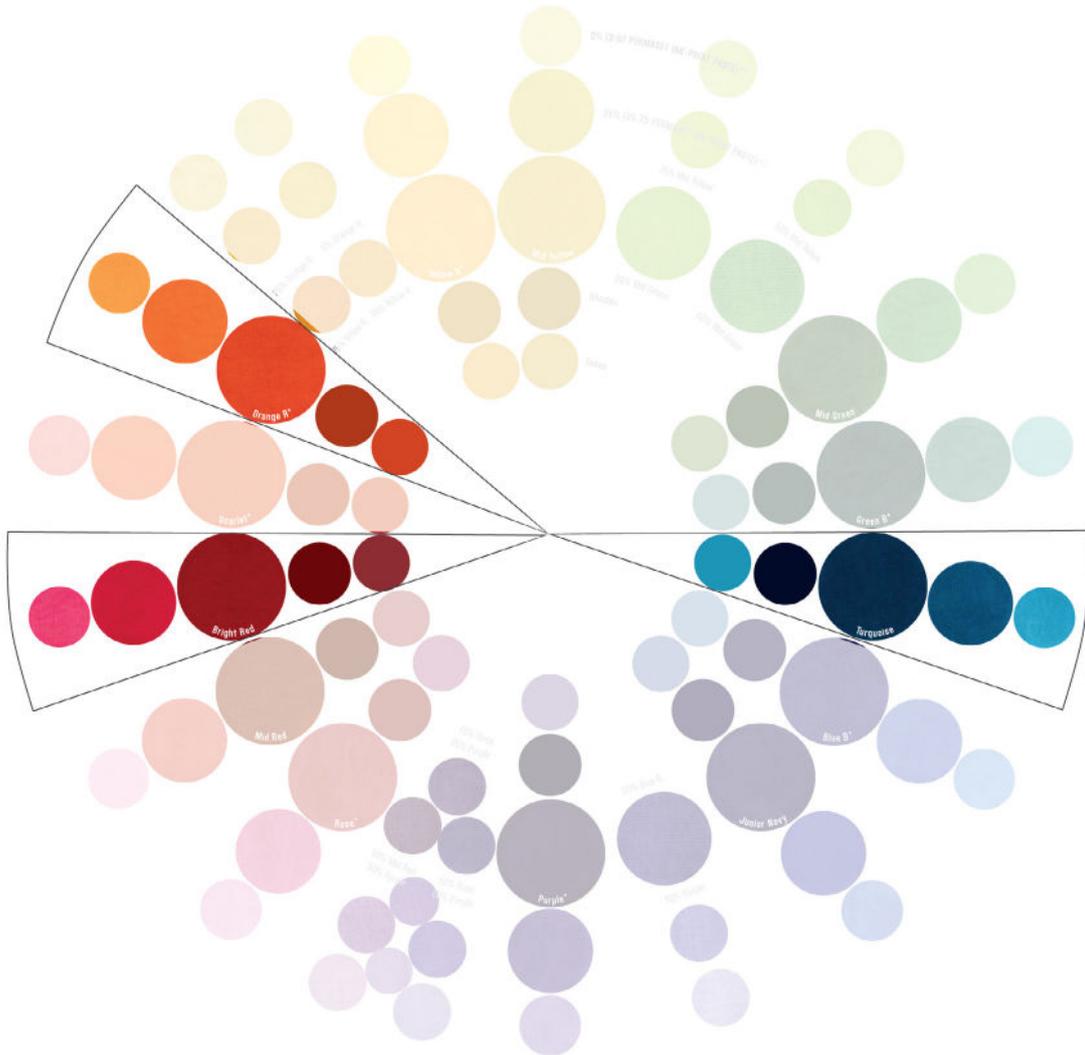


Complementary colour combination based on opposite colours

Colour schemes based on complementary colours have high energy and are visually interesting. Complementary colours schemes are a good choice when you want to make a statement with your design.

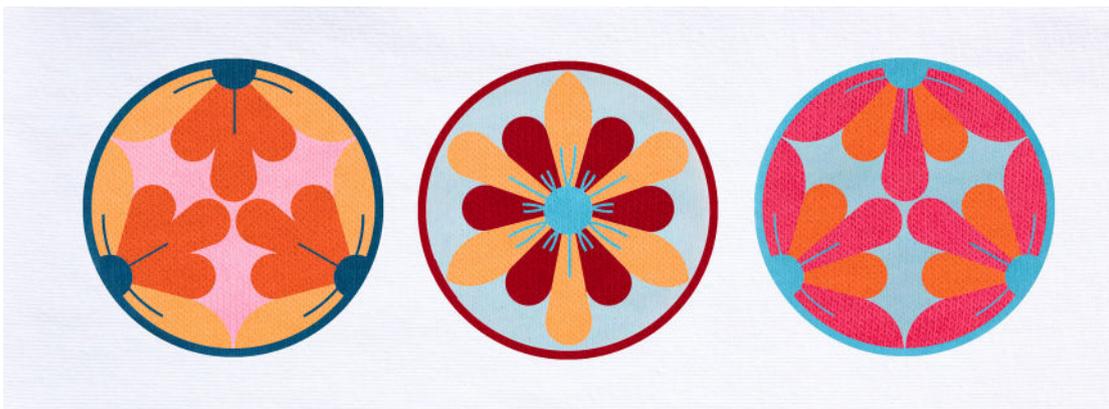


The fourth basic colour combination, a **split complementary harmony** results when one colour is paired with two colours on either side of the original colour's direct opposite on the colour wheel (see the diagram below).



A split complementary colour scheme based on Orange R, Bright Red and Turquoise 100% , 25% and 6% reductions

Colour schemes based on split complementary colour arrangements are high contrast and visually exciting. These colour schemes are a little more sophisticated than complementary colour combinations. The key to making complementary and split complementary colour combinations work is to vary the brightness (value) of the colours (by using reductions) for high pop value.



## Breaking the Rules

If you find yourself always gravitating to the same colour or you just can't seem to get that great combination to work, then these four colour harmony tips can help by offering tried and tested suggestions for you to use. There are other colour harmonies to discover too, so as you become more confident, go ahead and break the rules. The great thing about colour is to mix, print and see how you feel about it and have fun along the way.

It's also helpful to keep a work book or colour diary. Record the mixes that you make and include a sample print stapled into the book. While it may slow you down at first, this book will become an invaluable resource as you keep adding to it. As you become more comfortable with this, you might also include info such as mesh size, squeegee type and number of pulls.



## OTHER EDUCATIONAL RESOURCES

PERMASET AQUA® eco-friendly screen printing textile inks deliver pure colour, a superior soft handle and excellent durability in an easy to use ink that is environmentally friendly.

Our [website](#) and [youtube channel](#) have a number of resources to support beginner and not so beginner screen printers.

Beginners may find useful:

1. [How to screen print simply with PERMASET AQUA inks](#)
2. [How to use the PERMASET Christmas Mini Pack — Single Colour Printing](#)
3. [How to print two colours](#)

Other topics include:

4. [How to apply PERMASET Table Adhesive](#)
5. [How to Flood](#)
6. [The Stroke](#)
7. [Making Reductions](#)

Screen printers with some experience may find useful:

8. [How to Screen Print a Blend](#)
9. [Using First Down White](#)
10. [How to Expose a Design for Screen Printing](#)

PERMASET Reductions are available as an [e-book](#) for easy reference.

Download our A2 poster of the [PERMASET colour wheel](#) (*add hyperlink*).

For further enquires:

- email [info@permaset.com.au](mailto:info@permaset.com.au)
- or call +61 2 9939 7977

