WINSOR & NEWTON

*Professional*

**WATER COLOUR™**


Available at:

**BeauxArts Fine Art Materials**
2285 Highway 101 Suite H
Florence, Oregon 97439

**BeauxArtsFineArt.com**
**facebook.com/BeauxArtsFineArtMaterials**



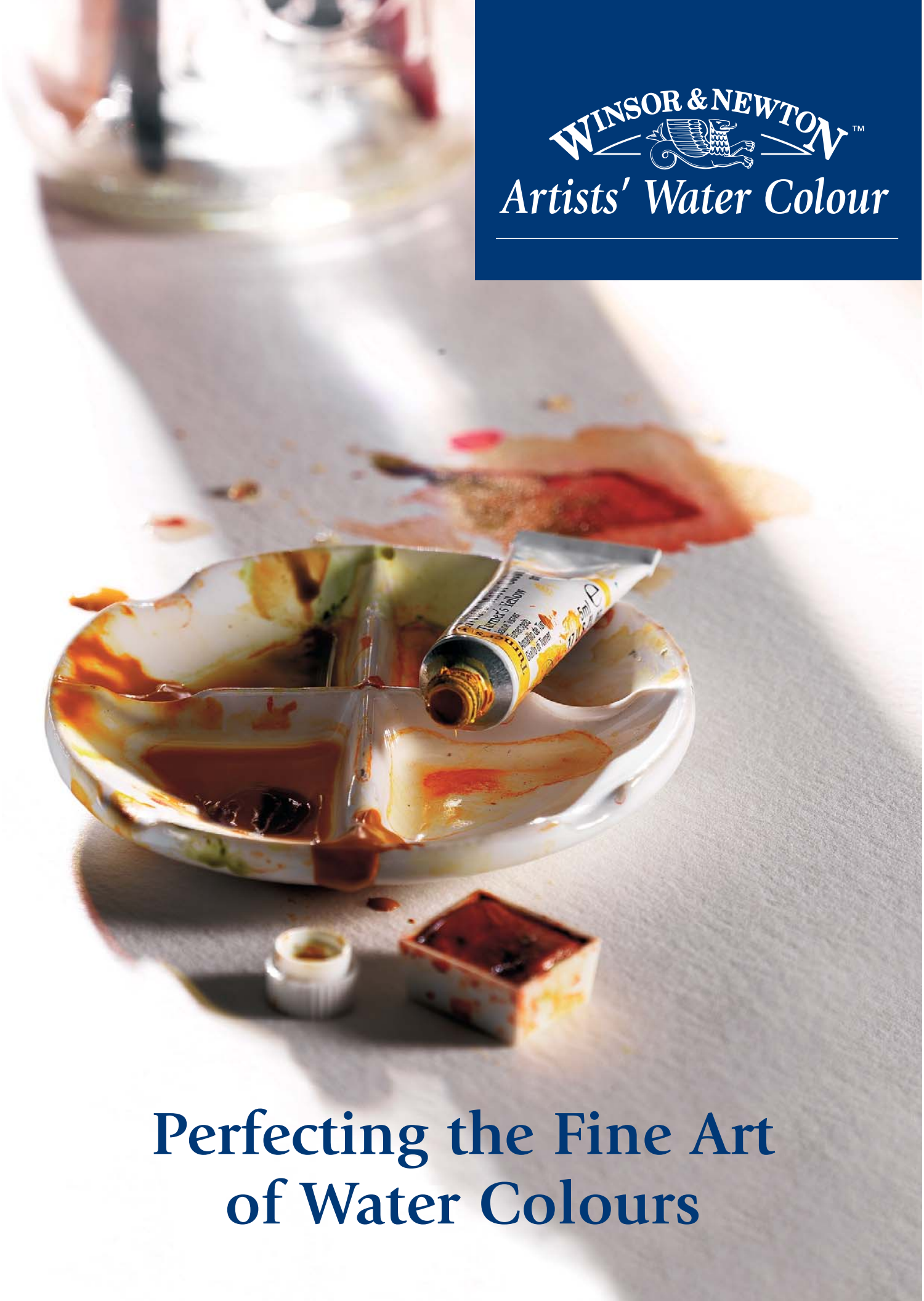
## Key to Coding

- AA Extremely Permanent
- A Permanent
- B Moderately Durable
- (i) 'A' rated in full strength may fade in thin washes
- (ii) Cannot be relied upon to withstand damp
- (iii) Bleached by acids, acidic atmosphere
- (iv) Fluctuating colour, fades in light, recovers in dark
- S Series number
- □ Transparent
- ▨ Semi-Transparent
- ■ Opaque
- ◩ Semi-Opaque

## ASTM

- I Permanent for artists' use
- II Permanent for artists' use

Where no ASTM rating is listed, please refer to the Winsor & Newton permanence rating



WINSOR & NEWTON™

Artists' Water Colour

# Perfecting the Fine Art of Water Colours

# 1. Introduction

Since 1832 when Henry Newton and William Winsor introduced the first moist water colours to the world, much of our reputation for supreme quality has stemmed from the Artists' Water Colour range.

More than 170 years later, the original **Winsor & Newton**™ moist water colour continues to be formulated and manufactured according to our founding principles: to create an unparalleled water colour range which offers artists the widest and most balanced choice of pigments with the greatest possible permanence.

Through strict adherence to these founding principles, we achieve brilliance, transparency, and purity of colour unparalleled by any other water colour.

For the 21st century, these key qualities are achieved through a combination of choice of raw materials, custom made machinery and expert formulation by experienced chemists and artists who have spent their working lifetimes formulating Artists' Water Colour.

Today, the Artists' Water Colour range benefits from continued advancements in pigment technology and production methods to enable us to build upon our already high standards to produce even brighter, more transparent and more stable colours. Equally important, many of our formulations remain the same - proving that they cannot be bettered!

1901

1901

1957

1957

1976


1976

Present day


Present day

# 2. The Product Range

The Artists' Water Colour range offers a wide and balanced spectrum of 96 colours in a selection of pan and tube sizes. Each colour has been specially selected and formulated to offer the greatest choice and flexibility, ensuring all artists can obtain the palette that best suits their work.

The range of 96 colours includes 15 new colours (16 new colours in tube with the introduction of Permanent Mauve, previously available in pan only).

Ten colours have been modified and 71 colours have remained unchanged; ten colours from the former range have been discontinued.

This leaflet is divided into 9 main sections to provide as much information about Artists' Water Colour and its uses as possible. Details of changes in table form, including information on the closest equivalents for the discontinued colours, are available in Section 9, the **Technical Section**.

# 3. Raw Materials, Formulation & Manufacture

## Raw Materials

Choosing the right materials for the 96 Artists' Water Colours requires decades of experience and expertise from our chemists.

Hundreds of raw materials are therefore chosen from worldwide sources to ensure we have the highest quality materials to make the best possible formulations.

Once the right materials have been delivered to us, we also carry out comprehensive quality checks to ensure that the raw materials meet our high standards and specifications and are free of impurities.

We reject as much as 25% of incoming materials when they do not meet our satisfaction!

*Weighing pigment*

## Formulation

In simple terms, a water colour is produced by combining (or suspending) a pigment with a binder, for example, Gum Kordofan, a type of Gum Arabic (see section on **Binders**).

The formulations for our Artists' Water Colours are each unique, however, and vary according to the nature and behaviour of each individual pigment.

With this in mind, and with a range which has thousands of different applications by millions of artists worldwide, we rely on expert chemists who have spent their working lifetimes understanding and formulating Artists' Water Colour. In fact, these chemists have learned from chemists before them who also spent their working lives at **Winsor & Newton** - since William Winsor died in 1865 we have only had four chief chemists! Thanks to their experience and expert knowledge, we can continue to formulate the highest quality range with the widest choice of colours, using the largest number of pigments.

*Formulating Artists' Water Colour*

## Manufacture

Devising the right machinery and using it correctly is essential to the manufacture of Artists' Water Colour - the best ingredients must be prepared using the best methods.

Custom made machinery controlled by experienced operators has therefore been designed to ensure that each of the 192 formulations (tubes and pan) in the range is manufactured to the highest standards.

The manufacturing process is a complex one. In fact, to make the 96 Artists' Water Colour pans, it takes over 1400 different stages before the process is completed!

In brief, there are two main processes involved - mixing the pigment and binder together and then milling to super micron fineness. Careful control of the milling process is essential as it ensures stable suspension of the pigment in the binder and helps release the full intensity of the colour.

*Manufacturing Artists' Water Colour*

*Extruding pan colour*

### Extrusion

To make Artists' Water Colour pans, each formulation has to undergo a further process. Generally, this involves a lengthy procedure of drying the colour and then extruding it into long sections. These are then cut into whole pan or half pan sizes. Only perfectly extruded pans are finally cut and glazed for artists' use.


## Binders

Water colour is produced by the combination of a pigment with a binder, usually Gum Arabic. Gum Arabic comes from acacia trees in Africa, principally from the region of Kordofan, which produces the best quality gum of all: Gum Kordofan.

To make the best Artists' Water Colours, we use the finest quality Gum Arabic for the following reasons:

Firstly, it is colourless and therefore does not affect or compromise the natural character or colour of the pigments.

Secondly, it is less soluble and provides stable adhesion of the colour upon the painting surface to enable the artist to apply layer upon layer of jewel-like colours without muddying the colours underneath.

We do not use just one solution of Gum Arabic to formulate our 96 Artists' Water Colours, however. A variety of binders are manufactured to suit various pigments and each formulation contains a selection of these binders.

As each pigment has slightly different requirements, each Artists' Water Colour therefore has its own individual formulation with greater or lesser proportions of one or more of the key binders and ingredients.

*Binder solution*

# 4. Pigments

Water colour more than any other medium relies upon the variable characteristics of the pigments used. As it is essentially a staining technique, everything rests on the handling properties of the pigments; whether they can produce a smooth wash or a textured wash; how opaque or transparent they are; the brilliance and strength of their colour; and so on.

With this in mind, it has always been - and will continue to be - our aim to provide artists with the widest possible range of pigments to give them the greatest choice and flexibility. It takes a total of 87 different pigments to produce the 96 Artists' Water Colours.

The world's industries have also multiplied during the history of **Winsor & Newton**, leading to the continual development of new pigments. Plastics, ceramics, aviation and car industries have also needed stable, bright, dense colours and this has been wonderful news for artists.

Today, our Artists' Water Colours contain an ever-widening range of high performance pigments, which ensure strength of colour and excellent brilliance combined with extremely high permanence ratings.

*Pigment scoops*

## Types of pigments

Pigments can be classified chemically into two main groups, which can then be divided into natural and synthetic:

**1) Inorganic:** Those pigments that are derived from compounds that were never part of living matter and do not contain carbon. This group includes cadmiums, cobalt, ultramarine, and a wide range of other traditional colours. Earths are also included in this group.

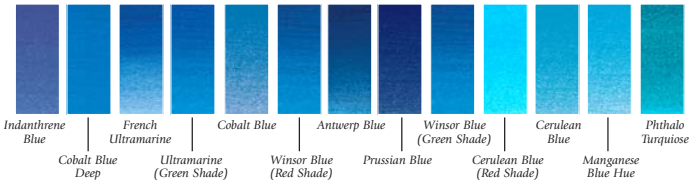
| Inorganic | | | | | |
|---|---|---|---|---|---|
| **Natural** | **Synthetic** | | | | |
| Earths: eg; Ochres, Umbers | Cadmiums | Cobalts | Iron Oxides: eg; Mars | Other Metal Oxides (excluding iron and cobalt): eg; Viridian, Chromium Oxide, Nickel Titanate, Bismuth Yellow, Magnesium Brown, Titanium | Miscellaneous Inorganics: eg; Prussian Blue, Permanent Mauve, Ultramarine |

**2) Organic:** Those pigments that are derived from living substances or substances that were once part of living things. This group includes many modern pigments known for their clarity, transparency, and their polysyllabic names, such as phthalocyanine, quinacradone, perylene, and benzimidazolone. These pigments are based on carbon.

| Organic | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Natural (derived)** | **Synthetic** | | | | | | | |
| Miscellaneous: eg; Rose Madder, Bone Black, Carbon Black | Quinacridones | Phthalocyanines | Perylenes | Pyrroles | Arylamides | Benzimidazolones | Metal Complexes: eg; Transparent Yellow, New Gamboge | Miscellaneous: eg; Dioxazine, Indanthrone |

## Single pigments in the range

**Blue area of the spectrum showing different single pigment characteristics**




Just like people, each and every pigment differs in shape, size, colour, and "personality". Pigments, especially in water colour, serve as a set of tools or vocabulary to help artists manipulate their work and alter their expression.

Wherever possible, single pigments have been used in Artists' Water Colour to ensure that we offer the widest choice of colours and pigment characteristics or "positions," such as hue, particle size, transparency, tinting strength, etc. This helps broaden the artist's creative expression.

We use single pigments wherever possible. Single pigment formulations are purer in hue and cleaner in colour than mixtures of pigments, providing a larger number of colour mixes before resulting in muddy effects.

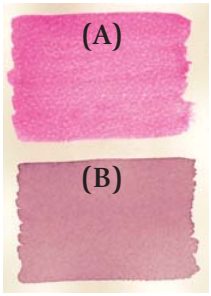
Within the new Artists' Water Colour range there are 75 single pigments amounting to 78% of the range.

### Mixed Pigments

Although mixed pigments inevitably lose some degree of chroma or brightness, there are many reasons why we still choose to formulate with them.

In some instances, we can achieve a higher level of permanence over a single pigment alternative, e.g., Permanent Alizarin Crimson and Hookers Green.

In other instances, some pigments have to be mixed to achieve a given formulation. For example, Quinacridone Gold where the pigment itself is no longer available.




*The unique hue of Cobalt Violet (A) cannot be matched by a mixture of pigments (B)*

## Pigment Family Groups

As well as classifying the pigments in Artists' Water Colour into their chemical groups, we can further categorize the range into the following family groups, and have chosen a few of these to discuss, as follows:

## Earth Pigments & Synthetic Earth Pigments

### Earths

Earth pigments are the oldest colouring materials in the world. The caves of Altamira and Lascaux still show artworks from at least 15,000 years ago.

Natural earths are essential for their low tinting strength and natural tones, which cannot be mixed from hues using blacks and whites.

*Different uses for natural earths and synthetic earths: Yellow Ochre Light (new natural earth) vs Gold Ochre (unchanged synthetic earth)*

Earths are coloured deposits usually taking their hue from contact with iron over millions of years. They are some of the most inert, permanent pigments available. Earth pigments are extracted from the ground and are then cleaned and washed.

The Artists' Water Colour range includes a number of new earth colours:

**Brown Ochre:** This is an orange-brown earth, fitting between the yellow and red earths. It closely resembles our previous Brown Ochre of nearly 40 years ago. It is semi-transparent and useful in all types of painting.

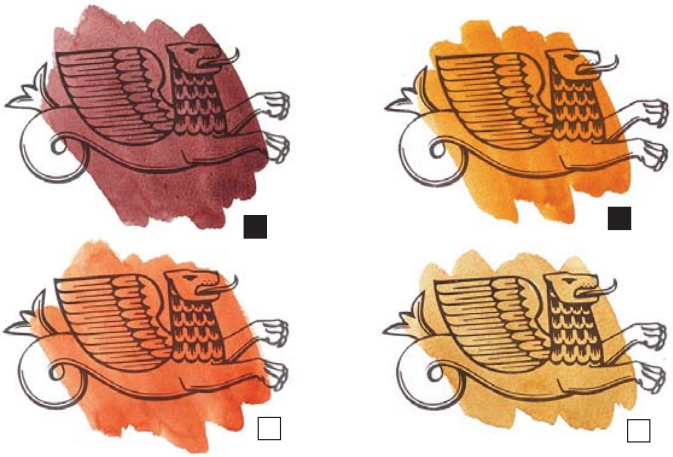
**Yellow Ochre Light:** A pale semi-opaque yellow ochre in addition to Yellow Ochre.

### Synthetic Earths

Over the many decades of Artists' Water Colour, the deposits of many good natural earths have become depleted and have been replaced with synthetic iron oxides.

Synthetic iron oxides are appealing in themselves because they tend to be quite strong and opaque in character. The first synthetic iron oxides ("Mars" colours) date to the mid 19th century.

Although synthetic iron oxides have their own great characteristics, they do not completely replace the earth pigments and we therefore recommend that the best range, as illustrated by Artists' Water Colour, needs to include both synthetic earths and natural earth pigments side by side.



*Examples of synthetic opaque (Caput Mortuum), natural opaque (Yellow Ochre), synthetic transparent (Burnt Sienna), natural transparent (Raw Umber)*

## Cadmium Pigments and Alternatives

### Cadmium Pigments

Colours based on cadmium pigments constitute an important colour range in the artist's palette. Their unique hues, good coverage and low tinting strength are qualities unmatched by any other pigments available. Moreover, they have excellent light-fastness in combination with very high opacity.

### Alternatives - Why use them?

Cadmiums are the most popular reds and yellows in the palette and as artists' colours in normal use, do not present a health hazard to the user.

While there has been public concern about cadmium compounds used by other industries and their impact on the environment, it should be noted that cadmium pigments used by **Winsor & Newton** are practically insoluble.

With this in mind, some artists who do not depend on cadmiums for their unique characteristics may therefore choose to use alternatives.

There are no direct replacements for cadmiums but there are alternatives with some of the desirable characteristics of cadmiums.

Below is a chart that explains how each alternative colour relates to the genuine cadmium.

When considering the "alternatives" to cadmium pigments, each pigment is assessed in the following areas:
**• Hue • Opacity • Strength**

(Note: Opacity and strength will have an impact on colour mixing.)

**Key to coding:** **= Equal to or similar** **< Less than**

| Genuine Cadmium | Suggested Alternative | Hue Masstone | Hue Undertone | Opacity | Strength |
|---|---|---|---|---|---|
| Cadmium Lemon | Bismuth Yellow | More Green | = | = | = |
| Cadmium Yellow Pale | Winsor Yellow | More Green | More Green | < | = |
| Cadmium Yellow | New Gamboge | More Red | = | < | = |
| Cadmium Yellow Deep | Winsor Yellow Deep | = | = | < | = |
| Cadmium Orange | Winsor Orange | = | More Yellow | < | = |
| Cadmium Scarlet | Scarlet Lake | = | = | < | = |
| Cadmium Red | Winsor Red | Brighter & more Blue | Brighter & more Blue | < | = |
| Cadmium Red Deep | Winsor Red Deep | = | More Blue | < | = |

## Quinacridones

Quinacridones are a very important group of pigments originated in the 1950s. The first quinacridones were introduced by **Winsor & Newton** as Permanent Rose and Permanent Magenta. With their highly transparent and lightfast hues, these colours transformed the pink and mauve section of the palette, an area that had always suffered from poor lightfastness.

Over the next 50 years many more colours have become available, ranging from deep crimson to gold. This is achieved by juggling the chemicals involved.

*The eight Quinacridones in the Artists' Water Colour Range*

For more information on pigment families - go to **www.winsornewton.com**

# 5. Handling Properties

## Transparency & Opacity

Our Artists' Water Colours exhibit unrivalled transparency due to the unique pigment dispersion in the manufacture of the colour. This is particularly important because transparency is the key characteristic of water colour. As a result of the thinness of the water colour film, all colours have a transparent quality on paper, allowing the reflective white of the paper to shine through. However, pigments do retain their natural characteristics to some degree. For example, transparent pigments refract light in much the same manner as stained glass, making jewel-like brilliance and clean mixing. Opaque colours such as cadmiums are likely to cover significantly more than transparent colours.

### Transparent Yellow

Transparent Yellow is now made using Nickel Azo pigment - a highly lightfast yellow which is extraordinarily transparent. Such transparency has only been previously available with fugitive pigments, such as genuine Indian Yellow (a 19th Century colour from the urine of cows fed on mango leaves!) or Gamboge, a coloured tree resin.

The varying transparency and opacity of a pigment will affect the optical character of the individual colour as well as how the colour mixes with other colours. The most transparent colours will enable you to create a pure glazing effect by applying a number of washes on top of one another. The more opaque colours give flatter washes and greater covering over previous washes. Opaque colours are also useful for toning down colour mixtures.

On the **Winsor & Newton** Artists' Water Colour chart, the transparent colours are marked with □, the semi-transparent colours are marked ◪. The relatively semi-opaque colours are marked with ◪ and the opaque colours are marked with ■.

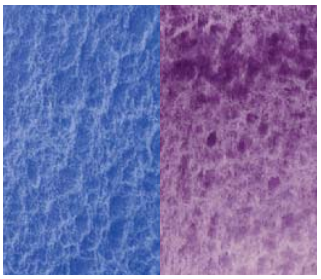
The addition of Gum Arabic will also increase transparency. By adding Gum Arabic to a colour wash, you will achieve even greater transparency and luminosity from your washes.

*Gum Arabic increases transparency*

## Granulation

Some pigments show a characteristic called granulation, where the way in which the pigment particles settle in the paper creates a mottled effect. For many artists, granulation is highly desirable because it adds visual texture to their paintings.

Even within granulating colours, different effects are apparent when they are brushed out onto paper. Some fine pigments rush together in huddles, more commonly called "flocculation", whilst other heavy pigments fall into the hollows of the paper surface.

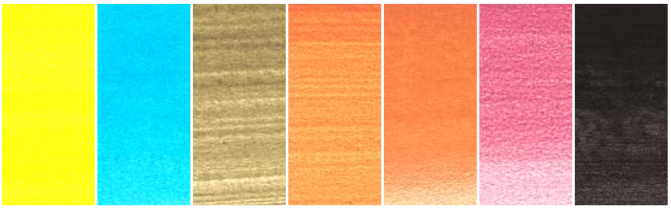


*French Ultramarine (showing flocculation) vs Permanent Mauve (showing settling of large pigment particles)*

As a general statement, the traditional pigments granulate, e.g., cobalts, earths, ultramarine, etc... The modern organic pigments do not, e.g., **Winsor** colours. Granulating colours are marked on hand painted and printed colour charts with a "G" beneath the colour chip. They are also detailed in the **Technical Table** overleaf (see also the section **Highlighting Parts of the Spectrum**).

If you wish to avoid granulation in your painting, the use of distilled water can reduce it, particularly in hard water areas.

In our ongoing search for new pigments, we have introduced a number of new granulating colours, as follows:



*New granulating colours:*
*Lemon Yellow Deep, Cerulean Blue (Red Shade), Terre Verte (Yellow Shade), Brown Ochre, Magnesium Brown, Potter's Pink and Mars Black*

Granulation Medium gives a mottled or granular appearance to colours that usually give a smooth wash, such as Winsor Blue (Red Shade). By adding Granulation Medium to colours that already granulate, such as French Ultramarine, the effect is further enhanced.

*Normal Winsor Blue (Red Shade) wash*

*Winsor Blue (Red Shade) mixed with Granulation Medium*

## Staining and Lifting

As water colour relies upon the relative absorbency of the paper surface for stability, more powerful colours such as Prussian Blue, Alizarin Crimson, and the modern organic pigments such as **Winsor** colours, made of very fine particles penetrate or stain more than others. These colours cannot be lifted completely with a damp sponge. The traditional inorganic colours and earths tend to lift more easily from the paper.

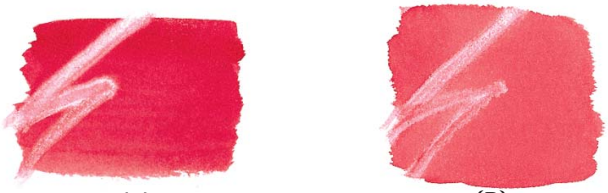
Those colours that are more likely to stain a surface are marked "St" on the Artists' Water Colour hand painted colour charts, printed colour chart and the **Composition and Permanence Table** in the **Technical Section**.

### Lifting

Lifting colour entails sponging water colour from a surface. It can include anything from a complete wash down under running water, to getting a "smoky" background, to the sponging out of a small area in order to lighten or rescue it.

**Winsor & Newton** Lifting Preparation helps ensure that colours, including those that stain, can be more easily lifted from paper with a wet sponge or brush.

Lifting Preparation must be applied to the paper first and allowed to dry before painting onto the surface.



**(A)** **(B)**

*See how Permanent Alizarin Crimson (a staining colour) can be lifted from the surface of a sheet of water colour paper that has been pre-treated with Lifting Preparation (A) in comparison to a wash lifted from paper alone (B).*

# 6. The Role and Importance of Permanence

Since 1832, one of our founding principles has been to offer a range of Artists' Water Colours that has the greatest possible permanence.

Fortunately, the 20th century featured enormous improvements in the lightfastness of colours, helping us in our quest. In fact, over the last few decades, advancements in this area have been nothing short of remarkable. New pigments developed for the car, ceramics, and plastics industries have provided us with an astonishing array of colours with unparalleled permanence.

As a result, 93 out of 96 colours in the Artists' Water Colour range are classed as "permanent for artists' use". This means that 97% of our Artists' Water Colours are rated AA or A for permanence to ensure that the colours used today will appear the same for generations to come.

### Opera Rose

Sometimes certain desirable or historical colours cannot be achieved or matched unless less lightfast materials are used. In the past, this was much more common and our ethic was that we must provide choice. After all, many artists may not need the original work of art to be permanent in itself, e.g., illustrators or designers.

Opera Rose is a case in point. Quinacridone Red and Quinacridone Magenta are vivid, lightfast violets which have proved to be hugely useful to botanical artists who specifically require their original work of art to be lightfast. Opera Rose, however, offers a brightness beyond any of these lightfast colours and is so desirable because it can represent the most vivid colours in the garden.

Although a B rating, Opera Rose is in fact significantly more lightfast than any of the older pigments of its type. This is one new colour where the hue will be more desirable for some artists than the ultimate longevity of the colour.

The quest for permanence has turned water colour from a less lightfast, delicate media into one which is equal to oil colour despite the extreme dilution of the paint film. Recently available pigments have enabled us to meet that quest. It's worth remembering that Opera Rose, even with its astonishing brilliance, is equal to or superior in permanence than many of the commonly used 19th century pigments.

The definitions and ratings of permanence for the Artists' Water Colour range are discussed in the **Technical Section**.

For further information, go to **www.winsornewton.com**

*Example of Opera Rose*

*Example of Quinacridone Magenta*

*Example of Quinacridone Red*

# 7. Colour Mixing

All colours in the Artists' Water Colour range make bright clean mixes. Artists are however, often interested in the colour theory of painting. The three primary colours in the Artists' Water Colour range are **Winsor Lemon**, **Winsor Blue (Red Shade)** and **Permanent Rose**. These colours are the best selection when only three colours are used.

When using a six colour mixing system, we recommend **Winsor Lemon**, **Winsor Yellow**, **French Ultramarine**, **Winsor Blue (Green Shade)**, **Permanent Rose** and **Scarlet Lake**.

# 8. Mediums and Accessories "Expanding your Options"

## Mediums

Mediums help you to alter and enhance the characteristics of your water colour. By adding the appropriate medium, you can further expand your options by increasing granulation or texture, improve blending and lifting, create iridescence, reduce drying time, and so on.

Mediums extend the artistic possibilities of your water colour without any risk to the permanence of the paintings.

Some of our **Winsor & Newton** water colour mediums have been described and illustrated in this leaflet (Gum Arabic, Lifting Preparation and Art Masking Fluid).

For a detailed explanation of the usage and functionality of all of our water colour mediums, illustrating where necessary, the effects that each can bring to your painting, please refer to **www.winsornewton.com**

## Water Colour Papers and Surfaces

In order to exploit the beauty of water colour with the widest variety of techniques as well as long term stability, we recommend using good quality water colour papers.

The paper's characteristic behaviour, determined by its manufacture, and the colour, weight and surface texture of the paper will have a profound effect on the character of your work. It is therefore essential to understand the nature of each paper you use and to choose carefully.

For more detailed information on a number of water colour papers, including an explanation of surface types and weights, go to **www.winsornewton.com**

## Brushes

Sable brushes are the best brushes for water colour use due to their excellent colour carrying capacity, ability to point, and to spring back into shape. **Winsor & Newton Series 7**™ Kolinsky sables are the world's finest, first made for Queen Victoria in 1866. Their unsurpassed excellence can in part be attributed to the rigorous selection of only the highest quality raw materials.

There are also a number of excellent sable/synthetic blends and synthetic brushes available, however, such as **Sceptre Gold**™ II and **Cotman**™ which offer lower priced yet high performance alternatives to pure sable.

For more information on a wide selection of water colour brushes - go to **www.winsornewton.com**

### Art Masking Fluid

Art Masking Fluid is used to mask areas of the paper making them resistant to water colour. Sections treated with Art Masking Fluid must be allowed to dry before overpainting. Once dry these areas remain protected and cannot be penetrated by colour, as illustrated by the example below.

For more information on Art Masking Fluid go to **www.winsornewton.com**

# 9. Technical Section

**There are four areas within this leaflet that are relevant to this section:**
**(A) Colour Chart (B) Spectrum Lists (C) New, Modified and Discontinued Colours (D) Composition and Permanence Table**

## (A) Colour Chart


### Key to Coding

| | |
|---|---|
| AA | Extremely Permanent |
| A | Permanent |
| B | Moderately Durable |
| (i) | 'A' rated in full strength may fade in thin washes |
| (ii) | Cannot be relied upon to withstand damp |
| (iii) | Bleached by acids, acidic atmosphere |
| (iv) | Fluctuating colour, fades in light, recovers in dark |
| □ | Transparent |
| ◰ | Semi-Transparent |
| ◩ | Semi-Opaque |
| ■ | Opaque |
| G | Granulating Colour |
| St | Staining Colour |
| S | Series number |

### ASTM

I Permanent for artists' use

II Permanent for artists' use

Where no ASTM rating is listed, please refer to the **Winsor & Newton** permanence rating

This colour chart is produced within the limitations of lithographic colour printing and is intended as a guide only.

## (B) Highlighting Parts of the Spectrum

Artists' Water Colour offers a wide and unique range of 96 colours. Within this, every artist forms their own personal palette to suit their needs. However, there are a number of common techniques of interest to many artists.

Thanks to the advancements in Artists' Water Colour we are now able to offer a full spectrum of colours to suit each of the following techniques:

### Transparency

Artists can now enjoy a full spectrum of completely transparent, bright, lightfast colours which can be used in multiple glazes. These are listed below:

**Transparent Colours**

Winsor Lemon
Winsor Yellow
Aureolin
Transparent Yellow
New Gamboge
Winsor Yellow Deep
Indian Yellow
Scarlet Lake
Winsor Red
Rose Doré
Quinacridone Red
Permanent Alizarin Crimson
Alizarin Crimson
Permanent Carmine
Permanent Rose
Rose Madder Genuine
Opera Rose
Quinacridone Magenta
Permanent Magenta
Cobalt Violet
Permanent Mauve
Ultramarine Violet
Winsor Violet (Dioxazine)
Indanthrene Blue
Cobalt Blue Deep
French Ultramarine
Ultramarine (Green Shade)
Cobalt Blue
Winsor Blue (Red Shade)
Antwerp Blue
Prussian Blue
Winsor Blue (Green Shade)
Phthalo Turquoise
Winsor Green (Blue Shade)
Viridian
Winsor Green (Yellow Shade)
Terre Verte
Perylene Green
Hooker's Greeen
Permanent Sap Green
Olive Green
Terre Verte (Yellow Shade)
Green Gold
Raw Sienna
Gold Ochre
Quinacridone Gold
Brown Ochre
Burnt Sienna
Brown Madder
Perylene Maroon
Perylene Violet
Raw Umber
Burnt Umber
Vandyke Brown

### Colour Bias

The relative value of colour bias within your palette affects the mixtures you can achieve and artists have often requested "warm" palettes. These are listed below:

**Warm Colours**

Cadmium Yellow Pale
Turner's Yellow
New Gamboge
Cadmium Yellow
Winsor Yellow Deep
Indian Yellow
Cadmium Yellow Deep
Cadmium Orange
Winsor Orange
Winsor Orange (Red Shade)
Cadmium Scarlet
Scarlet Lake
Cadmium Red
Winsor Red
Rose Doré
Quinacridone Red
Opera Rose
Quinacridone Magenta
Permanent Magenta
Cobalt Violet
Permanent Mauve
Winsor Violet (Dioxazine)
Cobalt Blue Deep
French Ultramarine
Ultramarine (Green Shade)
Winsor Blue (Red Shade)
Cerulean Blue (Red Shade)
Winsor Green (Yellow Shade)
Oxide of Chromium
Yellow Ochre Light
Yellow Ochre
Gold Ochre
Quinacridone Gold
Brown Ochre
Magnesium Brown
Burnt Sienna
Light Red
Venetian Red
Brown Madder
Potter's Pink
Perylene Maroon
Perylene Violet
Caput Mortuum Violet
Burnt Umber
Vandyke Brown
Sepia
Titanium White (Opaque White)

### Opacity

A full spectrum of opaque colours are also available which cover well and can change the tone of a picture. These are listed below:

**Opaque Colours**

Lemon Yellow (Nickle Titanate)
Bismuth Yellow
Cadmium Lemon
Lemon Yellow Deep
Cadmium Yellow Pale
Turner's Yellow
Cadmium Yellow
Cadmium Yellow Deep
Cadmium Orange
Winsor Orange
Winsor Orange (Red Shade)
Cadmium Scarlet
Cadmium Red
Cadmium Red Deep
Winsor Red Deep
Cerulean Blue (Red Shade)
Cerulean Blue
Manganese Blue Hue
Cobalt Turquoise Light
Cobalt Turquoise
Cobalt Green
Oxide of Chromium
Naples Yellow
Naples Yellow Deep
Yellow Ochre Light
Yellow Ochre
Magnesium Brown
Light Red
Venetian Red
Indian Red
Potter's Pink
Caput Mortuum Violet
Sepia
Indigo
Payne's Gray
Neutral Tint
Ivory Black
Lamp Black
Mars Black
Davy's Gray
Chinese White
Titanium White (Opaque White)

### Colour Bias

The relative value of colour bias within your palette affects the mixtures you can achieve and artists have often requested "cool" palettes. These are listed below:

**Cool Colours**

Lemon Yellow (Nickel Titanate)
Bismuth Yellow
Cadmium Lemon
Winsor Lemon
Lemon Yellow Deep
Transparent Yellow
Winsor Red Deep
Permanent Alizarin Crimson
Alizarin Crimson
Permanent Carmine
Permanent Rose
Rose Madder Genuine
Indanthrene Blue
Cobalt Blue
Antwerp Blue
Prussian Blue
Winsor Blue (Green Shade)
Cerulean Blue
Phthalo Turquoise
Winsor Green (Blue Shade)
Terre Verte
Perylene Green
Permanent Sap Green
Olive Green
Terre Verte (Yellow Shade)
Green Gold
Raw Sienna
Indian Red
Raw Umber
Indigo
Payne's Gray
Neutral Tint
Ivory Black
Lamp Black
Mars Black
Davy's Gray
Chinese White

### Granulation

Granulation brings visual texture to paintings and the range of granulating colours listed below has never been larger.

**Granulating Colours**

Lemon Yellow (Nickle Titanate)
Lemon Yellow Deep
Cadmium Red
Cadmium Red Deep
Rose Madder Genuine
Cobalt Violet
Permanent Mauve
Ultramarine Violet
Cobalt Blue Deep
French Utramarine
Cobalt Blue
Cerulean Blue (Red Shade)
Cerulean Blue
Manganese Blue Hue
Cobalt Turquoise Light
Cobalt Green
Viridian
Oxide of Chromium
Terre Verte
Terre Verte (Yellow Shade)
Raw Sienna
Brown Ochre
Magnesium Brown
Potter's Pink
Caput Mortuum Violet
Raw Umber
Ivory Black
Mars Black
Davy's Gray

## (C) New, Modified and Discontinued Colours

### New Colours

| Colour Code | New Colours | Reason for New Colour | Benefit |
|---|---|---|---|
| 059 | Brown Ochre | New colour to increase the spectrum across the range | Replaces the original Winsor & Newton 19th century natural earth. A Brown Ochre which provides natural strength mixtures |
| 140 | Cerulean Blue (Red Shade) | A red shade Cerulean to increase the spectrum across the range | A red shade to complement our ever popular traditional Cerulean Blue. |
| 348 | Lemon Yellow Deep | New colour to increase the spectrum across the range | A bright granulating, affordable yellow. A new pigment unique to Winsor & Newton. |
| 381 | Magnesium Brown | New colour to increase the spectrum across the range | An opaque brown with extraordinary granulating power |
| 386 | Mars Black | New colour to increase the spectrum across the range | A dense opaque neutral black. Excellent granulating character |
| 448 | Opera Rose | A modern fluorescent pigment offering the brightest pink available | A 'super-bright' for flower painters |
| 460 | Perylene Green | New colour to increase the spectrum across the range | An exciting semi-transparent single pigment black-green. Excellent mixer without muddying. |
| 470 | Perylene Violet | New colour to increase the spectrum across the range | A single pigment deep violet, replaces Thioindigo Violet and Purple Madder. A popular colour position amongst modern pigments. Unique to Winsor & Newton. |
| 526 | Phthalo Turquoise | A single pigment Phthalo Turquoise to increase the spectrum across the range | A bright, clean affordable turquoise |
| 537 | Potter's Pink | New colour to increase the spectrum across the range | A unique semi-opaque pink which cannot be mixed from red or white. Excellent granulating character |
| 638 | Terre Verte (Yellow Shade) | A yellow shade Terre Verte to increase the spectrum across the range | A single pigment natural earth which would otherwise be difficult to mix |
| 649 | Turner's Yellow | New colour to increase the spectrum across the range | An opaque mid yellow. Unique to Winsor & Newton. Hue refers to the 18th century pigment patented by James Turner (1781). |
| 723 | Winsor Orange (Red Shade) | New colour to increase the spectrum across the range | A transparent yellow shade red, replacing Bright Red. Very bright and clean. Unique to Winsor & Newton. |
| 725 | Winsor Red Deep | New colour to increase the spectrum across the range | A semi-opaque blue shade red unique to Winsor & Newton. Can be used as an alternative to Cadmium Red Deep. |
| 745 | Yellow Ochre Light | A paler Yellow Ochre to increase the spectrum across the range | A pale natural version of this mainstay colour. |

### Modified Colours

| Colour Code | Modified Colours | Reasons for Modification | Change in Hue |
|---|---|---|---|
| 192 | Cobalt Violet | Single pigment to improve the spectrum across the range. | Brighter and more red |
| 311 | Hooker's Green | New formulation due to discontinued pigment. | No change |
| 362 | Light Red | Natural, single pigment to improve the spectrum across the range. | Brighter undertone |
| 422 | Naples Yellow | Improved lightfastness/permanence | No change |
| 489 | Permanent Magenta | New single pigment formulation due to discontinued pigment. | Brighter and more transparent |
| 491 | Permanent Mauve* | Single pigment to improve the spectrum across the range. | Brighter and more red |
| 503 | Permanent Sap Green | New formulation due to discontinued pigment. | No change |
| 547 | Quinacridone Gold | New formulation due to discontinued pigment. | No change |
| 554 | Raw Umber | Natural, single pigment to improve the spectrum across the range. | No change |
| 653 | Transparent Yellow | Pigment with greater transparency introduced. | Brighter and more transparent |

* Permanent Mauve is new in tube format

### Discontinued Colours

| Colour Code | Colour Name | Reasons for Discontinuation | Nearest Equivalent in Range |
|---|---|---|---|
| 034 | Blue Black | Close to Lamp Black | Lamp Black |
| 042 | Bright Red | Replaced by the single pigment Winsor Orange (Red Shade) | Winsor Orange (Red Shade) |
| 142 | Charcoal Grey | Close to Ivory Black | Ivory Black |
| 187 | Cobalt Green (Yellow Shade) | Can be mixed by the artist | Cobalt Turquoise Light + Viridian + Chinese White |
| 265 | Genuine Gamboge | Replaced by a lightfast, permanent pigment | Transparent Yellow |
| 431 | Nickel Titanium Yellow | Replaced by the more useful Turner's Yellow | Turner's Yellow |
| 543 | Purple Madder | Replaced by the single pigment Perylene Violet | Perylene Violet |
| 640 | Thioindigo Violet | Pigment now unavailable | Perylene Violet |
| 683 | Vermilion Hue | Can be mixed by the artist | Cadmium Red + Chinese White |
| 708 | Winsor Emerald | Can be mixed by the artist | Winsor Green (Blue Shade) + Winsor Lemon + Chinese White |

# (D) Composition & Permanence Table

**This table is designed to provide the essential information on the colour composition and performance of the entire Artists' Water Colour range.**

**To help you understand the table, the following notations are explained.**

## Colour Code - Code

This colour code column indicates the code number that is given to each of the colours. This is primarily for ease of reference for the retailer when stock holding, for catalogue purposes and to assist you in purchasing your materials.

## Colour Name

This is the colour name, e.g. Magnesium Brown

## Unchanged/Modified/New Colour - U/M/N

Details by colour whether it is:

"U" Unchanged colour - these colours have not been changed

"M" Modified colour - these colours have been changed in some way. The New, Modified and Discontinued Colours table details why the changes have been made and the effect, if any on hue.

"N" New colour - The table also provides details on each individual new colour, why it has been introduced, and its benefits.

## Series No.

Our Artists' Water Colour range is split into 4 groups termed "Series". The series indicates the relative price of the colour and is determined mainly by the cost of the pigment. Series 1 is the least expensive colour and Series 4 the most expensive.

## Chemical Description

This column provides the chemical description of the pigments used in each colour.

## Colour Index

The Colour Index International is the standard compiled and published by both:

* The Society of Dyers and Colourists, and the
* American Association of Textile Chemists and Colorists

The Colour Index classifies pigments by their chemical composition. This information will allow you to research specific pigment's working characteristics in reference books if you wish. The individual pigments are identified in two ways:

**a) Colour Index Generic Name - C.I. Name**

Each pigment can be universally identified by its Colour Index Generic Name. As an example; Cobalt Blue is Pigment Blue 28 abbreviated to PB 28.

Although the working properties of **Winsor & Newton** Artists' Water Colours' are detailed in this leaflet, we publish the Colour Index Generic Names of the pigments to allow you to cross reference the working properties in other sources if you wish, e.g. Lightfastness, Opacity, Toxicity etc…

**b) Colour Index No. - C.I. No.**

Pigments can also be identified by their Colour Index Number. It is considered an additional source of information to the Colour Index Generic Name. As an example: Cobalt Blue is 77346.

Of the two methods of reference, the Colour Index Generic Name is the most commonly used.

## Permanence

The permanence of a water colour is defined as "its durability when laid with a brush on paper displayed under a glass frame in a dry room freely exposed to ordinary daylight and an ordinary atmosphere" **Winsor & Newton** have tested all colours for lightfastness and permanence in graded washes (from full strength to extreme dilution). Each wash has been exposed to the ASTM accelerated light level tests and assessed accordingly.

The actual grading system is as follows:

AA Extremely Permanent
A Permanent
B Moderately Durable
C Fugitive

It may be noted that there are only 3 colours in the Artists' Water Colour range that are rated B and none rated C.

| **Colour Name** | **Permanent Alternative** |
|---|---|
| Alizarin Crimson | Permanent Alizarin Crimson |
| **Colour Name** | **Nearest Permanent Alternative** |
| Rose Madder Genuine is permanent in full strength but rated B due to fading in thin washes and tints | Permanent Rose |
| Opera Rose | Permanent Rose |

## ASTM

The ASTM abbreviation stands for the American Society for Testing and Materials. This organisation has set standards for the permanence of art materials including a colour's lightfastness.

To measure lightfastness in water colour using this system, colours are applied on paper at 40% reflectance. This is the amount of light reflected from the paper through the diluted wash. The swatches are then tested in both sunlight and artificially accelerated conditions.

The results allow each colour to be rated from I-V according to its resistance to fading. In this system I and II are considered permanent for artists' use.

**Winsor & Newton** Artists' Water Colours marked N/L denotes the colour as "Not Listed" by the ASTM at the time of printing. "Not Listed" does not necessarily indicate a lack of lightfastness, but usually that the pigment has not yet been tested by the ASTM. In these cases it is recommended that the **Winsor & Newton** permanence rating, which is the rating system that evaluates colour on many aspects including lightfastness, should be used to indicate a colour's ability to resist fading.

## Transparency/Opacity of Colours - T/O

In this table and the colour chart, the transparent colours are marked with ☐, the semi-transparent colours are marked ◰. The semi-opaque colours are marked with ◩ and the opaque colours are marked with ■. However, watercolour films are usually so thin that all colours appear more or less transparent when painted onto paper. Opaque colours like cadmiums are likely to cover a little more than transparent colours.

Titanium White (Opaque White) can be added to all colours to increase opacity but will reduce the colour to a tint.

## Granulating Colours - G

Some colours show a tendency to granulate and are marked as "G". Many artists use granulation to add visual texture to their paintings. For example, the pigment particles in Raw Sienna settle in the hollows of the paper surface, producing a mottled effect.

## Staining Colours - St

The modern organic pigments e.g, **Winsor** colours, are made of very fine particles, which cause them to stain the paper. These colours cannot be lifted completely with a damp sponge. The traditional colours tend to lift from the paper more easily. Those colours marked "St" in this table and on the colour chart will stain whilst those not marked "St" will lift more easily.

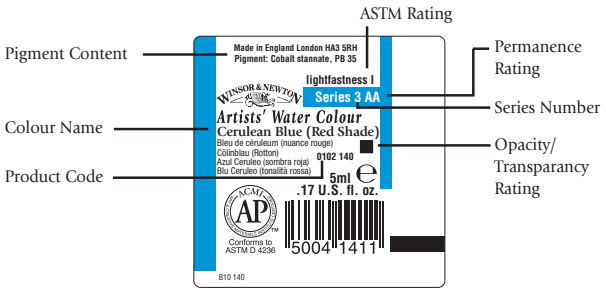
Should further information be required please see the **Winsor & Newton** website **www.winsornewton.com**, the **Winsor & Newton** catalogue and the Health and Safety Product Information leaflet.

## Published Pigment Information

**Winsor & Newton** were the first company to publish the contents of their colours in 1892, believing in providing artists with as much information as possible.

Today the pigments used in Artists' Water Colour are printed on the labels, in our literature and on our website, **www.winsornewton.com**.

## Clear Label Information



## (D) Composition & Permanence Table

| Code | Colour Name | UMN | Series No. | Chemical Description | Colour Index C.I.Name | Colour Index C.I.No. | Permanence | ASTM | T/O | G/St |
|---|---|---|---|---|---|---|---|---|---|---|
| 004 | Alizarin Crimson | U | 1 | 1, 2-dihydroxyanthraquinone lake | PR 83 | 58000 | B | N/L | ☐ | St |
| 010 | Antwerp Blue | U | 1 | Alkali ferriferrocyanide | PB 27 | 77510 | A(iv) | | ☐ | I |
| 016 | Aureolin | U | 4 | Potassium cobaltinitrite | PY 40 | 77357 | A(i)(iii) | II | ☐ | St |
| 025 | Bismuth Yellow | U | 3 | Bismuth vanadate | PY 184 | 771740 | A | N/L | ◩ | St |
| 056 | Brown Madder | U | 1 | Quinacridone | PR 206 | 73920 | A | N/L | ◪ | St |
| 059 | Brown Ochre | N | 1 | Natural iron oxide | PBr 7 | 77492 | AA | I | ◪ | G |
| 074 | Burnt Sienna | U | 1 | Transparent synthetic iron oxide | PR 101 | 77491 | AA | I | ☐ | |
| 076 | Burnt Umber | U | 1 | Natural and synthetic iron oxides | PBr 7<br>PR 101<br>PY 42 | 77491<br>77491<br>77492 | AA | I | ☐ | |
| 086 | Cadmium Lemon | U | 4 | Cadmium zinc sulphide | PY 35 | 77205 | A(ii) | I | ■ | St |
| 089 | Cadmium Orange | U | 4 | Cadmium zinc sulphide, Cadmium sulphoselenide | PY 35<br>PR 108 | 77205<br>77202 | A(ii) | I | ■ | |
| 094 | Cadmium Red | U | 4 | Cadmium sulphoselenide | PR 108 | 77202 | A(ii) | I | ■ | G/St |
| 097 | Cadmium Red Deep | U | 4 | Cadmium sulphoselenide | PR 108 | 77202 | A(ii) | I | ■ | G |
| 106 | Cadmium Scarlet | U | 4 | Cadmium sulphoselenide | PR 108 | 77202 | A(ii) | I | ■ | St |
| 108 | Cadmium Yellow | U | 4 | Cadmium zinc sulphide, Cadmium sulphoselenide | PY 35<br>PO 20 | 77205<br>77199 | A(ii) | I | ■ | St |
| 111 | Cadmium Yellow Deep | U | 4 | Cadmium zinc sulphide, Cadmium sulphoselenide | PY 35<br>PR 108 | 77205<br>77202 | A(ii) | I | ■ | St |
| 118 | Cadmium Yellow Pale | U | 4 | Cadmium zinc sulphide | PY 35 | 77205 | A(ii) | I | ■ | St |
| 125 | Caput Mortuum Violet | U | 2 | Synthetic iron oxide | PR 101 | 77491 | AA | I | ■ | G/St |
| 137 | Cerulean Blue | U | 3 | Cobalt stannate | PB 35 | 77368 | AA | I | ◩ | G |
| 140 | Cerulean Blue (Red Shade) | N | 3 | Cobalt stannate | PB 35 | 77368 | AA | I | ■ | G |
| 150 | Chinese White | U | 1 | Zinc oxide | PW 4 | 77947 | AA | I | ◩ | |
| 178 | Cobalt Blue | U | 4 | Cobalt aluminate | PB 28 | 77346 | AA | I | ◪ | G |
| 180 | Cobalt Blue Deep | U | 4 | Cobalt silicate | PB 74 | 77366 | AA | N/L | ◪ | G |
| 184 | Cobalt Green | U | 4 | Cobalt titanium nickel zinc oxide | PG 50 | 77377 | AA | N/L | ◩ | G |
| 190 | Cobalt Turquoise | U | 4 | Cobalt chromium aluminium oxide | PB 36 | 77343 | AA | I | ◩ | |
| 191 | Cobalt Turquoise Light | U | 4 | Cobalt titanium oxide | PG 50 | 77377 | AA | N/L | ◩ | G |
| 192 | Cobalt Violet | M | 4 | Cobalt phosphate | PV 14 | 77360 | AA | I | ◪ | G |
| 217 | Davy's Gray | U | 1 | Chromium oxide, Carbon black, Zinc oxide, Powdered slate | PG 17<br>PBk 6<br>PW 4<br>PBk 19 | 77288<br>77266<br>77947<br>77017 | AA | I | ◩ | |
| 263 | French Ultramarine | U | 2 | Complex sodium aluminium silicate containing sulphur | PB 29 | 77007 | A (iii) | I | ☐ | G |
| 285 | Gold Ochre | U | 2 | Synthetic iron oxide | PY 42 | 77492 | AA | I | ◪ | St |
| 294 | Green Gold | U | 2 | Azomethine copper complex | PY 129 | 48042 | A | N/L | ☐ | |
| 311 | Hooker's Green | M | 1 | Brominated Copper Phthalocyanine, Isoindolinone | PG 36<br>PO 49 | 74265<br>73900 | A | I | ☐ | St |
| 317 | Indian Red | U | 1 | Synthetic iron oxide | PR 101 | 77491 | AA | I | ■ | |
| 319 | Indian Yellow | U | 1 | Nickel dioxine, Benzimidazolone | PY 153<br>PO 62 | 48545<br>- | A | II | ☐ | |
| 321 | Indanthrene Blue | U | 3 | Indathrone blue | PB 60 | 69800 | A | N/L | ◪ | |
| 322 | Indigo | U | 1 | Carbon black, Quinacridone, Copper phthalocyanine | PBk 6<br>PV 19<br>PB 15 | 77266<br>46500<br>74160 | A | II | ■ | St |
| 331 | Ivory Black | U | 1 | Bone black | PBk 9 | 77267 | AA | I | ■ | G |
| 337 | Lamp Black | U | 1 | Carbon black | PBk 6/7 | 77266 | AA | I | ■ | |
| 347 | Lemon Yellow (Nickel Titanate) | U | 4 | Nickel titanate | PY 53 | 77788 | AA | I | ■ | G |
| 348 | Lemon Yellow Deep | N | 2 | Zirconium, Silica, Praseodymium oxide | PY 159 | 77997 | AA | N/L | ◩ | G |
| 362 | Light Red | M | 1 | Natural iron oxide | PR 102 | 77491 | AA | N/L | ◩ | |
| 379 | Manganese Blue Hue | U | 2 | Copper phthalocyanine | PB 15 | 74160 | A | II | ◩ | G |
| 381 | Magnesium Brown | N | 1 | Iron magnesium oxide | PY 119 | 77496 | AA | N/L | ■ | G |
| 386 | Mars Black | N | 1 | Synthetic iron oxide | PBk 11 | 77499 | AA | N/L | ■ | G |
| 422 | Naples Yellow | M | 1 | Titanium dioxide, Chromium titanate | PW 6<br>PBr 24 | 77891<br>77310 | AA | I | ■ | |
| 425 | Naples Yellow Deep | U | 1 | Chromium titanate | PBr 24 | 77310 | AA | I | ■ | |
| 430 | Neutral Tint | U | 1 | Copper phthalocyanine, Carbon black, Quinacidone | PB 15<br>PBk 6<br>PV 19 | 74160<br>77266<br>46500 | A | II | ■ | St |
| 267 | New Gamboge | U | 1 | Nickel dioxine | PY 153 | 48545 | A | II | ◪ | |
| 447 | Olive Green | U | 1 | Synthetic iron oxide, Chlorinated copper phthalocyanine | PY 42<br>PG 7 | 77492<br>74260 | A | I | ☐ | St |
| 448 | Opera Rose | N | 2 | Fluorescent dye/resin based pigment, Quinacridone | -<br>PR 122 | -<br>73915 | B | | ◪ | |

| Code | Colour Name | UMN | Series No. | Chemical Description | Colour Index C.I.Name | Colour Index C.I.No. | Permanence | ASTM | T/O | G/St |
|---|---|---|---|---|---|---|---|---|---|---|
| 459 | Oxide of Chromium | U | 3 | Chromium oxide | PG 17 | 77288 | AA | I | ■ | G/St |
| 465 | Payne's Gray | U | 1 | Copper phthalocyanine, Carbon black, Quinacridone | PB 15<br>PBk 6<br>PV 19 | 74160<br>77266<br>46500 | A | II | ◩ | St |
| 466 | Permanent Alizarin Crimson | U | 3 | Quinacridone pyrrolidone, Quinacridone | -<br>PR 206 | -<br>73920 | A | N/L | ☐ | St |
| 479 | Permanent Carmine | U | 3 | Quinacridone pyrrolidone | - | - | A | N/L | ☐ | St |
| 489 | Permanent Magenta | M | 3 | Quinacridone | PV 19 | 46500 | A | I | ☐ | St |
| 491 | Permanent Mauve | M | 3 | Manganese phosphate | PV 16 | 77742 | A | I | ◪ | G |
| 502 | Permanent Rose | U | 3 | Quinacridone | PV 19 | 46500 | A | I | ☐ | St |
| 503 | Permanent Sap Green | M | 1 | Brominated copper phthalocyanine, Isoindolinone | PG 36<br>PY 110 | 73900<br>74265 | A | I | ☐ | St |
| 460 | Perylene Green | N | 2 | Perylene | PBk 31 | 71132 | A | N/L | ☐ | St |
| 507 | Perylene Maroon | U | 3 | Perylene | PR 179 | 71130 | A | N/L | ☐ | St |
| 470 | Perylene Violet | N | 2 | Perylene | PV 29 | 71129 | A | N/L | ☐ | St |
| 526 | Phthalo Turquoise | N | 2 | Copper-free phthalocyanine | PB 16 | 74100 | A | N/L | ☐ | St |
| 537 | Potter's Pink | N | 2 | Calcium, tin, silica, chromium oxide | PR 233 | 77301 | AA | N/L | ◩ | G |
| 538 | Prussian Blue | U | 1 | Alkali ferriferrocyanide | PB 27 | 77510 | A(iv) | I | ☐ | St |
| 547 | Quinacridone Gold | M | 3 | Quinacridones, Nickel Azo | PR 206<br>PV 19<br>PY 150 | 73900/73920<br>46500<br>12764 | A | N/L | ☐ | St |
| 545 | Quinacridone Magenta | U | 3 | Quinacridone | PR 122 | 73915 | A | N/L | ☐ | |
| 548 | Quinacridone Red | U | 3 | Quinacridone | PR 209 | 73902 | A | II | ☐ | |
| 552 | Raw Sienna | U | 1 | Transparent synthetic iron oxides | PY 42<br>PR 101 | 77492<br>77491 | AA | I | ☐ | G |
| 554 | Raw Umber | M | 1 | Natural iron oxide | PBr 7 | 77491 | AA | I | ☐ | G |
| 576 | Rose Doré | U | 4 | Quinacridone, Arylamide | PV 19<br>PY 97 | 46500<br>11767 | A | II | ☐ | St |
| 587 | Rose Madder Genuine | U | 4 | Lake of natural madder | NR 9 | 75330 | B(i) | N/L | ☐ | G |
| 603 | Scarlet Lake | U | 2 | BON arylamide | PR 188 | 12467 | A | II | ◪ | St |
| 609 | Sepia | U | 1 | Carbon black, Synthetic iron oxide | PBk 6<br>PR 101 | 77266<br>77491 | AA | I | ■ | |
| 637 | Terre Verte | U | 1 | Natural earth, Hydrated chromium oxide, Cobalt aluminium oxide | PG 23<br>PG 18<br>PB 28 | 77009<br>77289<br>77346 | AA | I | ◪ | G |
| 638 | Terre Verte (Yellow Shade) | N | 1 | Natural earth | PG 23 | 77009 | AA | I | ☐ | G |
| 644 | Titanium White (Opaque White) | U | 1 | Titanium dioxide | PW 6 | 77891 | AA | I | ■ | |
| 649 | Turner's Yellow | N | 3 | Titanium, tin, zinc, antimony oxide | PY 216 | | AA | N/L | ■ | |
| 653 | Transparent Yellow | M | 1 | Nickel azo | PY 150 | 12764 | A | I | ☐ | St |
| 667 | Ultramarine (Green Shade) | U | 2 | Complex sodium aluminium silicate containing sulphur | PB 29 | 77007 | A(iii) | I | ☐ | |
| 672 | Ultramarine Violet | U | 2 | Complex sodium aluminium silicate containing sulphur | PV 15 | 77007 | A(iii) | I | ◪ | G |
| 676 | Vandyke Brown | U | 1 | Carbon black, Synthetic iron oxide | PBk 6<br>PR 101 | 77266<br>77491 | AA | I | ◪ | St |
| 678 | Venetian Red | U | 1 | Synthetic iron oxide | PR 101 | 77491 | AA | I | ■ | St |
| 692 | Viridian | U | 3 | Hydrated chromium oxide | PG 18 | 77289 | AA | I | ☐ | G |
| 707 | Winsor Blue (Green Shade) | U | 1 | Copper phthalocyanine | PB 15 | 74160 | A | II | ☐ | St |
| 709 | Winsor Blue (Red Shade) | U | 1 | Copper phthalocyanine | PB 15 | 74160 | A | II | ☐ | St |
| 719 | Winsor Green (Blue Shade) | U | 1 | Chlorinated copper phthalocyanine | PG 7 | 74260 | A | I | ☐ | St |
| 721 | Winsor Green (Yellow Shade) | U | 1 | Brominated copper phthalocyanine | PG 36 | 74265 | A | I | ☐ | St |
| 722 | Winsor Lemon | U | 1 | Benzimidazolone | PY 175 | 11784 | A | II | ◪ | St |
| 724 | Winsor Orange | U | 1 | Benzimidazolone | PO 62 | 11775 | A | II | ◩ | |
| 723 | Winsor Orange (Red Shade) | N | 1 | Pyrrole | PO 73 | 561170 | A | N/L | ◩ | St |
| 726 | Winsor Red | U | 1 | Pyrrole | PR 254 | 56510 | A | N/L | ◪ | St |
| 725 | Winsor Red Deep | N | 1 | Pyrrole | PR 264 | 561300 | A | N/L | ◩ | St |
| 733 | Winsor Violet (Dioxazine) | U | 1 | Carbozole dioxazine | PV 23 | 51319 | A | N/L | ☐ | St |
| 730 | Winsor Yellow | U | 1 | Benzimidazolone | PY 154 | 11781 | A | I | ◪ | St |
| 731 | Winsor Yellow Deep | U | 1 | Arylide yellow RN | PY 65 | 11740 | A | II | ◪ | |
| 744 | Yellow Ochre | U | 1 | Natural iron oxide | PY 43 | 77492 | AA | I | ◩ | |
| 745 | Yellow Ochre Light | N | 1 | Natural iron oxide | PY 43 | 77492 | AA | I | ◩ | |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