White Nights

EXTRA FINE ARTISTS' WATERCOLOURS

"If you, without knowing the laws of colour usage, are able to create colouristic masterpieces, then your way is in this "ignorance". But if you are not able to create masterpieces in your "ignorance," then you should take care to acquire appropriate knowledge". Johannes Itten

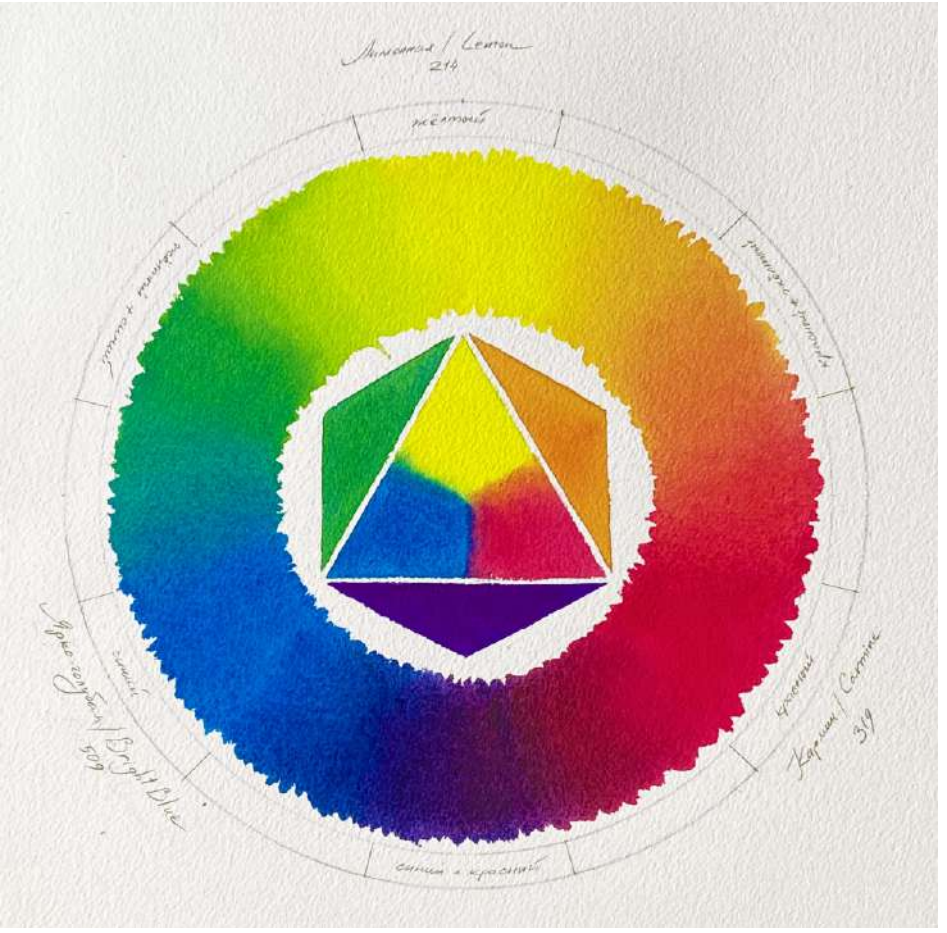
PHYSICAL PROPERTIES OF COLOUR.

The colour perceived by the human eye is a concept based on the theory of electromagnetic radiation of the optical range.

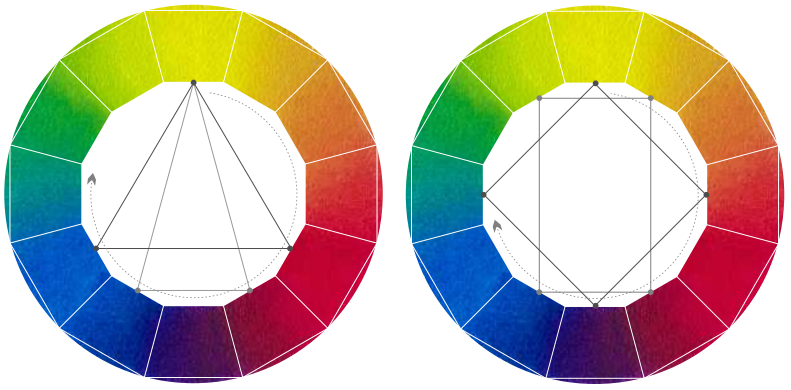
Isaac Newton was the first who brought visible colours into a system and made a colour circle of seven sectors matching seven colours of the rainbow (red, orange, yellow, green, blue, blue, violet). White is pure light, which contains the entire colour spectrum, and black is darkness, the absence of light.

Primery colours of the circle are red (Carmine (319)), yellow (Lemon (214), blue (Bright blue (509)), when they are mixed, they get three additional (orange, green, violet).

The modern basic model of the spectral circle generally accepted in colour science - a twelve-part colour circle - was created by Johannes Itten. With the help of a spectral circle, colour harmonies are constructed based on opposite or adjacent colours, as well as colours that form isosceles and sharp-angled triangles, rectangles and squares with their arrangement in the colour circle. White (white or white paper) and black are added to the spectral colours in painting.



Primery colours: 1 – Lemon (214), 2 – Carmine (319), 3 – Bright blue (509)



Pairs of colours that are diagonally to each other in the spectrum are called additional colours (or complementary) this is a synonym for the concept - opposite colours. The three primary colours of the first order are placed in an equilateral triangle so that yellow is at the top, red is at the bottom right and blue is at the bottom left.

Then this triangle fits into a circle and on its basis an equilateral hexagon is built. In the resulting isosceles triangles, we place three mixed colours, each of which consists of two primary colours, and thus obtain second-order colours:

- Yellow + Red = Orange
- Yellow + Blue = Green
- Red + Blue = Violet

All second-order colours are thoroughly mixed. They should not tilt to any of their components. Orange should not be too red or too yellow, and violet should not be too red or too blue.

Then, at some distance from the first circle, we draw the other and divide the obtained ring between them into twelve equal parts, placing the main and compound colours at their location and leaving an empty sector between each two colours. In these empty sectors, we introduce third order colours, each of which is created by mixing the first and second order colours, and get:

- Yellow + Orange = Yellow-Orange
- Red + Orange = Red-Orange
- Red + Violet = Red-Violet
- Blue + Violet = Blue-Violet
- Blue + Green = Blue-Green
- Yellow + Green = Yellow-Green

Thus, the correct colour circle of twelve colours appears, in which each colour has its own unchanged place, and their sequence has the same order as in the rainbow or in the natural spectrum.

In our circle, all twelve colours have equal lengths, so colours occupying diametrically opposite places in relation to each other are additional. This system allows you to instantly and accurately imagine all twelve colours and easily arrange all their variations between them.

The publication uses material from the manuscript of Elena Bazanova book "Secrets of Watercolours"(with the author's permission).
Descriptions and results of testing of White Nights watercolours performed by the author during the work on the manuscript.

«WARM» & «COLD» COLOURS.

The theory of light gives the artist an idea of how colour waves of different lengths perceived by the eye show themselves. Different sections of the spectrum differ from each other in wavelength and frequency. Violet waves are the shortest and tonally weak, and red waves are the longest and most intense. This property gives us a feeling of warm-cold shades of colour.

In painting, knowledge of the optical properties of light and colour is used when solving illumination (cold light - warm shadow and warm light - cold shadow), when solving heat-cold relations and when transmitting light-air medium: what is closer to us is warmer, what is further is colder.

The colours of the spectrum are divided into warm and cold according to their position in the system. Such a separation serves only as a starting point for further characteristics. Since physiologists noticed long ago that the effect of warm colours on the body corresponds to a warmer feeling, and cold ones to colder, it is quite fair to believe that the admixture of warm colour to cold makes it only warmer, but not warm. Warm-cold property is not an absolute, but a relative quality of colour.

Any colour can be warm or cold not due to an admixture of another colour, but with respect to another colour, for example, Prussian Blue is warmer than Ultramarine, Madder Lake Red is colder than Cadmium Red, and Ultramarine and Prussian Blue together will be cold with respect to Madder lake Red and Cadmium Red, which belong to warm colours.

Warm-cold property of the colour also depends on saturation. Optimally saturated, pure colours will always be perceived colder than their corresponding weakly saturated colours.

Thus, the absolute division of colours into warm and cold for painting, in which colour is always taken in a relationship, does not mean anything. For painting practice, not the definitions of "cold" and "warm" are much more important, but the definitions of "warmer," "colder."

Completing the theme of colour theory, it is necessary to say once again that the ability to see colour and reproduce it in painting can be nurtured, developed, and the artist's reasonable use of all the chemical and physical properties of paints will be a guarantee against unsuccessful colour experiments. This knowledge will help to achieve the desired result in painting and will make the best use of the features of the material in the work.

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ARTISTS' WATERCOLOURS WHITE NIGHTS

"The attractiveness of watercolour images depends to a large extent on the beauty of bright, fresh, transparent colours. They give watercolour works a special fullness of colour, lightness and tenderness of colourful fabric, radiance of colour. " P.P. Revyakin

TRANSPARENT, SEMI-TRANSPARENT, OPAQUE PAINTS. MIXING FEATURES.

Watercolour paints are relatively all transparent, they make it possible to create a transparent picturesque layer through which white paper works. The rays of light, reflecting from its surface, seem to illuminate the painting itself, from which it seems so luminous to us.

By the degree of transparency, paints are divided into:

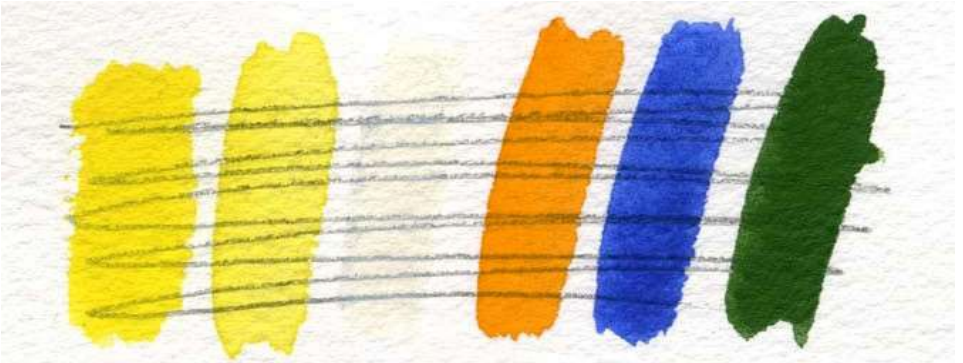
Transparent glazing paints (T – transparent) or **semi-transparent** (ST – semi-transparent). Transparent paints are easily mixed and spread over the paper without sediment. In multilayer painting, layers of transparent paints work on the lumen. Light penetrates through their thickness and is then reflected from the paper. Transparent paints made on synthetic organic pigments are difficult to wash off or are washing-resistant at all, leaving a colour mark on the paper. Semi-transparent (ST – semi-transparent) have the properties of transparent in thin layers and covering properties of high-hiding paints with thick application. Semit-ransparent paints are better washed off than glazing paints, or are washed off completely.

Trasparent colours: 1 – Irgazin yellow (257), 2 – Indian yellow (228), 3 – Indian gold (244)

Transparent colours: *Yellow (211), Lemon (214), Aureolin (253), Indian yellow (228), Indian gold (244), Golden (216), Golden deep (217), Titian red (226), Venetian red (357), Scarlet (318), Ruby (323), Carmine (319), Quinacridone red (361), Madder lake red light (313), Claret (325), Quinacridone rose (324), Quinacridone violet rose (622), Quinacridone lilac (609), Quinacridone violet (621), Perylene violet (627), Violet (607), Dioxazine Violet (628), Azure blue (519), Bright blue (509), Azure (513), Prussian blue (518), Blue (515), Ultramarine deep (521), Blue lake (510), Indanthrene blue light (537), Turquoise blue (507), Emerald green (713), Green light (717), Green original (719), May green (745), Yellow-green (718), Sap green (716), Irgazin yellow (257), Green (725), Van Dyke brown (401), Mars brown (412).*

Semi-transparent colours: *Zinc white (100), Cadmium lemon (203), Yellow ochre (218), Ochre light (206), Orange (315), Red ochre (309), Geranium red (364), Venice purple (365), Ceruleum blue (503), Cobalt azure blue (532), Cobalt blue (508), Ultramarine (511), Indigo (516), Cobalt turquoise (531), Cobalt chrome turquoise (533), Olive green (727), Green Earth (730), Raw Siena (405), Burnt Siena (406), Umber (418), Burnt Umber (408), Sepia (413), Voronezh black (806), Payne's gray (812), Neutral black (805), Ivory black (HUE) (811), Lamp black (801).*

Opaque (O – opaque) – these paints are characterized by a low degree of transparency. These paints easily cover the paper, have a granular structure and are easily washed off . The denser and more hiding the paint is, the weaker the reflected white colour of the paper is. Opaque paints are complex in watercolour painting with glazing, since with multilayer application they acquire a subdued shade. It is better to apply opaque paints in one layer, immediately gaining all the saturation of the shade.



Trasparent, semi-transparent and opaque colours: 1 – Cadmium lemon (203), 2 – Lemon (214), 3 – Zinc white (100), 4 – Golden deep (217), 5 – Cobalt blue (508), 6 – Chromium oxide (704).

Opaque colours: *Cadmium yellow medium (201), Naples yellow (209), Naples yellow light (219), Naples orange (254), Cadmium orange (304), English red (321), Neon pink (368), Caput mortuum (604), Chromium oxide (704), Mars black (800), All Pastel colours*

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DEFENITION OF THE GLAZING AND OPAQUE PROPERTIES OF PAINTS.

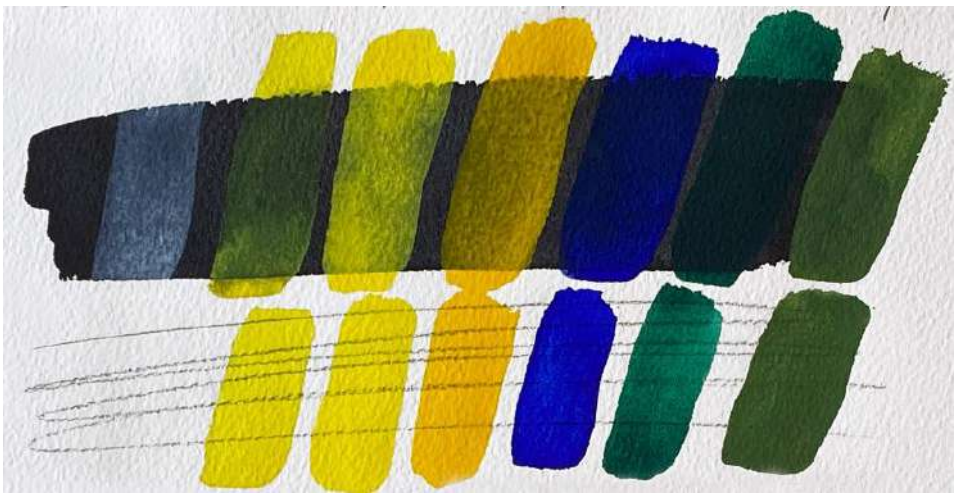
Glazing in watercolour painting is a watercolour painting technique based on the application of thin transparent and semi-transparent colours on each other. After that, beautiful, overflowing colours and saturated shades are obtained.

Sketches on top of a black strip. (*1 – Zinc white, (100), 2 – Lemon (214), 3 – Cadmium lemon(203), 4- Cadmium yellow medium (201), 5- Ultramarine (511), Emerald green (713), Chromium oxide (704)*.

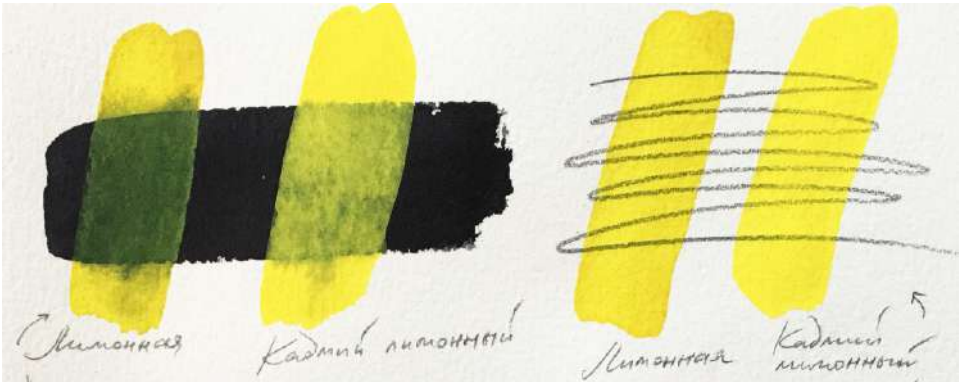
The glazing paint goes in a transparent layer that adds a colour tint. The semi-transparent paint is more visible in the layer, the opaque paint rather strongly overlaps the black colour.

A sketch with a pencil line. (*1 – Zinc white, (100), 2 – Lemon (214), 3 – Cadmium lemon(203), 4- Cadmium yellow medium (201), 5- Ultramarine (511), Emerald green (713), Chromium oxide (704)*.

The sketch is made in a dense layer. Pencil lines are clearly visible under the transparent and semi-transparent paints; they are worse visible or completely not visible under the opaque colours.



Sketches on top of a black strip / A sketch with a pencil line.



1 – Lemon (214), 2 – Cadmium lemon(203)

1 – Lemon (214), 2 – Cadmium lemon(203)

Transparent and semi-transparent paints add colour to the mixture, and opaque paints light the tone of the mixture. Light opaque paints, such as Cadmium lemon , will light dark mixtures.

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ARTISTS' WATERCOLOURS WHITE NIGHTS

MONOPIGMENT AND COMPOUND. DIFFERENCE OF MIXTURES BASED ON MONOPIGMENT AND COMPOUND COLOURS.

Monopigment colours have always been appreciated by artists for the predictability and purity of the shades obtained from them when mixing: the less pigments participate in the production of the mixture, the cleaner the final tint. Monopigment colours contain one pigment, while compound colours can include two or more pigments. The use of monopigment colours is also important at the stage of teaching academic painting. Gaining artistic professional skills, it is very important to learn to get the desired shades independently, to learn to understand and anticipate the behaviour of a particular colour in mixtures and when used in various painting techniques.

Of course, it is easier to come to such an understanding using monopigment colours at the training stage.

Monopigment colours are necessary to obtain countless unique shades, compound colours do not give such a variety in mixes. Compound colours are not used in complex mixes, they are used as ready-made colours, and you no longer need to waste time for mixing. Of course, any compound colour can be obtained on its own by mixing the original colours, but this requires time and distraction from the main work. They are indispensable in the fast and expressive technique of alla prima, where it is important to focus on the very process of painting, control the movement of colour along the sheet, and there is no time to obtain complex mixes from monopigment colours; in the plein-air and sketches, where time also plays a key role.

Even in complex watercolour painting with glazing, in fills, compound colours are often used, it is just important to know their characteristics and behaviour. Ready-to-use saturated, deep, bright and complex colours, light pastel shades are already good in themselves and are an integral part of the palette of professional artists.

Mixes on the base of monopigment and compound colours.

- **Test №1.** Quinacridone violet (621) *(Monopigment violet)* + Lemon (214) + Cadmium lemon (203) + Ochre yellow (218) + Cadmium yellow medium (201) + Golden deep (217) + Cadmium orange (304).
- **Test №2.** Compound violet + Lemon (214) + Cadmium lemon (203) + Ochre yellow (218) + Cadmium yellow medium (201) + Golden deep (217) + Cadmium orange (304).

Test №1 Test №2

The colour of the tested violets is similar, but the differences in the shades of the resulting mixes are very noticeable. The first violet colour is monopigment, the second compound of two pigments.

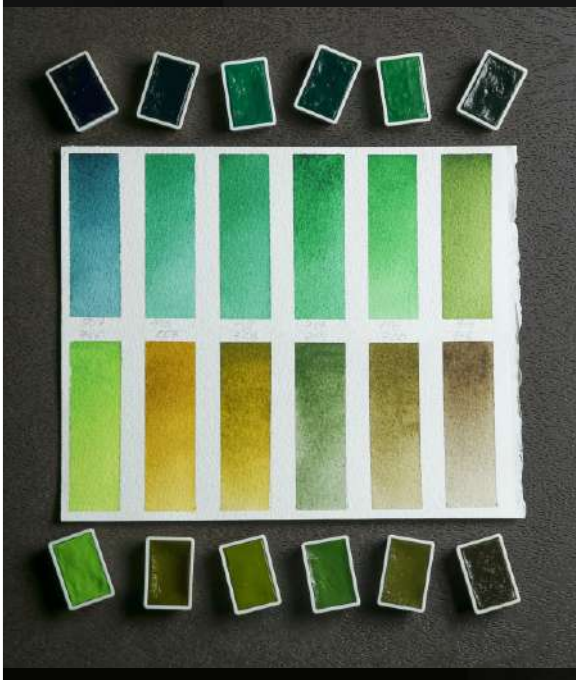
In the second test, the colours are more subdued than in the first. The additional pigment in violet changes the compositional compound of the pigment mixes of the second test, which means that the shade changes. Mixes from the first test give pure colours and a predictable result in tint that can be predicted while working. The shades of the mixes of the second test inherit the characteristics of the inperceptible additional pigment of violet colour, muting the colour obtained from it when mixing and giving a less predictable result.

Monopigment colours, which allow the artist to get a lot of his own, predictable, pure, unique shades, are very valuable, but the beautiful shades of finished compound colours, which do not require time and effort to mix every time, are very convenient to work with, the main thing is to know their properties and capabilities. Information about the properties and composition of colours is always indicated on the labels and in the colour charts.

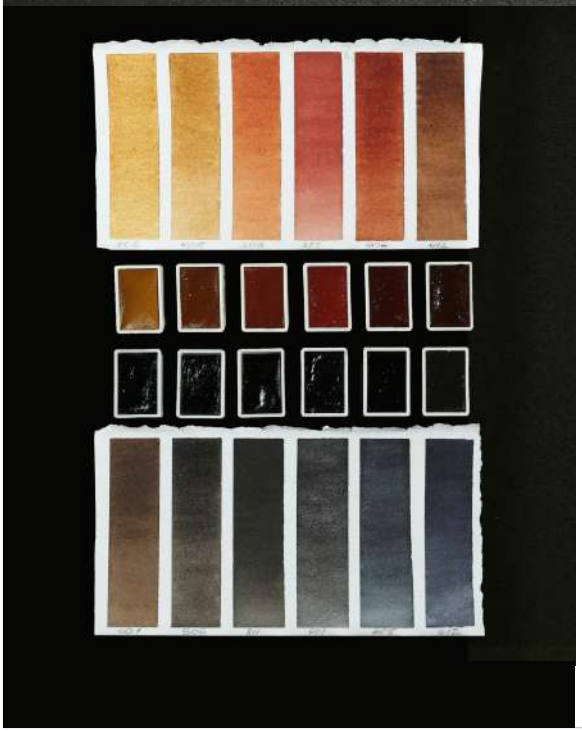
ARTISTS' WATERCOLOURS WHITE NIGHTS

BLUE, GREEN, BROWN, GRAY AND BLACK PALETTE.

BLUE: Ceruleum blue (503), Celestial blue (512), Azure blue (519), Cobalt azure blue (532), Bright blue (509), Azure (513), Cobalt blue (508), Royal blue (528), Prussian blue (518), Blue (515), Ultramarine (511), Ultramarine deep (521), Blue lake (510), Indanthrene blue light (537), Indigo (516), Cobalt turquoise (531), Cobalt chrome turquoise (533) *Colours from the violet and pink palette have been added to the colouring: Quinacridone violet (621), Lavender (625), Dioxazin violet (628)*

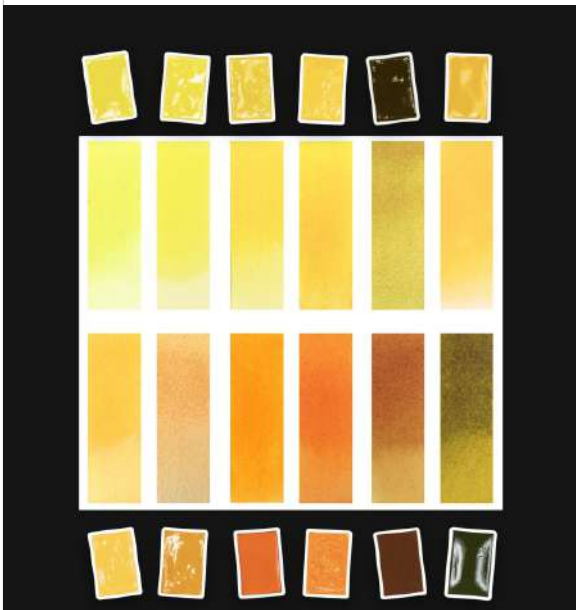


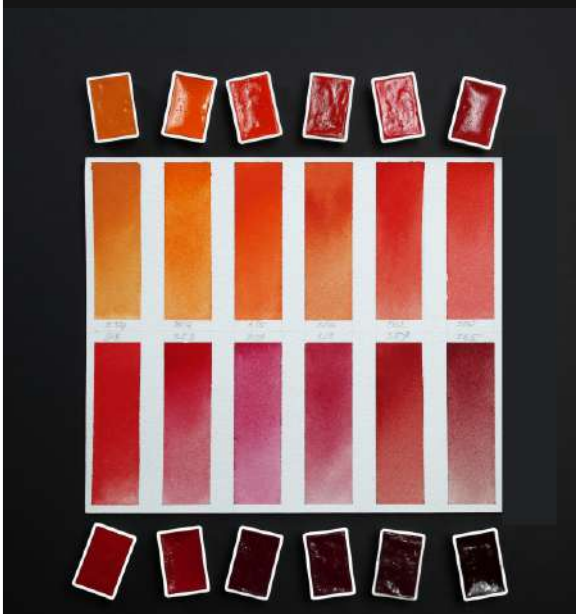
GREENS: Mint (735), Turquise blue (507), Emerald green (713), Green light (717), Green original (719), Warm green (747), May green (745), Yellowish green (718), Sap green (716), Olive green (727), Irgazin yellow (257), Chromium oxide (704), Green (725), Green Earth (730).



BROWN, GRAY AND BLACK: Ochre light (206), Yellow ochre (218), Petersburg ochre (258), Dunes (255), Red ochre (309), English red (321), Mocha (433), Maroon (432), Raw sienna (405), Burnt sienna (406), Umber (418), Burnt umber (408), Vandyke brown (401), Mars brown (412), Sepia (413), Voronezh black (806), Payne's gray (812), Pearl-grey (819), Marengo (818), Neutral black (805), Ivory black (811), Lamp black (801), Mars black (800).

ARTISTS' WATERCOLOURS WHITE NIGHTS





RED, BLUE, VIOLET AND YELLOW PALETTE.

YELLOW AND ORANGE: Yellow (211), Lemon (214), Cadmium lemon (203), Aureolin (253), Cadmium yellow medium (201), Naples flesh (222), Peach (256), Naples yellow (209), Indian yellow (228), Naples yellow light (219), Indian gold (244), Golden deep (217), Indian gold (244), Cadmium orange (304), Orange (315).

RED: Titian red (226), Venetian red (357), Cadmium red light (302), Geranium red (364), Scarlet (318), Ruby (323), Carmine (319), Quinacridone red (361), Madder lake red light (313), Venice purple (365). *Colours from the violet and pink palette have been added to the colouring: Neon pink (368), Quinacridone rose (324), Quinacridone violet (621), Perylene violet (627), Rose quartz (367), Magnolia (369).*

PINK AND VIOLET: Quinacridone red (361), Claret (325), Neon pink (368), Rose quartz (367), Magnolia (369), Rose peony (366), Quinacridone rose (324), Quinacridone violet rose (622), Lilac (626), Quinacridone lilac (609), Caput mortuum (604), Perylene violet (627), Quinacridone violet (621), Ultramarine violet (613), Lavender (625), Violet (607), Dioxazin violet (628).

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