



Mineral and Modern Pigments: Painters' Access to Color

At the heart of all of the technical information that Gamblin provides is the desire to help painters choose the materials that best support their own artistic intentions. After all, when a painting is complete, all of the intention, thought, and feeling that went into creating the work exist solely in the materials.

This issue of Studio Notes looks at Gamblin's organization of their color palette and the division of mineral and modern colors. This visual division of mineral and modern colors is unique in the art material industry, and it gives painters an insight into the makeup of pigments from which these colors are derived, as well as some practical information to help painters create their own personal color palettes.

So, without further ado, let's take a look at the Gamblin Artists Grade Color Chart:



The Mineral side of the color chart includes those colors made from inorganic pigments from earth and metals. These include earth colors such as Burnt Sienna and Yellow Ochre, as well as those metal-based colors such as Cadmium Yellows and Reds and Cobalt Blue, Green, and Violet. The Modern side of the color chart is comprised of colors made from modern "organic" pigments, which have a molecular structure based on carbon. These include the "tongue-twisting" color names like Quinacridone, Phthalocyanine, and Dioxazine.

These two groups of colors have unique mixing characteristics, so this organization helps painters choose an appropriate palette for their artistic intentions.

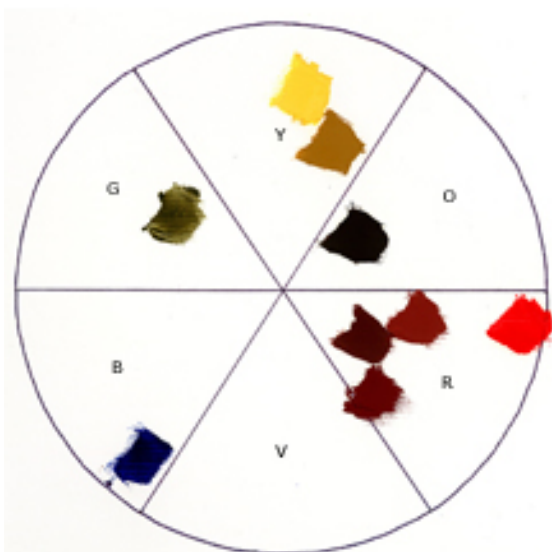
Eras of Pigment History

This organization of the Gamblin chart can be broken down a bit further by giving it some historical perspective based on the three main eras of pigment history – Classical, Impressionist, and Modern. As we look back throughout the history of art, paintings have always been a reflection of the materials that were available to artists.

The Classical Palette: From Dark to Light



At the bottom of the Mineral side of the color chart is the group of earth colors that make up the heart of painters' palettes during the Classical era of pigment history. This group of pigments, which has its origins in cave painting and antiquity, was central to the oil painter's palette from the Renaissance through the Classical Era of oil painting up until the first half of the Nineteenth century. This limited range of muted earth colors exists close to the "neutral core" of [Color Space](#).



Classical Palette in Color Space

Classical Palette: Naples Yellow (Hue), Yellow Ochre, Raw Umber, Vermillion (Naphthol Scarlet shown here), Venetian Red, Burnt Sienna, Indian Red, Ultramarine Blue (lapis), and Terre Verte.

Limited to this range of the color spectrum, painters depicted form by drawing large contrasts between the darkest darks and the lightest lights, creating the chiaroscuro (literally, "light/dark") effect so characteristic of classical paintings.

The Impressionist Palette: A Perfect Storm and a Sea of Change in Color

The advancements of the Industrial Revolution of the mid-nineteenth century widened the spectrum of both color and possibilities for artists. From nineteenth century onward, pigments were no longer made specifically for artists' use but for larger industrial coatings and printing industries. A new range of pigments were made by fusing inorganic materials, such as cadmium, cobalt, and chromium, together at very high heat. Not only did these colors brighten the urban centers of the Iron Age, but they widened painters' access to color compared to the palettes of the Classical Era. Other inventions of the nineteenth century such as the three-roll mill and the collapsible metal paint tube gave painters the freedom to leave the confines of their studios and paint directly from nature. At the same time, photography was threatening painting's role of reporting the visual world, and painters were revolting against the tonal traditionalists of the Parisian art academies. These factors culminated into a "perfect storm," and the result is the oeuvre from the Impressionist movement.



For the first time in history, painters of this period had the pigments available to capture all of the colors of the natural world, expressed in the Impressionists' interest in pure color. The denser, tubed oil colors made from brighter and opaque pigments lent themselves to the [direct painting techniques](#) so characteristic of the Impressionists.



Impressionist Palette: Cadmium Yellow Light, Cadmium Yellow Deep, Cadmium Orange, Cadmium Red Light, Alizarin

Crimson, Cobalt Violet, Ultramarine Blue, Cerulean Blue, and Viridian.

The Modern Palette: Another Color Revolution

The end of the nineteenth century gave birth to the field of organic chemistry with applications in the pharmaceutical, dye, and printing industries. Modern organic pigments are made in high-tech laboratories from materials which have central atoms of carbon. These colors are characterized by their greater transparency and their capacity to produce intense tints and mixtures. Color makers not only matched nature's abundance of color but also improved upon it.

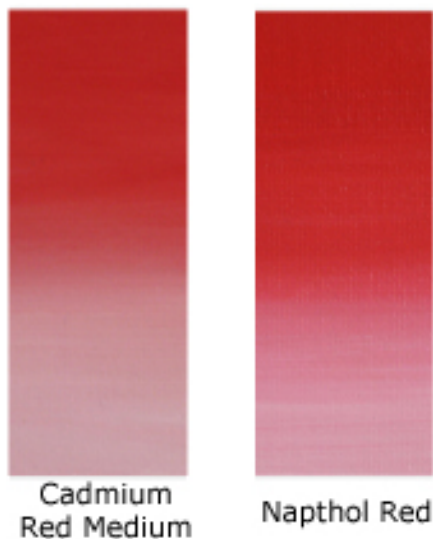


Once again, developments in pigment technology widened painters' access to color and expanded creative possibilities. Unlike pigment families on the mineral side of the color chart, which shift in value from light to dark (i.e. Cadmium Lemon to Cadmium Yellow Deep), modern organic colors shift in temperature from cool to warm, such as Phthalo Green (cool) to Phthalo Emerald (warm). This temperature bias of modern colors is conducive to creating a Spectral Palette, which incorporates a warm and cool for each of the six hue families. Thus, the colors included in the Spectral Palette occupy the most space around the perimeter of the colors wheel, giving painters the greatest color mixing potential within Color Space.



Modern/Spectral Palette: Hansa Yellow Light, Hansa Yellow Medium, Hansa Yellow Deep, Mono Orange, Naphthol Scarlet, Quinacridone Red, Quinacridone Violet, Dioxazine Purple, Phthalo Blue, Manganese Blue Hue, Phthalo Green, and Phthalo Emerald.

The biggest difference in the characteristics between mineral and modern colors—and arguably of most interest to painters—is how these two groups of pigments behave differently in color mixing. Below are two different reds, the mineral Cadmium Red Medium and modern Naphthol Red, each mixed with Titanium Zinc White.



As shown above, the mineral Cadmium Red Medium "greys down" and loses its intensity as it is mixed with white, compared to the modern Naphthol Red, which retains its intensity in its tint. This difference will hold up for any mineral vs. any modern color. Mineral colors, in tints, shift in VALUE and CHROMA. Modern colors shift only in VALUE and retain their high CHROMA. This difference will also hold up during color-to-color mixing:



Cadmium Yellow Medium and Viridian



Hansa Yellow Medium and Phthalo Green

Mineral colors are suitable for painters that are interested in capturing the colors of the natural world and the effects of natural light. Modern organic colors are appropriate for painters who want to make high key color mixtures. Modern colors are also more transparent, giving painters high key colors in all hue families for glazing or [indirect painting techniques](#).

As we take a look at these three color palettes representative of the three main eras of pigment history, we can easily see how advancements in pigment technology have widened painters' access to color.



Classical Color Palette



Impressionist Color Palette



Modern Color Palette

Painters today enjoy history's greatest access to stable, lightfast pigments. There is no reason for you as a painter to settle for a palette that doesn't meet your artistic intentions.

If you would like to receive our color chart or have any questions about choosing a palette of colors that meets your own artistic intentions, please feel free to [contact us](#).

Sincerely,

Scott Gellatly
Product Manager

Gamblin Artists Colors Co.

MINERAL COLORS:

Cadmium Lemon
Cadmium Yellow Light
Cadmium Yellow Medium
Cadmium Yellow Deep
Cadmium Orange
Cadmium Orange Deep
Cadmium Red Light
Cadmium Red Medium
Cadmium Red Deep
Alizarin Crimson
Manganese Violet
Cobalt Violet
Ultramarine Violet
Prussian Blue
Ultramarine Blue
Cobalt Blue
Cobalt Teal
Cerulean Blue
Cadmium Green
Cobalt Green
Viridian
Chromium Green Oxide
Emerald Green
Naples Yellow Hue
Gold Ochre
Yellow Ochre
Raw Sienna
Burnt Sienna
Brown Pink
Transparent Earth Yellow
Transparent Earth Orange
Transparent Earth Red
Asphaltum
Caucasian Flesh Tone
Venetian Red
Indian Red
Olive Green
Terre Verte
Raw Umber
Burnt Umber
Black Spinel
Mars Black
Ivory Black
Van Dyke Brown

MODERN COLORS

Hansa Yellow Light
Hansa Yellow Medium
Hansa Yellow Deep
Indian Yellow
Naphthol Red

Napthol Scarlet
Mono Orange
Transparent Orange
Perylene Red
Alizarin Permanent
Quinacridone Red
Quinacridone Magenta
Quinacridone Violet
Dioxazine Purple
Indanthrone Blue
Phthalo Turquoise
Phthalo Blue
Manganese Blue Hue
Phthalo Emerald
Phthalo Green
Permanent Green Light
Sap Green
Cerulean Blue Hue
Chromatic Black

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