













GOLDEN OPEN – Pigment Identification Chart














Swatches	GOLDEN Name	Pigment Classification	Color Index Name	Color Index Number	Chemical Description	Opacity/Transparency	Lightfastness Rating	Permanency	Munsell Notation Listing	Gloss Average
	C.P. Cadmium Yellow Primrose	Synthetic Inorganic	PY 35	77205	Cadmium Zinc Sulfide (CC)	5	I	Not for exterior use	Hue 10.0 Y Value 9 Chroma 16	65.1
	Hansa Yellow Light	Synthetic Organic	PY 3	11710	Arylide Yellow	7	N/A	Fair	Hue 10 Y Value 8.25 Chroma 13.8	64.9
	Bismuth Vanadate Yellow	Inorganic	PY 184	771740	Bismuth Vanadate	4	I	Excellent	Hue 8.1 Y Value 9.1 Chroma 12.2	50.4
	Hansa Yellow Medium	Synthetic Organic	PY 73	11738	Arylide Yellow	8	N/A	Fair	Hue 2.3 Y Value 8.1 Chroma 14.1	23.3
	Hansa Yellow Opaque	Synthetic Organic	PY 74	11741	Arylide Yellow 5GX	5	I	Excellent	Hue 5.0 Y Value 8 Chroma 16	52.8
	C.P. Cadmium Yellow Medium	Synthetic Inorganic	PY 35	77205	Cadmium Zinc Sulfide (CC)	4	I	Not for exterior use	Hue 3.0 Y Value 8 Chroma 16.1	76.5
	Nickel Azo Yellow	Synthetic Organic	PY 150	12764	Nickel Complex Azo	8	I	Excellent	Hue 3.5 Y Value 4.75 Chroma 9	43.2
	Indian Yellow Hue	Mixture	PY175, PY150, PR206	11784, 12764, N/A	Arylide Yellow Nickel Complex Azo Quinacridone	9	I - Excellent	Excellent	Hue 3.8 YR Value 5.3 Chroma 9.8	35.1
	Quinacridone/Nickel Azo Gold	Synthetic Organic (Mixture)	PO 48 / PY 150	73900 / 73920 / 12764	Quinacridone Nickel Complex Azo	7	I	Excellent	Hue 2.2YR Value 3.4 Chroma 4	61.1
	Quinacridone Burnt Orange	Synthetic Organic	PR 206	73903	Quinacridone	6	I	Excellent	Hue 5.6 R Value 3 Chroma 3.8	80.3
	C.P. Cadmium Yellow Dark	Synthetic Inorganic	PY 35	77205	Cadmium Zinc Sulfide (CC)	5	I	Not for exterior use	Hue 9.8 YR Value 7.9 Chroma 14.2	35.4
	Diarylide Yellow	Synthetic Organic	PY 83	21108	Diarylide Yellow HR-70	6	I	Excellent	Hue 7.7 YR Value 7.7 Chroma 14.4	75.8

	C.P. Cadmium Orange	Synthetic Inorganic	PO 20	77202	Cadmium (Sulfo-Selenide)-(CC)	4	I	Not for exterior use	Hue 2.0 YR Value 6.25 Chroma 17.5	69.3
	Pyrrrole Orange	Synthetic Organic	PO 73	561170	Diketopyrrole-pyrrole	6	N/A	Excellent	Hue 8.6 R Value 5.6 Chroma 15.8	70.5
	C.P. Cadmium Red Light	Synthetic Inorganic	PR 108	77202	Cadmium (Sulfo-Selenide)-(CC)	3	I	Not for exterior use	Hue 9.0 R Value 5.25 Chroma 15.9	71.8
	Naphthol Red Light	Synthetic Organic	PR 112	12370	Naphthol AS-D	5	II	Very Good	Hue 6.7 R Value 4.6 Chroma 14	91.3
	Pyrrrole Red	Synthetic Organic	PR 254	56110	Diketopyrrole-pyrrole	4	I	Excellent	Hue 6.5 R Value 4.25 Chroma 17	52.4
	C.P. Cadmium Red Medium	Synthetic Inorganic	PR 108	77202	Cadmium (Sulfo-Selenide)-(CC)	3	I	Not for exterior use	Hue 7.0 R Value 4.25 Chroma 16	71
	C.P. Cadmium Red Dark	Synthetic Inorganic	PR 108	77202	Cadmium (Sulfo-Selenide) (CC)	3	I	Not for exterior use	Hue 4.7 R Value 3.8 Chroma 10.5	33.9
	Pyrrrole Red Dark	Organic	PR 264	561300	Diketopyrrole-pyrrole	3	N/A	Excellent	Hue 4.8 R Value 3.6 Chroma 11.3	82.9
	Naphthol Red Medium	Synthetic Organic	PR 5	12490	Naphthol ITR	6	II	Very Good	Hue 6.0 R Value 3.5 Chroma 10.6	18.1
	Quinacridone Red	Synthetic Organic	PV 19	73900	Quinacridone	7	I	Excellent	Hue 4.3R Chroma 3.8 Value 10.4	92
	Alizarin Crimson Hue	Synthetic Organic (Mixture)	PR 122 / PR 206 / PG 7	73915 / 73903 / 74260	Quinacridone Quinacridone Chlorinated Copper Phthalocyanine	6	I	Excellent	Hue 10 RP Value 2.8 Chroma 1.2	58.1
	Quinacridone Crimson	Synthetic Organic (Mixture)	PR 206 / PR 202	73903 / 73907	Quinacridone Quinacridone	6	I	Excellent	Hue 2.9 R Value 2.9 Chroma 5.1	75.8
	Permanent Maroon	Mixture	PR 206 / PR 202 / PR 122 / PR 101 / PG 36	73903 / 73907 / 73915 / 77491 / 74265	Quinacridone Quinacridone Quinacridone Synthetic Iron Oxide Brominated & Chlorinated Copper Phthalocyanine	4	I	Excellent	Hue 1.0 R Value 2.6 Chroma 1.1	38.5

	Quinacridone Magenta	Synthetic Organic	PR 122	73915	Quinacridone	7	I	Excellent	Hue 10.0 RP Value 2.5 Chroma 10	88.9
	Permanent Violet Dark	Mixture	PB 60 / PR 122	69800 / 73915	Indanthrone Quinacridone	4	I	Excellent	Hue 1.1 RP Value 2.5 Chroma 1.3	83.7
	Ultramarine Violet	Synthetic Inorganic	PV 15	77007	Polysulfide of Sodium-Alumino-Silicate	6	I	Not for exterior use	Hue 1.0 P Value 2.6 Chroma 8.9	7.9
	Dioxazine Purple	Synthetic Organic	PV 23	51319	Carbazole Dioxazine	3	II	Very Good	Hue 2.5 P Value 1 Chroma 0.5	84.2
	Ultramarine Blue	Synthetic Inorganic	PB 29	77007	Polysulfide of Sodium-Alumino-Silicate	7	I	Not for exterior use	Hue 8.0 PB Value 2 Chroma 4.5	15.7
	Light Ultramarine Blue	Mixture	PB 29 / PW 6	77007 / 77891	Polysulfide of Sodium-Alumino-Silicate Titanium Dioxide Rutile	3	I	Excellent	Hue 6.6 PB Value 6.2 Chroma 10.8	53.3
	Cobalt Blue	Synthetic Inorganic	PB 28	77346	Oxides of Cobalt and Aluminum	5	I	Excellent	Hue 6 PB Value 3 Chroma 11	72.8
	Cobalt Blue	Synthetic Inorganic	PB 28	77346	Oxides of Cobalt and Aluminum	5	I	Excellent	Hue 6 PB Value 3 Chroma 11	72.8
	Cerulean Blue, Chromium	Synthetic Inorganic	PB 36:1	77343:1	Oxides of Cobalt and Chromium	5	I	Excellent	Hue 1.0 PB Value 4 Chroma 7.9	39.1
	Anthraquinone Blue	Synthetic Organic	PB 60	69800	Indanthrone	3	I	Excellent	Hue 4.4 P Value 2.4 Chroma 1.3	80.3
	Prussian Blue Hue	Mixture	PB15:0 / PV23 / PBk9	74160 / 51319 / 77266	Copper Phthalocyanine Carbazole Dioxazine Amorphous Carbon produced by charring animal bones	3	II	Very Good	Hue 8.9 PB Value 2.3 Chroma 0.8	29.4
	Phthalo Blue (Red Shade)	Organometallic	PB 15:0	74160	Copper Phthalocyanine	5	I	Excellent	Hue 9.5 PB Value 2.4 Chroma 3.8	70
	Phthalo Blue (Green Shade)	Organometallic	PB15:3	74160	Copper Phthalocyanine	5	I	Excellent	Hue 7.0 PB Value 1.25 Chroma 6.5	85.3

	Manganese Blue Hue	Mixture	PB15:3 / PG7 / PW4	74160 / 74260 / 77947	Phthalocyanine Chlorinated Copper Phthalocyanine Zinc Oxide	6	I	Excellent	Hue 6.0 B Value 3.95 Chroma 7.3	77.6
	Teal	Mixture	PW6 / PB15:3 / PG7	77891 / 74160 / 74260	Titanium Dioxide Rutile Copper Phthalocyanine Chlorinated Copper Phthalocyanine	2	I	Excellent	Hue 9.3BG Value 5.9 Chroma 9.4	83.7
	Cobalt Turquoise	Synthetic Inorganic	PB 36:1	77343	Oxides of Cobalt and Chromium	3	I	Excellent	Hue 8.7 BG Value 4.1 Chroma 5.9	56.1
	Phthalo Green (Blue Shade)	Organometallic	PG 7	74260	Chlorinated Copper Phthalocyanine	7	I	Excellent	Hue 5.0 BG Value 1.25 Chroma 5	97.8
	Viridian Green Hue	Mixture	PW4 / PB15:3 / PY150 / PBr7	77947 / 74160 / 12764 / 77492	Zinc Oxide Copper Phthalocyanine Nickel Complex Azo Calcined Natural Iron Oxide	6	I	Excellent	Hue 8.8 G Value 3.5 Chroma 5	83.7
	Phthalo Green (Yellow Shade)	Organometallic	PG 36	74265	Brominated & Chlorinated Copper Phthalocyanine	7	I	Excellent	Hue 8.9 G Value 2.8 Chroma 3.5	88.6
	Viridian Green Hue	Mixture	PW4 / PB15:3 / PY150 / PBr7	77947 / 74160 / 12764 / 77492	Zinc Oxide Copper Phthalocyanine Nickel Complex Azo Calcined Natural Iron Oxide	6	I	Excellent	Hue 8.8 G Value 3.5 Chroma 5	83.7
	Phthalo Green (Yellow Shade)	Organometallic	PG 36	74265	Brominated & Chlorinated Copper Phthalocyanine	7	I	Excellent	Hue 8.9 G Value 2.8 Chroma 3.5	88.6
	Permanent Green Light	Mixture	PY175, PG7, PW6	11784, 74260, 77891	Benzimidazolone Yellow H6G, Chlorinated Copper Phthalocyanine, Titanium Dioxide Rutile	5	I - Excellent	Excellent	Hue 8.8 RP Value 2.6 Chroma 1	59.2
	Cobalt Green	Synthetic Inorganic	PG 26	77344	Cobalt Chromite Green Spinel	3	I	Excellent	Hue 9.2 G Value 3.4 Chroma 3.5	62.2
	Jenkins Green	Mixture	PBk 9 / PY 150 / PG 36	77267 / 12764 / 74265	Amorphous Carbon produced by charring animal bones Nickel Complex Azo Brominated and Chlorinated Copper Phthalocyanine	3	I	Excellent	Hue 8.0 GY Value 1.5 Chroma 2.4	28.4
	Sap Green Hue	Mixture	PR 101 / PY 150 / PG 36 / PBk 7	77491 / 12764 / 74265 / 77266	Synthetic Iron Oxide Nickel Complex Azo Brominated and Chlorinated Copper Phthalocyanine Amorphous Carbon	3	I	Excellent	Hue .75 G Value 2.75 Chroma 1.2	82

	Terra Verte Hue	Mixture	PG 17 / PBk 9 / PBr 7 / PG 36 / PY 42	77288 / 77267 / 77492 / 74265 / 77492	Anhydrous Chromium Sesquioxide Amorphous Carbon produced by charring animal bones Natural Iron Oxide containing Manganese Brominated & Chlorinated Copper Phthalocyanine Synthetic Hydrated Iron Oxide	6	I	Excellent	Hue 7.8 GY Value 3.5 Chroma 2.2	59.1
	Chromium Oxide Green Dark	Inorganic	PG 17PO 20	77288	Anhydrous Chromium Sesquioxide	2	I	Excellent	Hue 9.7 GY Value 3.3 Chroma 2.7	55.9
	Chromium Oxide Green	Synthetic Inorganic	PG 17	77288	Anhydrous Chromium Sesquioxide	1	I	Excellent	Hue 9.0 GY Value 4 Chroma 4.6	51.9
	Green Gold	Mixture	PY150, PY175, PG36	12764, 11784, 74265	Nickel Complex Azo, Benzimidazolone Yellow H6G, Brominated and Chlorinated Copper Phthalocyanine	8	I - Excellent	Excellent	Hue 5.0 GY Value 4.5 Chroma 5.2	62.8
	Titan Green Pale	Synthetic Inorganic	PW 6 / PY 42 / PBr 7 / PG 7	77891 / 77492 / 77492 / 74260	Titanium Dioxide Rutile Synthetic Hydrated Iron Oxide Natural Iron Oxide containing Manganese Chlorinated Copper Phthalocyanine	3	I	Excellent	Hue 5.3GY Value 8.0 Chroma 1.8	79.3
	Titan Buff	Synthetic Inorganic	PW 6:1 / PW 6	77891	Titanium Dioxide Rutile	3	I	Excellent	Hue 4.5 Y Value 8.25 Chroma 2.8	28.5
	Naples Yellow Hue	Mixture	PW 6:1 / PY 42 / PY 83	77891 / 77492 / 21108	Titanium Dioxide Rutile Synthetic Hydrated Iron Oxide Diarylide Yellow HR- 70	3	I	Excellent	Hue 10.0 YR Value 7.6 Chroma 6.7	54.3
	Yellow Ochre	Natural Inorganic	PY 43	77492	Natural Hydrated Iron Oxide	3	I	Excellent	Hue 9.5 YR Value 5 Chroma 8.8	19.5
	Yellow Oxide	Synthetic Inorganic	PY 42	77492	Synthetic Hydrated Iron Oxide	2	I	Excellent	Hue .4 Y Value 6.2 Chroma 7.3	86.9
	Transparent Yellow Iron Oxide	Synthetic Inorganic	PY 42	77492	Synthetic Iron Oxide	8	I	Excellent	Hue 5.5 YR Value 5 Chroma 6.3	92.2

	Raw Sienna	Natural Inorganic	PY 43	77492	Natural Iron Oxide	4	I	Excellent	Hue 7.8 YR Value 5.1 Chroma 5.8	14.2
	Mars Yellow	Synthetic Inorganic	PBr 6	77491 & 2	Mixture of Synthetic Iron Oxides	3	I	Excellent	Hue 1.7 YR Value 4.7 Chroma 6.8	65.4
	Transparent Red Iron Oxide	Synthetic Inorganic	PR 101	77491	Synthetic Iron Oxide	7	I	Excellent	Hue 5.0 YR Value 2.5 Chroma 6	96.7
	Red Oxide	Synthetic Inorganic	PR 101	77491	Synthetic Red Iron Oxide	1	I	Excellent	Hue 10.0 R Value 3 Chroma 7.8	67.7
	Violet Oxide	Synthetic Inorganic	PR 101	77491	Synthetic Iron Oxide	2	I	Excellent	Hue 5.2 R Value 3.1 Chroma 3.8	62.7
	Burnt Sienna	Natural Inorganic	PBr 7	77491	Calcined Natural Iron Oxide	3	I	Excellent	Hue 3.0 YR Value 3.25 Chroma 4	9.5
	Transparent Brown Iron Oxide	Inorganic	PR 101 / PBk 7	77491 / 77266	Synthetic Iron Oxide Nearly Pure Amorphous Carbon	5	I	Excellent	Hue 5.4 YR Value 3.1 Chroma 1.1	88.2
	Burnt Umber	Natural Inorganic	PBr 7	77491	Calcined Natural Iron Oxide containing Manganese	2	I	Excellent	Hue 9.0 YR Value 2.5 Chroma 1	2.4
	Raw Umber	Natural Inorganic	PBr 7	77492	Natural Iron Oxide containing Manganese	1	I	Excellent	Hue 3.0 Y Value 2.5 Chroma 1.3	9.6
	Van Dyke Brown Hue	Mixture	PR 101 / PBk 7	77491 / 77266	Synthetic Iron Oxide Nearly Pure Amorphous Carbon	2	I	Excellent	Hue 5.0 GY Value 2.7 Chroma 0.7	45.3
	Carbon Black	Natural Inorganic	PBk 7	77266	Nearly Pure Amorphous Carbon	1	I	Excellent	Hue Black Value 1 Chroma 0.3	57.1
	Bone Black	Natural Inorganic	PBk 9	77267	Amorphous Carbon produced by charring animal bones	3	I	Excellent	Hue Black Value 1 Chroma 0.5	13.5
	Paynes Gray	Mixture	PB 29 / PBk 7	77007 / 77266	Polysulfide of Sodium-Alumino-Silicate Nearly Pure Amorphous Carbon	1	I	Excellent	Hue 4.0 PB Value 1.75 Chroma 0.6	45.7
	Zinc White	Synthetic Inorganic	PW 4	77947	Zinc Oxide	8	I	Excellent	Hue 0.2 GY Value 9.4 Chroma 0.3	56.6

	Zinc White	Synthetic Inorganic	PW 4	77947	Zinc Oxide	8	I	Excellent	Hue 0.2 GY Value 9.4 Chroma 0.3	56.6
	Titanium White	Synthetic Inorganic	PW 6	77891	Titanium Dioxide Rutile	2	I	Excellent	Hue 8.0GY Value 9.7 Chroma 0.1	83.6
	Benzimidazolone Yellow Light	Synthetic Organic	PY175	11784	Benzimidazolone Yellow H6G	9	I - Excellent	Excellent	Hue 5.0 Y Value 8.4 Chroma 13	N/A
	Benzimidazolone Yellow Medium	Synthetic Organic	PY154	11781	Benzimidazolone Yellow H3G	8	I - Excellent	Excellent	Hue 2.6 Y Value 8.1 Chroma 14	N/A
	Neutral Gray N5	Mixture	PW 6, PBk 9, PBr 7	77891, 77267, 77491	Titanium Dioxide Rutile Amorphous Carbon produced by charring animal bones Calcined Natural Iron Oxide	2	I - Excellent	N/A	Hue 8.3 Y Value 5.1	N/A

Lightfastness

The Lightfastness Ratings are provided by the American Society for Testing and Materials (ASTM) in the standard for "Artists' Acrylic Emulsion Paints". (ASTM D 5098, Annual Book of Standards, Volume 6.02). Colors with a Lightfastness Rating of I are considered Excellent ("Exc.") and those with a Lightfastness Rating of II are Very Good ("V.G."). Where Lightfastness Ratings have not been obtained according to ASTM test protocol, "N/A" is used. In those cases, data from pigment manufacturers and our own test facilities have been used and an appropriate description assigned under Permanency.

Lightfastness I: Excellent

Artist colors are let down with white to arrive at a pastel shade. These samples are exposed to an accelerated dose of light energy equivalent to that which would be expected to occur during approximately 100 years of museum-lit conditions. This exposure is condensed into approximately 15 weeks of testing time, or less, depending upon the accelerated test methods used. For the purposes of the official test, before and after color difference is determined using a spectrophotometer, and difference units are mathematically calculated. Less than 4 units color change earns a color the designation of Lightfastness I. In practicality, this means that a visual comparison of the unexposed and exposed samples, when held adjacent, would reveal, at worst, a barely perceptible color change.

Lightfastness II: Very Good

Under the same test conditions, a visual comparison of adjacent unexposed and exposed samples will reveal a perceptible color change. This change will quickly become imperceptible to most observers as the sample pieces are moved apart from one another. When expressed mathematically, change falling within the range of 4-8 units is covered by this category.

Perm

Lightfastness and durability based on our testing and manufacturer's data.

** The identified colors are sensitive to a combination of moisture and UV radiation and are not recommended for outdoor use.

Opacity/Transparency

We have determined that an eight-point scale is most appropriate for describing the properties of our colors. We have assigned each color in the chart a number from 1 (most opaque) to 8 (most transparent) to indicate the opacity/transparency of that color.

C.I. Name / C.I. Number

The Colour Index Name and Number are internationally recognized codes assigned to a particular "colorant" by both the Society of Dyers and Colourists and the American Association of Textile Chemists and Colorists. The C.I. Name consists of the category (type of dye or pigment), general hue and serial number, based on its chemical constitution. For example, PB 60, Anthraquinone Blue, indicates a specific Pigment Blue. The C.I. Number is a five-digit reference number assigned in the Colour Index based on the chemical structure of a colorant, regardless of usage class. For more information on these please see the following:

Type

Designates whether the pigments used in a color are based on Organic or Inorganic chemistry. When containing both types, the term Mixed is used.

Permanency

Exc. - Excellent
V.G. - Very Good
Poor

Abbreviations

C.P. - indicates concentrated cadmium pigments (CC).
G.S. - Green Shade
B.S. - Blue Shade
R.S. - Red Shade
Y.S. - Yellow Shade