

I hope this list is a helpful starting point. It shouldn't be considered complete or authoritative as I initially created it for my own reference. If you have any questions about your own specific situation and goals, please reach out to the manufacturers and/or toxicologists directly. [1]

Hue	Common Name(s)	Pigment Index Name(s) [2]	Notes [3]	Hazards [4]	Winsor & Newton	Michael Harding
Yellow	Cadmium Yellow Light, Cadmium Yellow Medium, and Cadmium Yellow Deep	PY35	"Used in all paints; sensitive to acidic environments; can be replaced by the less expensive cadmium-barium form." Cadmium-barium cadmium yellows use the pigments PY35:1 and PY37:1.	"Avoid dust. Chronic exposure to respirable dust can cause organ damage and possible cancer; do not heat. Metal fumes toxic." [5]	Cadmium Yellow Pale	Cadmium Yellow Lemon
					Cadmium Yellow Medium	Cadmium Yellow Medium
					Cadmium Yellow Deep (also contains PO20)	Cadmium Yellow Deep
Yellow	Mars Yellow and Mars Orange, Yellow Iron Oxide, Yellow Ochre, Raw Sienna	PY42	"Dense; opaque; useful pigment; origin of term 'Mars' is uncertain." Mars Yellow is comparable to Yellow Ochre.	"Avoid dust; no significant hazards."	Raw Sienna (also contains PY43)	Yellow Ochre
Yellow	Yellow Ochre	PY43	"Excellent natural equivalent of Mars pigments; semi-opaque to opaque, depending on source."	"Avoid dust (iron), but hazards not significant."	Yellow Ochre	Yellow Ochre Deep
					Yellow Ochre Light	
Yellow	Titanium Yellow, Lemon Yellow Hue	PY53	"Useful all-around pigment."	"Avoid dust; nickel is a skin sensitizer; do not heat - fumes associated with cancer."	Lemon Yellow Hue	n/a
Yellow	Arylide Yellow, Hansa, Azo, Yellow Lake, French Yellow, Winsor Yellow	PY65, PY73, PY74, PY74LF, PY97	"Unusual opaque organic." Can be used instead of Cadmium Yellow Medium. Often mixed with other pigments.	"Unknown; low acute toxicity; avoid dust."	Winsor Yellow	Yellow Lake
					Winsor Yellow Deep	
Yellow	Isoindolinone	PY109 or PY110	This pigment is sometimes blended with other pigments. It has excellent lightfastness and brightness.	"Unknown; low acute toxicity; avoid dust."	n/a	n/a
Yellow	Azomethine Yellow, Irgazin Yellow, Green Gold	PY129	n/a	"Unknown; low acute toxicity; avoid dust."	Green Gold	Green Gold
Yellow	Quinophthalone Yellow	PY138	This pigment is sometimes blended with other pigments. It has excellent lightfastness and brightness.	"Unknown; avoid dust."	n/a	n/a

Yellow	Naples Yellow	PY138, PO62, and PW6	Alternative to traditional Naples Yellow (PY41), which contains lead. Paints containing lead can be safely handled but I avoid them for personal reasons. In my opinion, the combination of Naples Yellow Light and Raw Sienna eliminates the need for Yellow Ochre.	Avoid dust.	Naples Yellow Light	Genuine Naples Yellow Dark (contains PY41 only)
						Genuine Naples Yellow Light (contains PY41 only)
Yellow	Nickel Azo Yellow, Indian Yellow Deep	PY150	n/a	"Unknown; avoid dust."	Indian Yellow Deep	n/a
Orange	Cadmium Orange	PO20	"Excellent but expensive and toxic pigment."	"Cadmiums and their compounds should be considered toxic." Avoid dust.	n/a - try Gamblin Cadmium Orange	Cadmium Orange
Red	Indian Red, Venetian Red, Light Red Oxide, Mars Red, Mars Violet, Violet Iron Oxide, Burnt Sienna	PR101	All of the paints using this pigment were noted as being "useful" or "very useful." The source of Indian Red, Venetian Red, and Light Red Oxide is processed natural mineral; Mars Red and Mars Violet are sourced from synthetic inorganic material.	"No known hazards; avoid dust."	Transparent Red Ochre	Transparent Oxide Red
					Indian Red	Indian Red
					Venetian Red	Venetian Red
					Burnt Sienna	
Mars Violet Deep						
Red	Light Red, Iron Oxide Red	PR102	"One of the best of the earth reds."	"Avoid dust; inhalation of large amounts could cause silicosis."	Light Red	n/a - for closest match see options in PR101
Red	Vermilion	PR106	"Will darken in oil if impure or if exposed to polluted atmospheres; excellent hue but erratic; cadmiums do not replace its special hue and physical character."	"Mercury and sulfide content are potentially hazardous; avoid dust; do not heat - metal fumes toxic."	n/a - for closest match see PR108, Cadmium Scarlet	Genuine Chinese Vermilion
Red	Cadmium Red Light, Medium, Deep, Scarlet	PR108	"Excellent hue, with variety among different manufacturers." Alternatives include the less expensive PR113, Cadmium Mercury Red, which contains barium sulfate, and PR113:1, Cadmium-Barium Vermillion Red.	"Many: in dry pigment form, organ damage, cancer, and so on; avoid dust."	Cadmium Scarlet	Cadmium Red Light
					Cadmium Red Medium	Cadmium Red Medium
					Cadmium Red Deep	Cadmium Red Deep

Red	Quinacridone Magenta	PR122	"Durable pigment; weak tinting strength but useful."	"Hazards unknown; avoid dust."	Quinacridone Magenta	Magenta
Red	Perylene, Perylene Vermillion, Winsor Red Deep	PR123 or PR149	"Good hue though weak chroma in tints; used in auto paints, alkyd resin enamels, vinyl and acrylic lacquers, printing inks, plastics."	"Hazards unknown; avoid dust."	Winsor Red Deep	Crimson Lake
Red	Pyrrole Red, Bright Red, Scarlet	PR254	"Notable pigment: a duplication of the cadmiums, and a nearly opaque organic."	"Hazards unknown; avoid dust."	Bright Red	Pyrrole Red
Purple	Cobalt Violet	PV14	"Widely used in many applications; weak tinter with dull chroma; cobalt arsenate... rarely found today (and toxic), was formerly the pigment used for this hue." Currently made with cobalt phosphate or cobalt ammonium phosphate.	"Skin, eye, and respiratory irritant; avoid dust - inhalation can cause lung damage; an animal carcinogen."	Cobalt Violet	Cobalt Violet Dark
						Cobalt Violet Light
Purple	Ultramarine Violet, Ultramarine Red	PV15	"A weak pigment but with good chroma and lightfastness; sensitive to alkalines, acids, and some metals."	"No significant hazards; avoid dust."	Ultramarine Violet	Ultramarine Violet
Purple	Manganese Violet, Permanent Mauve	PV16	"Good but expensive hue; sensitive to alkalines; increasingly rare."	"Chronic inhalation can cause nervous system damage; avoid dust."	Permanent Mauve	Manganese Violet
Purple	Quinacridone Violet, Quinacridone Red, Quinacridone Rose, Permanent Carmine, Permanent Magenta, Permanent Rose	PV19 or PR192	"High-quality pigment widely used in industry; performs well in artists' paints." Quinacridone red can serve as "a substitute for alizarin crimson."	"Hazards unknown; avoid dust."	Permanent Carmine	Quinacridone Rose
					Permanent Magenta	
					Permanent Rose	
Purple	Dioxazine Purple, Winsor Violet	PV23RS (red shade)	"Excellent hue with good tinting strength and lightfastness; PV23BS (blue shade) has less lightfastness."	"May be contaminated with dioxins; avoid dust."	Winsor Purple	Purple Dioxazine

Blue	Phthalo Blue, Winsor Blue	PB15 or PB16	"Most widely used pigment in artistic and industrial applications; must be greatly extended because of very high tinting strength." PB16 is the "same as PB15 but with better resistance to solvents; will flocculate if improperly formulated in a paint system; will bronze if used full strength."	"May be contaminated with PCBs and dioxins, which cause cancer and birth defects; avoid dust."	Winsor Blue (Green Shade)	Phthalo Blue Lake
					Winsor Blue (Red Shade)	
Blue	Indanthrone Blue, Indanthrene Blue	PB22 or PB60	"Excellent lightfastness in tints but loses chroma when reduced too greatly; expensive."	"Hazards unknown; avoid dust."	n/a - try Gamblin Indanthrone Blue	Indanthrone Blue
Blue	Manganese Blue	PB33	"Reliable; weak tinting strength; affected by sodium and aluminum sulfates. Possibly no longer available."	"Possibly significant chronic health hazard for various organ systems; avoid dust."	Manganese Blue Hue (contains PB15 and PG7)	Phthalo Blue and Titanium White (contains PB15:3 and PW6 and is meant to mimic Manganese Blue)
Blue	Prussian Blue	PB27	"Some dispute over name: Milori variety is said to be more stable but Prussian name is better known; widely used and reliable pigment, unstable in alkaline vehicles and high heat."	"Only slightly toxic, but can emit highly toxic hydrogen cyanide gas when exposed to acid, high heat, or strong UV light; avoid dust."	Prussian Blue	Prussian Blue
Blue	Cobalt Blue	PB28	"Unique hue, valuable in violet mixtures; expensive; sometimes imitated by mixtures of ultramarine."	"Inhalation can cause pneumonia and other lung damage; avoid dust."	Cobalt Blue	Cobalt Blue
Blue	Ultramarine Blue	PB29	"Reliable and brilliant; lapis often specified in medieval paintings; weak tinting strength, and makes dull violets with reds." The original source for Ultramarine blue is the semiprecious gem, lapis lazuli; the modern source is typically complex silicate of sodium and aluminum with sulfur.	"Hazards unknown; avoid dust."	Ultramarine Blue	Ultramarine Blue
						Lapis Lazuli
Blue	Cerulean Blue	PB35	"'Sky Blue'; reliable and inimitable though expensive hue." Cerulean Blue, Chromium (PB36) is "a variety of cobalt blue (PB28) made with chromium to give it the cerulean hue."	"Inhalation can cause pneumonia and other lung damage; avoid dust."	Cerulean Blue	see PB36

Blue	Cobalt Chromite, Cobalt Turquoise, Cerulean Blue	PB36	A blue-green color similar to Cerulean Blue (PB35).	"May be contaminated with PCBs and dioxins, which cause cancer and birth defects; avoid dust."	Cobalt Turquoise	Cerulean Blue
Green	Phthalo Green, Winsor Green	PG7 or PG36 (green shade)	"Widely used in artistic and industrial applications; flocculates in some paint systems; very strong tinter that must be extended." PG7 is sometimes part of the blend for Sap Green.	"May be contaminated with PCBs; inhalation may induce allergic reactions; avoid dust."	Winsor Green	Phthalo Green Lake
						Phthalo Green Yellow Shade
Green	Chromium Oxide Green, Oxide of Chromium	PG17	"Excellent all-around colorant, but with low chroma and weak tinting strength; used in industrial plastics, enamels, ceramics, printing inks for currency."	"Chromium content may irritate skin and cause severe allergies; chronic exposure may cause asthma or lung cancer; avoid dust."	Oxide of Chromium	Oxide of Chromium
Green	Viridian, Emerald Green, Guignet's Green	PG18	"Brighter than [Chromium Oxide Green] PG17 but still with low chroma and weak tinting strength; widely used in industry."	"Chromium content may irritate skin and cause severe allergies; chronic exposure may cause asthma or lung cancer; avoid dust."	Viridian	Viridian
Green	Cobalt Green	PG19	n/a	"Inhalation can cause pneumonia and other lung damage; avoid dust."	n/a - try Gamblin Cobalt Green	see PG50, Cobalt Green Deep
Green	Green Earth, Italian Terre Verte	PG23	"Weak, transparent colorant but of unusual hue; expensive and difficult to obtain; often imitated; the classical underpainting color for flesh tones in medieval egg temperas."	"No known hazards; avoid dust."	Terre Verte (also contains PG18)	Terre Verte
Green	Light Green Oxide, Cobalt Teal, Cobalt Turquoise	PG50	n/a	"Can cause severe skin allergies, and inhalation can cause lung damage; avoid dust."	Cobalt Turquoise Light	Cobalt Green Deep
						Cobalt Teal
Brown	Mars Brown, Raw Umber	PBr6	"Excellent stable pigment; low chroma; better than the natural equivalents; origin of 'Mars' name uncertain."	"No significant hazards unless contaminated with manganese or other toxic ingredients; avoid dust."	n/a	Raw Umber
Brown	Burnt Sienna	PBr7	"Excellent pigment; hue varies and depends on source and method of processing; low tinting strength; inexpensive." PR101 is also sometimes used for Burnt Sienna.	"No significant hazards unless contaminated with manganese or other toxic ingredients; avoid dust."	See PR101, Burnt Sienna	Burnt Sienna

Brown	Burnt Umber	PBr7	"Good pigment; good drier in oil; variable hue; low chroma; inexpensive; wide industrial and artistic use." Raw Umber (also PBr7) has the same description as Burnt Umber. In my opinion, Raw Umber is unnecessary when you have Burnt Sienna and Burnt Umber.	"Manganese content: chronic inhalation can cause degenerative nervous system disease; avoid dust."	Burnt Umber	Burnt Umber
Brown	Raw Sienna, Brown Ochre	PBr7	"Excellent pigment; hue varies and depends on source and method of processing; low tinting strength; inexpensive."	"Manganese content: chronic inhalation can cause degenerative nervous system disease; avoid dust."	Brown Ochre	Raw Sienna
Black	Ivory Black, Bone Black	PBk9	"This is the only blue black, called 'cool'; same limitations as other carbon blacks." Ivory Black is often referred to as the blackest of the blacks.	"No significant hazards if pure; avoid dust."	Ivory Black	Ivory Black
Black	Mars Black	PBk11	"Excellent pigment, generally better performer than other blacks, but weak tinting strength."	"No significant hazards unless contaminated with impurities; avoid dust."	Mars Black	Vine Black
White	Flake White, Lead White, Stack Lead White, Cremnitz White	PW1	"Traditional white for oil paints due to excellent drying characteristics; irreplaceable, but slowly disappearing as less toxic substitutes are developed." Again, paints containing lead can be handled safely but I avoid them due to personal reasons.	"Lead is toxic by all routes of entry; avoid dust."	n/a	Cremnitz White
						Foundation White (also contains PW6)
						Stack Lead White (Historical formulation)
White	Titanium White	PW6	"Excellent all-around colorant in wide use; extension improves films in oil; rutile variety is more opaque; anatase variety chalks in exterior use and is bluer." Note that some paints labeled Titanium White often also include Zinc White (PW4). I have started to avoid paints containing PW4 as new research suggests that it is the least flexible and most brittle of the whites and is prone to delamination and cracking. Titanium White on its own is considered the brightest of the whites and is structurally strong though not as strong as Lead White.	"No significant hazards; avoid dust."	n/a - try Gamblin Titanium White	Titanium White No 1

[1] Just a heads up - the links in this document are affiliate links, meaning, if you make a purchase through one of those links I may earn a small commission. There is no additional cost to you and your purchase supports the creation of more demos and videos. Thank you for your support!

[2] Note:

PY = Pigment Yellow

PO = Pigment Orange

PR = Pigment Red

PB = Pigment Blue

PBr = Pigment Brown

PBk = Pigment Black

PG = Pigment Green

PV = Pigment Violet

PW = Pigment White

All of the pigments listed in this column have an American Society for Testing and Materials (ASTM) Lightfastness rating of I (excellent).

[3] The quoted information in Notes and Hazards is from the Revised and Expanded edition of The Painter's Handbook by Mark David Gottsegen, pages 155-197. You can purchase a copy here: <https://amzn.to/3dQyXEI>

[4] "Avoid dust" refers mainly to the pigments in their raw powder form (i.e. prior to being blended with linseed oil or another binder). Paint from a tube has been blended and generally does not pose the same risks as the powdered pigment. Sanding artwork can create dust, however, and precautions such as wearing an N100 mask (aka particulate respirator) along with gloves will reduce the risk of inhaling and ingesting dust. I have an example of a particulate respirator listed here along with other essential painting and art studio supplies: <https://www.nikitacoulombe.com/artsupplies>

Paint should always be out of reach of children and animals! It's also a good idea to wear gloves while painting and keep food out of your painting area.

[5] A note on Cadmium: "Cadmium itself is a heavy metal and is toxic but cadmium pigments are not classified as dangerous for use in line with EC classification. The level of soluble cadmium in the pigments is so low that no hazard warnings are needed and they pose no greater risk after swallowing or breathing in than other pigment types. Cadmium pigments are restricted for certain applications but this restriction does not apply to artists' colours." (Source: Winsor & Newton)