Designation: D5067 – 16 (Reapproved 2021)

Standard Specification for Artists' Watercolor Paints[1]

This standard is issued under the fixed designation D5067; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This specification establishes requirements for composition, physical properties, performance, and labeling of artists' watercolor paints.

1.2 This specification covers pigments, vehicles, and additives. Requirements are included for pigment identification, lightfastness, and consistency.

1.3 Table 1 lists some pigments meeting the lightfastness requirements in this specification. In order to identify other pigments that meet these requirements, instructions are given for test specimen preparation. Test methods for determining relative lightfastness are referenced.

1.4 The values stated in SI units are to be regarded as standard. The values given in parentheses are for information only.

1.5 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

D185 Test Methods for Coarse Particles in Pigments

D1210 Test Method for Fineness of Dispersion of Pigment-Vehicle Systems by Hegman-Type Gage

D4236 Practice for Labeling Art Materials for Chronic Health Hazards

D4303 Test Methods for Lightfastness of Colorants Used in Artists' Materials

E284 Terminology of Appearance

3. Terminology

3.1 *Definitions:*

3.1.1 *Colour Index Name, n*—consists of the category (type of dye or pigment), general hue, and an assigned number given to a colorant in the Colour Index[3] as an international identification system.

3.1.1.1 *Discussion*—For example, the Colour Index Name of one phthalocyanine blue pigment is Pigment Blue 15 (PB 15).

3.1.2 *Colour Index Number, n*—a five-digit number given in the Colour Index that describes the chemical constitution of a colorant.

3.1.2.1 *Discussion*—For example, the Colour Index Number of one phthalocyanine blue pigment is 74160.

3.1.3 Appearance terms used in this standard are defined in Terminology E284.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *watercolor paint, n*—a pigment dispersion in a water soluble gum/resin vehicle that dries water soluble and is intended primarily for transparent applications.

4. Significance and Use

4.1 This specification establishes quality requirements and provides a basis for common understanding among producers, distributors, and users.

4.2 It is not intended that all paints meeting the requirements be identical nor of uniform excellence in all respects. Variations in manufacture, not covered by this specification, may cause some artists to prefer one brand over another, either of which may be acceptable under this specification.

5. Labeling Requirements

5.1 *Pigment(s) Identification:*

5.1.1 Every label shall include for each pigment contained in the paint (*1*) the information underlined in Table 1 (which includes the Common Name, Colour Index Name, and any additional terms necessary to identify the form of the pigment), and (*2*) the appropriate Lightfastness Category.

[1] This specification is under the jurisdiction of ASTM Committee D01 on Paint and Related Coatings, Materials, and Applications and is the direct responsibility of Subcommittee D01.57 on Artist Paints and Related Materials.

Current edition approved Nov. 1, 2021. Published November 2021. Originally approved in 1990. Last previous edition approved in 2016 as D5067 – 16. DOI: 10.1520/D5067-16R21.

[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

[3] *Colour Index*, 3rd ed., The Society of Dyers and Colourists, London, 1971–75, five vols and revisions. Available from the American Association of Textile Chemists and Colorists, PO Box 12215, Research Triangle Park, NC 27709.

TABLE 1 Suitable Pigments List

NOTE 1—Underlined information and the lightfastness category in the table shall be included on every label.

Key:
Lightfastness Category:
Lightfastness I Excellent Lightfastness
Lightfastness II Very Good Lightfastness
Abbreviations Used for Colour Index Names:
BR Basic Red
NR Natural Red
PB Pigment Blue
PBk Pigment Black
PBr Pigment Brown
PG Pigment Green
PO Pigment Orange
PR Pigment Red
PV Pigment Violet
PW Pigment White
PY Pigment Yellow
Pigment Notations:
(CC) Concentrated cadmium pigments may contain up to 15 % barium sulfate for color control. Cadmium-barium pigments contain a much higher amount of barium sulfate.
(NA) Colour Index name or number not assigned.
(SM) Sensitive to moisture in direct sunlight.

Colour Index Name	Lightfastness Category Watercolors	Common Name and Chemical Class	Colour Index Number
		YELLOWS	
PY 3	II	Arylide Yellow 10G, with option of adding the name Hansa Yellow Light, arylide yellow	11710
PY 31	I	Barium Chromate Lemon, barium chromate	77103
PY 34	I	Chrome Yellow Lemon, lead chromate and lead sulfate	77600
PY 35	I	Cadmium (hue designation), concentrated cadmium zinc sulfide (CC) (SM)	77205
PY 35:1	I	Cadmium-Barium (hue designation), cadmium zinc sulfide coprecipitated with barium sulfate (SM)	77205:1
PY 37	I	Cadmium (hue designation), concentrated cadmium sulfide (CC) (SM)	77199
PY 37:1	I	Cadmium-Barium (hue designation), cadmium sulfide coprecipitated with barium sulfate (SM)	77199:1
PY 40	II	Aureolin, with option of adding the name Cobalt Yellow, potassium cobaltinitrite	77357
PY 42	I	Mars Yellow or Iron Oxide Yellow, with option of adding the name Yellow Iron Oxide, synthetic hydrated iron oxide	77492
PY 42	I	Mars Orange or Iron Oxide Yellow, synthetic hydrated iron oxide	77492
PY 43	I	Yellow Ochre, natural hydrated iron oxide	77492
PY 53	I	Nickel Titanate Yellow, oxides of nickel antimony and titanium, or nickel titanate	77788
PY 65	II	Arylide Yellow RN, with option of adding the name Hansa Yellow (hue designation), arylide	11740
PY 97	II[A]	Arylide Yellow FGL, arylide yellow	11767
PY 109	II	Isoindoline Yellow G, tetrachloroisoindoline	56284
PY 110	I	Isoindoline Yellow R, tetrachloroisoindoline	56280
PY 117	I	Azomethine Yellow, copper organic complex	48043
PY 138	II	Quinophthalone Yellow, quinophthalone	56300
PY 150	I	Nickel Azo Yellow, nickel azo complex	12764
PY 153	II	Nickel Dioxine Yellow, dioxine nickel complex	48545
PY 154	I	Benzimidazolone Yellow H3G, benzimidazolone	11781
PBr 24	I	Chrome Titanate Yellow, oxides of chromium, antimony and titanium, or chrome titanate	77310
		ORANGES	
PO 20	I	Cadmium (hue designation), concentrated cadmium sulfo-selenide (CC)	77202
PO 20:1	I	Cadmium-Barium (hue designation), cadmium sulfo-selenide coprecipitated with barium sulfate	77202:1
PO 36	I	Benzimidazolone Orange HL, benzimidazolone	11780
PO 48	II	Quinacridone Gold, or Quinacridone Orange, quinacridone	73900
PO 62	II	Benzimidazolone Orange H5G, monoacetolone	11775
		REDS	
PR 101	I	Indian Red, synthetic red iron oxide (bluish hue)	77491
PR 101	I	Light or English Red Oxide, synthetic red iron oxide (yellowish hue)	
PR 101	I	Mars Red or Iron Oxide Yellow, with option of adding the name Red Iron Oxide, synthetic red iron oxide	77491
PR 101	I	Mars Violet or Iron Oxide Yellow, with option of adding the name Violet Iron Oxide, synthetic iron oxide (violet hue)	77015
PR 101	I	Venetian Red, synthetic iron oxide (yellowish hue)	77491
PR 104	I	Chrome Orange, lead chromate and lead molybdate	77605
PR 108	I	Cadmium (hue designation), concentrated cadmium-seleno sulfide (CC)	77202
PR 108:1	I	Cadmium-Barium (hue designation), cadmium seleno-sulfide coprecipitated with barium sulfate	77202:1
PR 170	II	Naphthol Red F3RK, napthol carbamide	12475
PR 179	I	Perylene (hue designation), perylene	71130
PR 188	II	Naphthol (hue designation) AS, naphtol AS	12467
PR 209	II	Quinacridone (hue designation), gamma quinacridone	73905
PR 216	I	Pyranthrone Red, halogenated pyranthrone	59710
PR 255	I	Pyrrol Red, diketo-pyrollo-pyrrol	NA
		PURPLES	
PV 14	I	Cobalt Violet, cobalt phosphate, cobalt ammonium phosphate	77360
PV 15	I	Ultramarine Red, complex silicate of sodium and aluminum with sulfur or sodium alumino-sulpho-silicate	77007