MIL-P-21563B (ASG)
11 DECEMBER 1962
Superseding
MIL-P-21563A(Wep)
26 October 1962(sic) (1961)

MILITARY SPECIFICATION

PAINT SYSTEM, FLUORESCENT, FOR AIRCRAFT APPLICATION

This specification has been approved by the Department of the Air Force and by the Bureau of Naval Weapons.

1. SCOPE

1.1 This specification covers a high visibility, durable, exterior, fluorescent paint system including a clear overlay containing a weathering stabilizer. The fluorescent paint system shall be furnished in one grade in fluorescent red-orange or fluorescent yellow-orange color, as specified (see 6.2).

2. APPLICABLE DOCUMENTS

2.1 The following documents of the issue in effect on date of invitation for bids or request for proposal, form a part of the specification to the extent specified herein:

SPECIFICATIONS

Federal

QQ-A-362	Aluminum Alloy Plate and Sheet, Alclad 2024
TT-B-838	Butyl Acetate, Normal (for Use in Organic Coatings)
TT-B-846	Butyl Alcohol, Normal (for Use in Organic Coatings)
TT-E-751	Ethyl Acetate, Technical, Organic Coatings Use
TT-N-95	Naphtha, Aliphatic
TT-P-143	Paint, Varnish, Lacquer, and Related Materials; Packaging, Packing and Marking of
TT-T-291	Thinner; Paint, Volatile Mineral Spirits (Petroleum-Spirits)
TT-T-548	Toluene; Technical

Military

MIL-L-6805	Lacquer, Camouflage
MIL-P-7962	Primer Coating, Cellulose-Nitrate Modified Alkyd Type, Corrosion-Inhibiting, Fast-Drying (for Spray Application over Pretreatment Coating)

FSC 8010

MIL-C-8514	Coating Compound, Metal Pretreatment, Resin-Acid Finish, Spray Type (for Aircraft)
MIL-P-8585	Primer Coating, Zinc Chromate, Low-Moisture-Sensitivity
MIL-A-8625	Anodic Coatings, for Aluminum and Aluminum Alloys
MIL-L-19537	Lacquer, Acrylic-Nitrocellulose, Gloss (for Aircraft Use)
MIL-P-21698	Paint, Fluorescent, for Aircraft; Process for Application of

STANDARDS

Federal

Federal Test Method Standard No. 141	Paint, Varnish, Lacquer and Related Materials; Methods of Inspection, Sampling and Testing

Military

MIL-STD-105	Sampling Procedures and Tables for Inspection by Attributes
MIL-STD-129	Marking for Shipment and Storage

PUBLICATIONS

U. S. Air Force Technical Order

T.O. 1-1-667	Conspicuity Marking USAF Aircraft

(Copies of specifications, standards, publications and drawings required by suppliers in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

2.2 Other publications.- The following documents form a part of this specification to the extent specified herein. Unless otherwise indicated, the issue in effect on date of invitation for bids or request for proposal shall apply:

Massachusetts Institute of Technology, Color Measurement Laboratory

Handbook of Colorimetry - Arthur C. Hardy (1936)

(Application for copies should be addressed to the Massachusetts Institute of Technology, Cambridge, Massachusetts.)

Gardner Laboratories, Inc.

Physical and Chemical Examination of Paints, Varnishes, Lacquers and Colors

(Application for copies should be addressed to Gardner Laboratories, Inc., 5521 Landy Lane, Bethesda, Maryland.)

3. REQUIREMENTS

3.1 Qualification.- The paint furnished under this specification shall be a product which has been tested and has passed the qualification tests specified herein, and has been listed on or approved for listing on the applicable Qualified Products List.

3.2 Material.- The ingredients used in the manufacture of this product shall conform to the applicable Government specifications. Ingredient materials conforming to contractors' specifications may be used provided that prior approval is obtained from the Government laboratory specified in 6.5. The use of contractor's specifications will not constitute waiver of Government inspection.

3.3 Toxicity.- The manufacturer shall certify that the fluorescent paint system contains no substance of known toxicity under normal conditions of usage.

3.4 Composition.- The composition of the fluorescent paint and the clear overlay shall be in accordance with table I.

TABLE I. Composition

Property	Pigmented paint (percent by weight)	Clear overlay (percent by weight)
Volatile	48 (max)	64 (max)
Nonvolatile	52 (min)	36 (min)
Substituted dihydroxy-benzophenone 1/ (percent of total solids)	---	2 (min)

1/ A maximum of 10 percent (based on total solids) of this stabilizer may be included in the pigmented coating.

3.4.1 Vehicle.- The resin portion of the vehicle for the fluorescent paint and the clear overlay shall be high grade acrylics which are soluble in aromatic hydrocarbons. The volatile portions of both the pigmented and clear coatings shall consist entirely of hydrocarbons (with the exception of benzene).

3.4.2 Pigments.- The pigment portion of the fluorescent paint shall consist of a powered resin which contains the dissolved fluorescent dye(s).

3.5 Physical properties.-

3.5.1 Fineness of grind.- Fineness of grind of the pigmented paint shall be a minimum of 5.

3.5.2 Drying time.- When tested as specified in 4.7.2, separate films of pigmented paint and clear overlay shall both dry hard within 1 hour. When the clear overlay is drawn down over the pigmented film, the system shall dry hard and exhibit no tack (to touch) within 3 hours and shall dry tack free within 4 hours when tested with a Zapon Tack Tester, or equal.

3.5.3 Color (spectrophotometric).- After drying for 24 hours, the color values of the red-orange and yellow-orange paint systems shall be in accordance with the respective "Before exposure" values specified in tables II and III (see 6.3).

3.5.4 Accelerated weathering.- After exposure in the weatherometer for 300 hours (see 4.7.4), the red-orange or yellow-orange paint systems (see 4.5.1) shall conform to the respective requirements specified in tables II and III and there shall be no evidence of deterioration of the film properties, such as loss of intercoat adhesion, cracking, flaking, and peeling.

3.5.5 Weather resistance.- The red-orange system when exposed in southern Florida for 120,000 Langley units, or the yellow-orange system when exposed in southern Florida for 90,000 Langley units, shall show no evidence of deterioration of film properties such as loss of intercoat adhesion, cracking, flaking, and peeling, and shall conform to the spectrophotometric color values specified in tables II and III.

3.6 Qualitative requirements.-

3.6.1 Condition in container.- The packaged pigmented and clear lacquer shall pour freely without stirring and shall show no traces of grit, rough particles or separation of pigments, nor shall there be settling which cannot be readily dispersed manually with a paddle to a uniform and homogeneous state.

3.6.2 Storage stability.- The pigmented and clear lacquer, when stored in full, closed containers for 1 year at 70° to 90° F, shall conform to this specification.

3.6.3 Odor.- The odor of the pigmented or clear lacquer, wet or dry, shall not be objectionable. An air-dried film shall contain no residual odor 48 hours after application.

3.6.4 Working properties.- When the unstrained pigmented or clear lacquer is reduced for spraying in accordance with manufacturer's instructions with toluene or xylene, there shall be no evidence of separation and the lacquer (pigmented or clear) shall show good working properties and shall dry to a uniform smooth surface free of runs, sags, bubbling, wrinkling, streaking, or other defects. When the clear is applied (by spray) over the pigmented coating, the complete fluorescent system shall be uniformly smooth and free of the above specified defects (a 1-mil film of clear lacquer shall be applied over a 3-mil film of pigmented coating after the latter has air dried 2 hours).

3.6.5 Dilution stability.- The pigmented and clear lacquer shall show no evidence of incompatibility when one volume of the respective material is reduced with an equal volume of toluene or xylene. Examination of the reduced coatings shall be made after 1 hour.

3.6.6 Adhesion (knife test).- When tested in accordance with 4.7.1, the paint shall show satisfactory adhesion.

TABLE II. Color limits before and after weathering for red-orange 1/

Exposure	Dominant wave length (millimicrons)		Excitation purity % min.	Luminance factor % min.	Peak "reflectance" 2/ compared to $MgCO_3$ % min.
	Min.	Max.			
Before exposure	610	614	98	31	195
Weatherometer - 300 hrs. 3/	607	614	95	31 (min) 37 (max)	175
Florida exposure (120,000 Langley units)	603	614	93	31 (min) 42 (max)	160

TABLE III. Color limits before and after weathering for yellow-orange 1/

Exposure	Dominant wave length (millimicrons)		Excitation purity % min.	Luminance factor % min.	Peak "reflectance" 4/ compared to $MgCO_3$ % min.
	Min.	Max.			
Before exposure	602	606	98	47	215
Weatherometer - 300 hrs. 3/	599	606	97	46 (min) 58 (max)	185
Florida exposure (90,000 Langley units)	595	606	94	48 (min) 58 (max)	160

Notes to tables II and III

1/ In accordance with the Selected Ordinate Method described in Section IV, which is abstracted from the "Handbook of Colorimetry" - Hardy, Arthur C., Color Measurement Laboratory, Massachusetts Institute of Technology, 1936.

2/ This value is to be the highest reflectance obtained between a wavelength range of 624 to 630 millimicrons.

3/ Values based on weatherometer performance in accordance with the accelerated weathering test (4.7.4).

4/ This value is to be the highest reflectance obtained between a wavelength range of 607 to 620 millimicrons.

3.6.7 Water resistance.- After immersion for 18 hours in distilled water at room temperature, there shall be no visual evidence of film irregularities such as blistering, checking, leaching, and cracking when examined immediately upon removal from water, and no change in film properties, when examined after a recovery of 24 hours, as compared to the emersed portion.

3.6.8 Hydrocarbon resistance.- After an immersion of 1 hour in mineral spirits conforming to Specificiation TT-T-291 at room temperature, there shall be no visual evidence of film irregularities such as blistering, checking, leaching, and cracking when examined immediately upon removal from the thinner, and no change in film properties when examined after a recovery of 24 hours, as compared to the emersed portion.

3.6.9 Anchorage (tape test).- When tested in accordance with 4.7.7, the fluorescent paint system shall show no signs of separation from the white lacquer base coat.

3.6.10 Appearance (clear coating).- A flow out on a glass panel of the clear coating as received shall be clear and show no evidence of incompatibility (see 4.7.8).

3.6.11 Workmanship.- The component ingredients of the pigmented and clear coatings shall be intimately assembled and processed in accordance with the best practice for the manufacture of high quality coatings.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection.- Unless otherwise specified in the contract or purchase order, the supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified, the supplier may utilize his own facilities or any other commercial laboratory acceptable to the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.2 Classification of tests.- The inspection and testing of the paint shall be classified as follows:

(a) Qualification tests (4.3)

(b) Quality conformance tests (4.4.)

4.3 Qualification tests.-

4.3.1 Sampling instructions.- Qualification test samples shall consist of three 1-quart containers of the fluorescent pigmented paint and three 1-quart containers of clear overlay. The sample paints shall be selected in accordance with Method 1031 of Federal Test Method Standard No. 141, and shall be forwarded to the supply officer, Naval Air Material Center, Philadelphia 12, Pa., Attention: Director, Aeronautical Materials Laboratory. The samples shall be plainly identified by securely attached durable tags marked with the following information:

Samples for qualification tests
PAINT SYSTEM, FLUORESCENT, FOR AIRCRAFT APPLICATION
Manufacturer's name
Manufacturer's formula number
Submitted by (name of manufacturer) (date) for
qualification tests in accordance with
Specification MIL-P-21563 (date) under authorization
(reference letter authorizing the test)

4.3.2 Report of tests.- The manufacturer shall submit reports of his qualification product in accordance with Federal Test Method Standard No. 141, showing results of all the tests specified herein, except weather resistance (4.7.5) and storage stability (4.7.6). Regarding the composition of the paint, the manufacturer may report such results as "calculated" provided, in his opinion, analysis made by the Government will yield the same results.

4.3.3 Tests.- The qualification tests of the paint shall consist of all the tests of this specification.

4.4 Quality conformance tests.- Quality conformance tests shall consist of all tests of this specification, except 4.7.5 and 4.7.6.

4.5 Test conditions.- The laboratory testing conditions shall be in accordance with Federal Test Method Standard No. 141 and as specified herein.

4.5.1 Preparation of panels.- Schedule A shall be followed for all the tests of the specification where panel preparation is required, with the exception of color (3.5.3), accelerated weathering (3.5.4), and weather resistance (3.5.5). The panel preparation for the latter three tests shall be in accordance with Schedule B. The adhesion (3.6.6) and anchorage (3.6.9) tests shall be conducted with panels prepared in accordance with both schedules.

4.5.1.1 Schedule A.- The 3 by 6 by 0.020 inch test panels shall be of aluminum clad alloy conforming to Specification QQ-A-362 and anodized in accordance with type I of Specification MIL-A-8625. One coat of wash primer conforming to Specification MIL-C-8514 shall be sprayed on the panel to a dry film thickness of 0.0002 to 0.0004 inch and air dried 30 minutes. A primer coat conforming to the control formula product of Specification MIL-P-8585 shall be applied to the wash primed test panel to a dry film thickness of 0.0003 to 0.0005 inch and allowed to air dry for 2 hours. Color No. 601 lacquer conforming to MIL-L-6805 shall then be sprayed on the panels to a dry film thickness of 1.0 ±0.2 mils. The lacquer shall be reduced prior to spraying with the following thinners:

Ingredients	Specifications	Percent by weight
Butyl acetate	TT-B-838	25
Ethyl acetate	TT-E-751	22
Butyl alcohol	TT-B-846	10
Toluene	TT-T-548	22
Aliphatic naphtha	TT-N-95	21

If two coats of lacquer are necessary, the first coat shall dry for 30 minutes before application of the second coat. The painted test panels shall then be allowed to air dry 2 hours and force dried 1 hour at a temperature of 82° C (180° F). The fluorescent paint shall be applied in three coats to a total dry film thickness of 2.8 to 3.2 mils and allowed to air dry for 2 hours before application of the clear overlay. One coat of the clear overlay shall be applied to a dry film thickness of 0.9 to 1.1 mils. The painted panels shall then be allowed to air dry for 72 hours before testing.

4.5.1.2 Schedule B.- Test panels as specified in 4.5.1.1 shall be finished as follows:

Spray one coat of wash primer conforming to Specification MIL-C-8514 to a dry film thickness of 0.0002 to 0.0004 inch and air dry for 30 minutes. The test panels with the wash primer applied shall then be sprayed with a dry film thickness of 0.0003 to 0.0005 inch of control formula primer conforming to Specification MIL-P-7962, and air dried for 30 minutes. Two spray coats of control formula white lacquer conforming to Specification MIL-L-19537 shall then be applied over the primer with a 30-minute drying interval between coats. The total dry film thickness of the two coats of lacquer shall be 0.001 ±0.0002 inch. After application of the lacquer, the panels shall be air dried 2 hours and force dried 1 hour at a temperature of 82° C (180° F). The fluorescent paint system shall then be applied as specified in 4.5.1.1 and allowed to air dry 72 hours before testing.

4.6 Examination.-

4.6.1 Examination of product.- Paint shall be examined to determine conformance to this specification with respect to materials and workmanship.

4.6.2 Examination of filled containers.- Samples of filled containers shall be taken at random in accordance with Standard MIL-STD-105 at inspection level I and acceptable quality level of 2.5 percent defective. Samples shall be examined to verify compliance with fill, closure, marking, and other requirements not involving tests.

4.6.3 Packaging, packing, and marking.- Preparation for delivery shall be examined for conformance to section 5.

4.7 Test methods.- The tests of this specification shall be conducted in accordance with the specified methods of Federal Test Method Standard No. 141 and as specified herein.

4.7.1 The following tests shall be conducted in accordance with Federal Test Method Standard No. 141:

Test	Method No.
Volatile and nonvolatile content 1/	4041
Fineness of grind	4411
Condition in container	3011
Odor	4401
Working properties	4501
Dilution stability	4203
Adhesion (knife test)	6304
Immersion resistance	6011

1/ An approximately equal weight of tricresyl phosphate shall be thoroughly mixed with the sample in the solids cup when conducting this determination for both the pigmented and clear coatings.

4.7.2 Drying time.- When tested separately or as a system, the pigmented and clear coatings shall be drawn down over clean plate glass with 0.008-inch and 0.005-inch clearance blades, respectively. When tested as a system, the clear shall be drawn down perpendicular to the pigmented film after the latter has air dried 2 hours. Dry-hard and tack-free requirements are specified in Method 4061 of Federal Standard No. 141. The Zapon Tack Tester is described in "Physical and Chemical Examination of Paints, Varnishes, Lacquers and Colors," Gardner Laboratories, Inc., Eleventh Edition, 1950, p. 155. The tester shall be used with a 1-pound weight over an interval of 1 minute.

4.7.3 Color (spectrophotometric).- The painted specimen, prepared as specified in 4.5.1 shall be illuminated directly with light having the spectral quality of CIE Source "C". Source "C" is composed of a tungsten lamp operated at 2,848° K in conjucntion with a filter. The filter shall consist of a layer 1 centimeter thick of each of two solutions contained in separate glass cells. The test shall be performed in the following manner:

(a) Filter solutions of the following compositions shall be prepared:

Solution 1

Copper sulfate	($CuSO_4 \cdot 5H_2O$)	3.412 grams
Mannite	($C_6H_8(OH)_6$)	3.412 grams
Pyridine	(C_5H_5N)	30.0 milliliters (ml)
Distilled water to make 1000.0 ml		

Solution 2

Cobalt ammonium sulphate	($CoSO_4 \cdot (NH_4)_2SO_4 \cdot 6H_2O$)	30.580 grams
Copper sulfate	($CuSO_4 \cdot 5H_2O$)	22.520 grams
Sulfuric acid	(density 1.835)	10.0 ml
Distilled water to make 1000.0 ml		

(b) The light emitted and reflected by the sample shall be picked off at an angle of approximately 45 degrees. The Beckman Model DU spectrophotometer, or equivalent, is used as the instrument for obtaining the spectral data. The use of a lucite rod (1 inch in diameter and 1 inch long) to transmit the light to the spectrophotometer is optional.

A magnesium carbonate block (resurfaced until comparison with a vitrolite standard at 400 millimicrons reaches a reproducible minimum value) shall be used as a reference standard.

(c) Measurements shall be made at 30 wavelength points and the ratio expressed as percent of the energy reflected from the painted sample compared to the energy reflected from the block of magnesium carbonate.

The wavelengths (millimicrons) used shall be as follows:

422.2	450.1	477.7	541.4	572.5	600.8
432.0	455.9	489.5	544.3	577.4	610.9
435.5	461.2	495.2	551.8	584.8	624.2
438.6	462.0	515.2	561.9	588.7	627.3
444.4	468.7	529.8	564.1	599.6	645.9

The measurements at 435.5, 461.2, 544.3, 564.1, 577.4, 588.7, 599.6, 610.9, 624.2, and 645.9 millimicrons are added together and are multiplied by a factor of 0.098. This shall be known as X. This is one of the three tristimulus values.

The measurements at 489.5, 515.2, 529.8, 541.4, 551.8, 561.9, 572.5, 584.8, 600.8, and 627.3 millimicrons are added together and are multiplied by a factor of 0.100. This shall be known as Y. This is the second of the three tristimulus values. It is also known as the luminence factor.

The measurements at 422.2, 432.0, 438.6, 444.4, 450.1, 455.9, 462.0, 468.7, 477.7 and 495.2 millimicrons are added together and are multiplied by 0.118. This shall be known as Z. This is the third tristimulus value.

When X, Y, and Z have been determined, the trichromatic coefficient, x, y, z can be calculated from the following expressions:

$$x = \frac{X}{X + Y + Z}, \quad y = \frac{Y}{X + Y + Z}, \quad z = \frac{Z}{X + Y + Z}$$

(d) The trichromatic coefficients shall be used to determine dominant wavelength and (excitation) purity by consulting diagrams in Handbook of Colorimetry by Hardy. Each point x, y is found on some wavelength line, while the relative distance of the point from the Source C point corresponds to the excitation purity.

The blue sensitive phototube (where there is a choice) should be used to make all the measurements.

A slit width of 0.1 millimeter is preferred, but, if necessary, a maximum half intensity band width of 50 Angstrom units will be permitted.

The selected ordinate method of determining tristimulus value shall be used. A sample calculation sheet follows:

	R^c ( ) %		(X)	(Y)	(Z)
422.2	_____	z			_____
432.0	_____	z			_____
435.5	_____	x	_____		
438.6	_____	z			_____
444.4	_____	z			_____
450.1	_____	z			_____
455.9	_____	z			_____
461.2	_____	x	_____		
462.0	_____	z			_____
468.7	_____	z			_____
477.7	_____	z			_____
489.5	_____	y		_____	
495.2	_____	z			_____
515.2	_____	y		_____	
529.8	_____	y		_____	
541.4	_____	y		_____	
544.3	_____	x	_____		
551.8	_____	y		_____	
561.9	_____	y		_____	
564.1	_____	x	_____		
572.5	_____	y		_____	
577.4	_____	x	_____		
584.8	_____	y		_____	
588.7	_____	x	_____		
599.6	_____	x	_____		
600.8	_____	y		_____	
610.9	_____	x	_____		
624.3	_____	x	_____		
627.3	_____	y		_____	
645.9	_____	x	_____		
		Sum.	_____	_____	_____
			_____	_____	_____
		Multiplier	_____	_____	_____
			(0.098) X	(0.100) Y	(0.118) Z

_____	R^c ( ) %	_____	(X)	(Y)	(Z)
		Tristimulus value	_____	_____	_____

$X + Y + Z =$ _____ Luminance factor $Y =$ _____

Purity $=$ _____

$\frac{X}{X + Y + Z} =$ _____ Dominant wave length, mu $=$ _____

$\frac{Y}{X + Y + Z} =$ _____ Peak reflectance _____

4.7.4 Accelerated weathering.- The weathering machine used shall be an Atlas XW type open arc Weatherometer operated in accordance with Method 6151 of Federal Test Method Standard No. 141 with the following exceptions:

(a) Successively replace one of the 8 Corex D filters every 250 hours, rather than replace all 8 filters at one time after 2,000 hours or when discolored.

(b) An alternate 20-minute wet and dry cycle shall be used.

(c) The impurities in the water used shall be less than 6 parts per million calculated as NaCl.

4.7.5 Weather resistance.- Weather-resistance panels prepared as specified in 4.5.1 shall be exposed in southern Florida in accordance with Method 6161 of Federal Test Method Standard No. 141. The exposure period shall be as specified in 3.5.5. Upon any evidence of failure of the paint system, the test shall be immediately terminated.

4.7.6 Storage stability.- Filled, closed containers of the pigmented and clear materials shall be stored under warehouse conditions at a temperature of 70° to 90° F for 1 year. At the end of the storage period, the containers shall be opened and the materials tested for conformance to this specification.

4.7.7 Anchorage (tape test).- Prepare duplicate panels in accordance with schedules A and B of 4.5.1. The panels shall be tested as specified in Method 6301 of Federal Test Method Standard No. 141, except that the panels shall be immersed in water for 16 hours.

4.7.8 Appearance.- The clear overcoat shall be flowed out on a glass panel and allowed to drain for 15 minutes. The film shall then be examined for conformance with 3.6.10.

5. PREPARATION FOR DELIVERY

5.1 Packaging, packing, and marking for shipment shall be in accordance with Specification TT-P-143 and as specified in 5.2.

5.2 Marking.- Marking of containers shall be in accordance with Standard MIL-STD-129. In addition, individual containers shall bear a printed label (with a clear weatherproof overcoating) showing the following information:

Specification MIL-P-21563B
Color (or clear overcoating)
Manufacturer's name and batch number
Date manufactured (month and year)

Directions for application

For Navy use.- The fluorescent paint system shall be applied as specified in Specification MIL-P-21698. Fluorescent paint shall be applied over a suitable white undercoat as specified therein.

(a) Apply fluorescent paint to a dry-film thickness of about 3.0 mils after first straining paint through a fine paint strainer and thinning with xylene or toluene in accordance with the manufacturer's instructions. Three wet coats will usually achieve a thickness of about 3.0 mils. Air dry each coat 1/2 hour.

(b) Apply clear overcoating to a dry film thickness of about 1.0 mil after air drying last coat of fluorescent paint 2 hours. The clear overcoating is also to be strained and reduced with xylene or toluene in accordance with the manufacturer's instructions. The thickness of 1.0 mil is usually achieved by applying a thin wet coat which is allowed to "set up" and followed by a full wet coat.

(c) Permit coating system to air dry at least 24 hours before aircraft is flown to avoid dirt pickup.

For Air Force use.- The fluorescent paint system shall be applied as specified in Air Force Technical Order 1-1-667.

5.2.1 The printed label shall also include the following:

CAUTION

1. Apply fluorescent paint and clear overcoating at correct thickness for optimum coating and color properties.

2. Use only clean mixing and spraying equipment to avoid contaminating the fluorescent color, resulting in a reduction of the fluorescence and high visibility.

3. Do not use fluorescent coating on areas subject to spillage of aircraft fluids such as fuels and lubricants.

4. Do not use fluorescent coating over Specification MIL-P-6884 white coating, because of possible resultant severe cracking of the fluorescent coating.

6. NOTES

6.1 Intended use.- The paint system conforming to this specification is intended for use as a high-visibility fluorescent finish system.

6.2 Ordering data.- Procurement documents should specify the following:

(a) Title, number, and date of this specification.
(b) Color name (see 1.1).
(c) Size of container. The materials should be purchased by volume, the unit being a US gallon (231 cubic inches at 15.5° C (60° F). Material should be procured as kits in gallon units in ratio of two pigmented to one clear material, or three pigmented to two clear materials.
(d) Levels of packaging and packing required (see section 5).

6.3 Air Force-Navy Aircraft color standards.- Air Force-Navy Aircraft color standards may be obtained upon application to the Director, Aeronautical Materials Laboratory, Naval Air Material Center, Philadelphia 12, Pennsylvania. Visual matching cannot be relied on for fluorescent colors. These should be checked by spectrophotometric methods for conformance with specification requirements.

6.4 Manufacture.- In the manufacture of this paint, the grinding equipment should be absolutely clean since contamination detracts significantly from the fluorescence. Coatings ground in a roller mill appear to be superior in spray-out appearance to the same products ground in a pebble mill. If a roller mill is employed, it is suggested that the solid acrylic resin first be dissolved in a suitable solvent which has a low evaporation rate (to minimize evaporation loss in the mill) and a high Kauri-Butanol (K.B.) value (over 90).

6.5 Provisions for qualification.- With respect to products requiring qualification, awards will be made only for such products as have, prior to the time set for opening of bids, been tested and approved for inclusion in the applicable Qualified Products List whether or not such products have actually been so listed by that date. The attention of suppliers is called to this requirement, and manufacturers are urged to arrange to have the products that they propose to offer to the Federal Government tested for qualification in order that they may be eligible to be awarded contracts or orders for the products covered by this specification. The activity responsible for the Qualified Products List is the Chief, Bureau of Naval Weapons, Department of the Navy, Washington 25, D. C.; however, information pertaining to qualification of products may be obtained from the Director, Aeronautical Materials Laboratory, Naval Air Material Center, Philadelphia 12, Pennsylvania.

Custodians:
Navy - Wep
Air Force - AFSC

Preparing activity:
Navy - Wep