

ARCHIVES COPY

1-GP-90P
CANCELLATION
22 November 1957

CANADIAN GOVERNMENT SPECIFICATIONS BOARD

Specification
for

PAINT; MARINE, NON-SKID, FOR DECKS

CGSB Specification 1-GP-90P, dated 1 December 1953 is cancelled
as of 22 November 1957.

CANADIAN GOVERNMENT SPECIFICATIONS BOARD

Provisional Specification*
for

PAINT; MARINE, NON-SKID, FOR DECKS

1. DEFINITION

This specification applies to a paint suitable for application to primed metal or wood floors, particularly decks on ships for the purpose of increasing friction underfoot.

2. GENERAL

(a) The paint shall consist of suitable pigments and grit dispersed in water resistant vehicle.

(b) On drying, the paint shall produce a hard tough film with a dull finish.

(c) The paint shall not thicken nor skin in the unopened container. The pigment shall not settle or cake unduly. The paint shall be readily stirred to a uniform condition.

(d) It shall be applicable by brushing or a reduction by spraying.

(e) The paint shall be free of toxic or noxious fumes.

(f) Reference to other CGSB Specifications in this specification shall be the latest issues in effect.

3. FLASH POINT

The Pensky-Martens flash point shall not be less than 26.7°C. (80°F.).

Method 3.1

4. CONSISTENCY

The paint shall have a consistency of not less than 65 and not more than 95 Krebs units.

Method 4.5

5. DRYING TIME

The paint shall dry hard in not more than 24 hours.

Method 5.3

*This provisional specification has been issued for the interim procurement use of the Naval Service. It has not been formally approved by the Committee on Specifications for Paints, Pigments and Related Commodities or by the Canadian Government Specifications Board.

6. COLOR

The following colors appearing in Schedule No. 1-GP-12 are applicable to material purchased to this specification: Grey 1-206, Blue 2-206, Brown 4-201, Red 9-202.

7. BENZENE AND CHLORINATED SOLVENTS

Benzene and chlorinated solvents shall be absent.

Method 65.1
and method attached

8. RESISTANCE TO ABRASION

When tested in accordance with the prescribed method the loss in thickness of the paint film shall not exceed 0.005".

Method attached

9. RESISTANCE TO GASOLINE

The paint shall show no softening, swelling, blistering, discoloration, or loss of adhesion when immersed in gasoline for a period of 24 hours at $25 \pm 2^\circ\text{C}$.

Method attached

10. RESISTANCE TO LUBRICATING OIL

The paint shall show no softening, swelling, blistering, discoloration, or loss of adhesion when immersed in lubricating oil for a period of 24 hours at $25 \pm 2^\circ\text{C}$.

Method attached

11. CORROSION RESISTANCE

The paint film shall withstand immersion in a 4 per cent solution of sodium chloride for 30 days at $25 \pm 2^\circ\text{C}$. without showing signs of corrosion, softening, blistering, swelling or loss of adhesion.

Method attached

12. FIRE RESISTANCE

When tested in accordance with the prescribed method, the paint shall not blister or peel and shall not burn or char outside the area actually in contact with the applied flame and shall have no afterglow.

Method attached

13. ACCELERATED WEATHERING

The dried paint film shall withstand an exposure period of fifteen twenty-four hour cycles in an accelerated weathering machine without chalking, checking, cracking, flaking and no more than a slight change in color.

Method 122.1

14. RESISTANCE TO SOAP

The paint shall show no streaking and no more than slight staining or change in color after an immersion for 24 hours in a 0.5 per cent soap solution at $25 \pm 2^\circ\text{C}$.

Method attached

15. RESISTANCE TO IMPACT

The paint film shall withstand the impact of a 750 gm. steel ball dropped from a height of 8 feet without cracking, chipping, flaking, peeling or loosening.

Method attached

16. NON-SKID PROPERTIES

When tested in accordance with the prescribed procedure the paint shall show coefficients of friction, not less than the following:

	<u>Condition of Paint Surface</u>		
	<u>Dry</u>	<u>Wet</u>	<u>Oily</u>
1. <u>Static Friction</u>			
(a) Leather	0.60	0.90	-
(b) Rubber	0.70	0.70	0.35
2. <u>Sliding Friction</u>			
(a) Leather	0.40	0.60	-
(b) Rubber	0.70	0.70	0.30

Method attached

17. METHODS OF SAMPLING AND TESTING

(a) Sampling shall be carried out in accordance with Section 1.1 of Schedule No. 1-GP-71: Methods of Testing Paints and Pigments.

(b) The methods of testing shall in all cases be those specified in the same Schedule (or appended hereto) using the sections specified in each requirement.

Correspondence regarding this specification should be addressed to the Secretary, Canadian Government Specifications Board, National Research Council, Ottawa, Canada.

TEST METHODS

RESISTANCE TO ABRASION - A coat of the deck covering shall be applied by brushing to one surface of a clean steel plate (Section 100.1) $5\frac{1}{2}$ inches by $2\frac{3}{4}$ inches and approximately 0.03 inches thick. It is allowed to remain in a horizontal position for 24 hours, after which time a second coat shall be applied and the panel allowed to dry for 96 hours. The thickness of the plate and deck covering shall be measured at 10 representative places over the area to be abraded and these places shall include all the thicker portions. The abrasion machine used shall be a Graselli abrader and the abrasion paper a 6.6-inch diam. disc of Garalum 2/0 - 100. (The abrader and paper can be obtained from Henry L. Scott Co., Providence R.I.) One end of the coated plate shall be held flat against the abrasion paper so that a surface of 3 sq. in. is abraded. This area is obtained by abrading the full width of $2\frac{3}{4}$ inches of the test panel to a maximum height of $1\frac{3}{8}$ inches. The abrasive effect produced by the extreme edge of the sandpaper is neglected. The plate is held in contact with the abrasion paper under a weight of 1 pound. The test shall be run for 200 revolutions of the abrasion wheel (37 r.p.m.) and at the end of this time the thickness shall be measured as before. The difference between the initial and final thickness shall be the abrasion loss in inches.

RESISTANCE TO GASOLINE - One coat of material is applied to each of two metal panels (Section 100.1) to give a dry film thickness 35 ± 5 microns and the film is allowed to dry 24 hours (Section 103.1). A second coat of the material is applied at the same thickness and the panels are allowed to dry for 96 hours (Section 103.1) before testing. Thereafter they are immersed in gasoline conforming to specification 3-GP-25 so that approximately half the length of the panel is submerged in the liquid and allowed to remain so for the specified time at the specified temperature. Upon removal after the conclusion of the immersion period, the surface is gently wiped clean with absorbent paper and examined for defects.

RESISTANCE TO LUBRICATING OIL - One coat of material is applied to each of two metal panels (Section 100.1) to give a dry film thickness 35 ± 5 microns and the film is allowed to dry 24 hours (Section 103.1). A second coat of the material is applied at the same thickness and the panels are allowed to dry for 96 hours (Section 103.1) before testing. Thereafter they are immersed in lubricating oil conforming to specification 3-GP-42 so that approximately half the length of the panel is submerged in the liquid and allowed to remain so for the specified time at the specified temperature. Upon removal after the conclusion of the immersion period, the surface is cleaned and examined for defects.

CORROSION RESISTANCE - Two steel panels (Section 100.1) are coated on one side with priming paint (1-GP-48) to give a thickness of 35 ± 5 microns and allowed to dry 24 hours (Section 103.1). Following this, one coat of material is applied to give a dry film thickness 35 ± 5 microns and the film is allowed to dry 24 hours (Section 103.1). A second coat of the material is applied at the same thickness and the panels are allowed to dry for 96 hours (Section 103.1). Before testing, the edges are protected by paraffin wax. Thereafter they are immersed in a 4 per cent solution of sodium chloride (C.P. grade) for a specified period at the specified temperature. During this exposure a continuous fine stream of air is bubbled through the solution. At the conclusion of this exposure, the panels are removed, washed, dried for two hours and examined for defects.

FIRE RESISTANCE - Two sheets of steel 6 inches by 7 inches are given a 35 ± 5 micron coat of the deck covering as prepared ready for use, and allowed to dry for 10 days (Section 103.1) at room temperature. The fire retardant properties are then determined by the procedure specified in Method 118.2

RESISTANCE TO SOAP - One coat of material is applied to each of two metal panels (Section 100.1) to give a dry film thickness 35 ± 5 microns and the film is allowed to dry 24 hours (Section 103.1). A second coat of the material is applied at the same thickness and the panels are allowed to dry for 96 hours (Section 103.1). Panels are immersed in a water solution of soap (2-GP-18) of specified concentration containing 0.1 per cent carbon black. The immersion shall be for the time and at the temperature specified. After this they are rinsed for one minute with warm water, dried and examined for discoloration, and other defects.

RESISTANCE TO IMPACT - A steel panel (Section 100.1) approximately $12" \times 12" \times 1/8"$ shall be given a coat of priming paint (1-GP-48) to give a dry film thickness 35 ± 5 microns and allowed to dry (Section 103.1) for 24 hours. Thereafter one coat of the material under test is applied to a dry film thickness of 35 ± 5 microns and allowed to dry for 24 hours (Section 103.1). A second coat of the material is then applied to the same thickness and the complete system allowed to dry an additional 96 hours (Section 103.1). The panel is placed with the unpainted side up so that the middle six inch portion is unsupported. A steel ball of the specified weight, 750 grams is allowed to drop freely from the specified height onto the unsupported section of the panel. This impact shall be repeated in three or four locations on the unsupported area and then examined for any defects arising from this treatment.

NON-SKID PROPERTIES - A steel plate approximately 12 inches by 12 inches and 1/8 inch thick shall be given one brush coat of primer (Specification CGSB 1-GP-48) and allowed to dry 24 hours. This surface shall then be given an even coat of the deck covering at 400 square feet per gallon. The coefficient of friction of the deck covering shall be determined against leather and rubber reference surfaces. The leather shall be oak-tanned sole leather which has been sanded smooth with grade 0 garnet paper. The rubber shall be a vulcanized soling compound with a hardness range of 60-80 on the Shore durometer, Type A. The rubber surface shall have been sanded smooth with grade 0 garnet paper. The leather (or rubber) shall be 3 by 3 inches and shall have a loading of 2 lbs. per sq. inch, uniformly applied on it. The leather (or rubber) shall be attached to a variable weight acting in a vertical direction by means of a cord acting over a freely rotating pulley. The sliding friction shall be the vertical weight necessary to keep the reference surface moving at a uniform velocity over the deck covering, after starting the motion with a slight tap, divided by the total weight of the loaded reference surface. The static friction shall be the vertical weight necessary to cause the first movement of the reference surface over the deck covering divided by the total weight of the loaded reference surface. The sliding and static friction shall be obtained with the contact surfaces (1) dry, (2) wet with a 3.5 per cent by weight, solution of sodium chloride in distilled water, and (3) wet with a lubricating oil to CGSB Specification 3-GP-380.

CHLORINATED SOLVENTS - Steam distill 100 ml. of the material using a receiver cooled in ice. Separate the lowest layer and dry. Determine the specific gravity of the liquid and make a qualitative test for chlorine. Chlorinated compounds are indicated by a high specific gravity in the order of 1.2 and by the presence of chlorine in the qualitative analysis.