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1-GP-96P
CANCELLATION
10 November 1955

CANADIAN GOVERNMENT SPECIFICATIONS BOARD

Specification
for

PAINT; UNDERWATER, ANTI-FOULING,
FOR STEEL BOTTOM HULLS

CGSB Specification 1-GP-96P, dated 31 December 1951 is cancelled
as of 10 November 1955.

1-GP-96P

31 December 1951

AMENDMENT NO. 1

4 June 1952

CANADIAN GOVERNMENT SPECIFICATIONS BOARD

Provisional Specification
for

PAINT; ANTI-FOULING, FOR STEEL SHAFTS, "A" BRACKETS
AND RUDDERS

Change title to read: PAINT; UNDER WATER, ANTI-
FOULING FOR STEEL BOTTOM HULLS.

Clause 1, Definition 4th line: delete; "'A'
Brackets, Propeller Shafts, Rudders and other such
areas" and add "steel hulls", now to read "for
the protection of steel hulls subjected to--etc."

31 December 1951

1-GP-96P*

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CANADIAN GOVERNMENT SPECIFICATIONS BOARD

*Provisional Specification
for

PAINT; ANTI-FOULING, FOR STEEL SHAFTS, "A" BRACKETS AND RUDDERS**

1. Definition

This specification applies to Anti-Fouling paint suitable for use over primer Specification 1-GP-95P. When the two materials are applied, the system shall be suitable for the protection of "A" Brackets, Propeller Shafts, Rudders and other such areas subjected to continuous immersion in aerated salt water.

2. General

(a) The paint shall consist of a pigment or pigment mixture and an anti-fouling chemical adequately milled with a suitable vehicle modified with chlorinated rubber meeting the requirements of this specification.

(b) The paint shall be supplied for use either by spraying or brushing application as specified by the purchaser or alternatively, as a paint base with suitable amount and type of reducer. In such case, there shall be a clear statement on the label of each container regarding the proportions by volume of the components to be used.

(c) The paint as supplied must be in such condition that stirring easily produces a uniform paint of good spraying or brushing consistency as required.***

* This provisional specification has been issued for the immediate procurement needs of the Naval Service. It has not been formally approved by the Committee on Specifications for Paints, Pigments and Related Commodities nor the Canadian Government Specifications Board.

** For detailed information on the proper methods of application of marine paints see 1-GP-62, Manual of Instructions for the Pretreatment and Painting of H.M.C. Ships (Formerly designated NCC 109).

*** The requirements of this specification apply to the paint as received.

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(d) The paint when dry, shall have a smooth finish, free from wrinkling or sagging, when applied over itself or over primer to Specification 1-GP-95P.

(e) References to other CGSB specifications in this specification shall be the issue in effect on the date of invitation for bids.

3. Flash Point

The Pensky-Martens flash point of the paint shall be not lower than 10°C (50°F).

Method 3.1

4. Consistency

The consistency of the paint as received shall be not more than 80 Krebs Units as determined by the Stormer Viscosimeter.

Method 4.5

5. Drying Time

The paint shall dry in not more than 2 hours.

Method 5.1

6. Color

The paint shall be supplied in two colors to distinguish between first and second coating applications where applicable as follows:

Color A - First coat; any light color produced by the manufacturer's formulation shall be acceptable provided it is sufficiently lighter than Color B to be definitely distinguishable.

Color B - Second coat; any dark color produced by the manufacturer's formulation shall be acceptable provided it is sufficiently darker than Color A to be definitely distinguishable.

7. Hiding Power

The paint shall hide a contrasting surface entirely when applied at a coverage of 400 square feet per gallon.

Method 14.1

8. Coarse Particles

The paint shall not contain more than 0.2 per cent by weight of material retained on a 74 micron sieve, nor more than 2.0 per cent retained on a 44 micron sieve.

Method 15.1

9. Fineness

The fineness shall be not less than 5 when measured by the specified gauge.

Method 16.1

10. Non-volatile Content

The non-volatile content of the paint as received shall not be less than 70 per cent by weight.

Method 18.2

11. Non-volatile Vehicle

The non-volatile vehicle shall comprise not less than 25 per cent by weight of the non-volatile content of the paint.

Method 19.1

12. Resistance to Lifting

One coat of the paint applied to a non-absorbent surface primed not less than 2 hours previously with two coats of primer to specification 1-GP-95P shall cause no lifting or appreciable softening of the primer coats. A second coat of the paint applied after allowing the above panel to dry 8 hours shall cause no lifting or appreciable softening of the previously applied paint coat. After 24 hours there shall be no appreciable difference in the adhesion of the films produced by the 1 and 2 coat applications of the paint.

Method attached

13. Chlorinated Rubber Content

The chlorinated rubber content of the non-volatile vehicle shall not be less than 10 per cent nor more than 12 per cent by weight.

Method attached

14. Hardness

When applied over primer to 1-GP-82P the dried paint film shall withstand the scratch test under a load of 2000 grams, without exposing metal through the scratch in the film.

Method attached

15. Flexibility

When applied over primer to 1-GP-96P the dried paint film shall not crack, flake or peel when subjected to the bending test using a 1/4" diameter mandrel. Two hours drying shall be permitted between the two coats of primer and two hours drying between the two top coats.

Method attached

16. Impact Resistance

The dry paint film when subjected to the impact test using a 1 pound steel ball shall not crack, flake, peel, or show bare metal at the point of impact or the surrounding area.

Method attached

17. Keeping Qualities*

The material as received, and for six months thereafter, shall not be caked in the containers, and shall be readily stirred to a homogeneous condition.

18. Anti-Fouling and Long Term Performance

The anti-fouling paint shall contain chemicals as may be required to enable the primer and paint system to withstand the Anti-Fouling and Long Term Performance test for 2 years without showing grass, barnacle or other marine growth or rust in excess of No. 9-1 ASTM rust standard. The Anti-Fouling and Long Term Performance Test shall be carried out at the marine immersion sites at the Pacific Naval Laboratory, Esquimalt and the Naval Research Establishment, Halifax.

19. Qualification

(a) The Anti-Fouling paint shall be considered satisfactory and given complete approval only after it has successfully complied with all of the requirements of this specification.

(b) The Anti-Fouling paint shall become eligible for Interim Approval if it conforms to all of the requirements of this specification except for the Anti-Fouling and Long Term Performance Test. Failure to meet the Performance

* This is not an inspection requirement.

tests will disqualify the Manufacturer. Information regarding the procedure for qualification of paints under the specification may be obtained from the Secretary, Canadian Government Specifications Board, National Research Council, Ottawa, Canada.

(c) The purchaser reserves the right to reject any bids on materials to this specification which have not been subjected to the required qualification tests and found satisfactory.

(d) A previously qualified or disqualified product in which any change has been made must be requalified as a new product.

(e) Failure to meet the Long Term Performance requirement of this specification will result in cancellation of Interim Approval until the Long Term Performance Test has been passed.

20. Method of Sampling and Testing

(a) The method of sampling shall be done in accordance with Section 1.1 of Schedule 1-GP-71, "Methods of Testing Paints and Pigments."

(b) The methods of testing shall, in all cases, be those described in the same schedule (or attached hereto), using the method specified in each requirement.

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

TEST METHODSRESISTANCE TO LIFTING

A panel of SAE 1010 mild cold rolled steel of any convenient thickness properly cleaned and free from oil and grease is brushed with paint or primer as specified, so as to yield a dry film thickness of 40 to 50 microns. After allowing the film to dry the specified length of time, a second coat is applied to half of the panel by spray application so as to yield a second dry film thickness of 30 to 40 microns over half of the panel. After allowing the two coats of primer to dry for the specified length of time, a first Anti-Fouling paint coat is applied by spraying so as to yield a dry film thickness of approximately 30 microns. The panel is immediately examined for wrinkling, crawling or other such indications that the primer coats have been materially disturbed. After allowing the first Anti-Fouling paint coat to dry for the specified length of time a second Anti-Fouling paint coat is applied by spraying so as to yield a dry film thickness of approximately 30 microns. The panel is immediately examined for wrinkling, crawling or other such indications that the previously applied Anti-Fouling coat has been materially disturbed. The panel is again examined after 24 hours.

METHOD FOR DETERMINING CHLORINATED RUBBER CONTENT

Weigh a 10 gram sample of the paint into a centrifuge jar and after adding 50 ml. of benzene with thorough stirring, centrifuge for 30 minutes at 4000 RPM. Decant and pour the supernatant liquid into a weighed beaker containing 150 ml. of mineral spirits. Evaporate off the benzene on steam bath and decant off the mineral spirits. Evaporate the remaining liquids to dryness and weigh the precipitate as chlorinated rubber.

Calculate per cent chlorinated rubber in the non-volatile vehicle by the following equation:

$$\text{per cent Chlorinated Rubber} = \frac{\text{Weight Precipitate} \times 100}{\text{Weight Sample} \times \text{per cent non-volatile content.}}$$

HARDNESS

A steel panel of SAE-1010 mild cold rolled steel of approximately 2 inches by 5 inches is primed with the specified primer to give a dry film thickness of 30 to 40 microns and is allowed to dry 48 hours (Section 103.1). It is then painted with paint under test so as to yield a dry film 30 microns thick. It is allowed to dry

(Section 103.1) in a horizontal position for 96 hours unless otherwise specified. The scratch test is then carried out using the apparatus illustrated on page 116-3 (Schedule No. 1-GP-71).

The steel needle and the procedure used in performing the test shall be as described in the second paragraph of Section 116.2.

FLEXIBILITY

A panel of SAE 1010 mild cold rolled steel of 28 gauge thickness, properly cleaned and free from oil and grease is painted with two coats of specified primer so as to yield a dry film thickness of 30 to 40 microns, allowing the specified drying time between coats. After allowing the prepared film to dry (Section 103.1) for 24 hours two coats of the material being tested is applied to yield a second dry film thickness of 30 to 40 microns. The specified length of drying shall be allowed between coats and the system allowed to dry 48 hours. The panel is then bent rapidly through 180° over the specified mandrel, the coated surface being outermost. The actual time of bending shall not be more than 1 second.

IMPACT RESISTANCE

A panel of SAE 1010 mild cold rolled steel of 28 gauge thickness properly cleaned and free from grease and oil is primed 24 hours previously with two coats of the specified primer allowing 24 hours dry (Section 103.1) between coats. The primed panel is coated with two coats of the material to be tested and allowed to dry for 48 hours. The panel is allowed to dry (Section 103.1) between application of top coat films. It is then baked for 2 hours at 150°F and allowed to age an additional 48 hours. The panel with the coated side uppermost is then placed on a soft pine block at least 2 inches thick and a steel ball of specified weight is dropped from a height of 6 feet so as to strike the approximate middle of the panel. The results of the impact force shall be observed.