

20-GP-21
January 1959
CANCELLATION
January 1973

CANADIAN GOVERNMENT SPECIFICATIONS BOARD

Standard
for

ADHESIVE, LATEX TYPE

This standard is hereby cancelled because it has been superseded by 71-GP-3, Adhesive, Latex Type.

CANADIAN GOVERNMENT SPECIFICATIONS BOARD

SPECIFICATION

FOR

ADHESIVE, LATEX TYPE

20-GP-21

23 JANUARY 1959

SUPERSEDES 20-GP-21P

9 OCTOBER 1957

THIS SPECIFICATION APPLIES TO LATEX TYPE RUBBER ADHESIVE
INTENDED FOR USE IN BONDING FABRICS.

NATIONAL RESEARCH COUNCIL, OTTAWA, CANADA

Price

10 CENTS

COMMITTEE ON SPECIFICATIONS FOR RUBBER PRODUCTS AND COATED FABRICS

Subcommittee C
Mechanical Rubber Goods and Automotive Rubber Parts

(Membership at date of approval by the Committee
for submission to the CGSB)

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Specification
for

ADHESIVE, LATEX TYPE

1. DEFINITION

1.1 This specification applies to latex type rubber adhesive intended for use in bonding fabrics.

2. APPLICABLE PUBLICATIONS

2.1 The following publications of the date of issue in effect on the date of invitation to tender form part of this specification.

2.1.1 ASTM Method D-1076 - Concentrated, Ammonia Preserved, Creamed and Centrifuged, Natural Rubber Latex.

2.1.2 ASTM Method D-471 - Methods of Test for Changes in Properties of Rubber and Rubber Like Materials in Liquids.

2.1.3 ASTM Method D-413 - Methods of Test for Adhesion of Vulcanized Rubber (Friction Test).

2.1.4 ASTM Method D-412 - Method of Tension Testing of Vulcanized Rubber.

2.1.5 CGSB Specification 4-GP-2 - Duck, Cotton, Ounce; Plied Yarn (Unbleached, Bleached or Dyed).

3. GENERAL REQUIREMENTS

3.1 Consistency - The adhesive shall be of a consistency suitable for brush application at all temperatures between 40° and 100° F.

3.2 Compatibility - The adhesive shall not exert a deteriorating effect on fabrics to which it might be applied.

3.3 Workmanship - The adhesive as supplied shall be a homogeneous emulsion, compounded, prepared, and packaged in accordance with good commercial practice.

3.4 Stability - The compound shall not deteriorate and shall remain completely usable when held under usual storage conditions in unopened containers for at least six months.

4. DETAIL REQUIREMENTS

- 4.1 The latex adhesive shall have the following properties:
 - 4.1.1 pH - 9-12 (Section 6.2)
 - 4.1.2 Total solids - 58.5 ± 1.0 per cent (Section 6.3)
 - 4.1.3 Mechanical Stability - 10 minutes minimum (Section 6.4)
- 4.2 Slabs Cast from the Latex - Slabs cast from the liquid adhesive and cured as detailed in Section 6.5 shall have the following properties.
 - 4.2.1 Tensile Strength - 2300 psi minimum (Section 6.6)
 - 4.2.2 Elongation - 750 per cent minimum (Section 6.6)
- 4.3 Adhesion - The adhesion between plies of cotton duck prepared as detailed in Section 6.7 shall be as follows:
 - 4.3.1 Adhesion of dried specimens 15 psi minimum (Section 6.8).
 - 4.3.2 Adhesion of aged specimens 12 psi minimum (Section 6.9).
 - 4.3.3 Adhesion after water immersion 9 psi minimum (Section 6.10).
 - 4.3.4 Adhesion after gasoline immersion 8 psi minimum (Section 6.11).

5. PREPARATION FOR DELIVERY

- 5.1 Unless otherwise specified by the purchaser, standard commercial packaging shall be acceptable. (See Section 3.4 re storage life in unopened containers.)
- 5.2 Marking - Containers shall be clearly marked with at least the following:
 - Adhesive Latex Type
 - Manufacturer's Name
 - Specification 20-GP-21
 - Recommendations re storage such as "keep in a cool place" - "do not allow to freeze" as may be applicable.
 - Date (month and year) of manufacture

6. INSPECTION

- 6.1 Sampling - shall be at the discretion of the inspector. Two quarts of material are required for complete testing. It is preferable to take unopened or factory sealed containers but if these are drums or other large units their contents shall be thoroughly mixed by the procedure detailed in ASTM D1076 paragraph 5 before withdrawing the sample which should then be placed in a clean container and tightly covered.
- 6.2 Hydrogen Ion Concentration - (pH) ASTM D-1076, paragraph 15.

6.3 Total Solids - ASTM D-1076, paragraph 8.

6.4 Mechanical Stability - ASTM D-1076, paragraph 16, except that a Hamilton-Beach Model 22 stirrer with a single hexagonal impeller 7/8 inch in width may be used.

6.5 Preparation of Slabs - Pour latex slowly onto a flat level glass plate 4 x 6 inches with 0.1 inch raised edges until the plate is level full. It is advisable to start pouring at one end and work toward the other. Care shall be taken to exclude air bubbles, etc. Place in a vibration-free location protected from dirt at $73.4 \pm 2^\circ\text{F}$ ($23 \pm 1.1^\circ\text{C}$) and 50 ± 5 per cent R.H. for 24 hours. If the specimen has deep creases it shall be discarded and another made. Slight mottling or creasing shall not be cause for rejection. Strip the slab from the plate and condition one hour at room temperature, then age it in a circulating air oven at $212 \pm 3.6^\circ\text{F}$ for 24 hours. Condition the slab 10 - 24 hours at $73.4 \pm 2^\circ\text{F}$ ($23 \pm 1.1^\circ\text{C}$) and 50 ± 5 per cent R.H.

6.6 Tensile Strength and Elongation - ASTM D-412 using specimens died with die C from the slabs prepared in Section 6.5.

6.7 Preparation of Specimens for Adhesion Test - Dry 10-ounce cotton duck conforming to CGSB Specification 4-GP-42, 1 hour at $212 \pm 3.6^\circ\text{F}$ ($100 \pm 2.0^\circ\text{C}$) in an air oven, cool to room temperature, cut two 10 x 10 inch pieces. Coat evenly one side of each by brush with 9.0 ± 0.1 gm of the latex. Place the coated surfaces together, smooth with gentle hand pressure and roll with a freely rotating 2-pound roller and no hand pressure to remove entrapped air and bond the strips. Allow to dry 24 hours at $73.4 \pm 2^\circ\text{F}$ ($23 \pm 1.1^\circ\text{C}$).

From the middle of the bonded pair cut eight 1 x 10 inch strips.

6.8 Adhesion - Separate the plies of one end of each of the strips prepared as in Section 6.7 and determine the strip adhesion in accordance with ASTM D413 paragraphs 6 and 7.

6.9 Aging - Suspend two of the strips prepared as outlined in Section 6.7 in an air oven at $212 \pm 3.6^\circ\text{F}$ ($100 \pm 2^\circ\text{C}$) for 24 hours, cool at $73.4 \pm 2^\circ\text{F}$ ($23 \pm 1.1^\circ\text{C}$) and 50 ± 5 per cent R.H. for 24 hours and test in accordance with Section 6.8.

6.10 Water Immersion - Place two of the strips prepared as outlined in Section 6.7 in distilled water at $73.4 \pm 2^\circ\text{F}$ ($23 \pm 1.1^\circ\text{C}$) for 24 hours, remove, blot dry, condition 24 hours at $73.4 \pm 2^\circ\text{F}$ ($23 \pm 1.1^\circ\text{C}$) and 50 ± 5 per cent R.H. and test in accordance with Section 6.8.

6.11 Gasoline Immersion - Place two of the strips prepared as outlined in Section 6.7 in ASTM Reference Fuel Type B (ASTM D471 Table II) for 24 hours at $73.4 \pm 2^\circ\text{F}$ ($23 \pm 1.1^\circ\text{C}$) remove, blot dry, condition 24 hours at $73.4 \pm 2^\circ\text{F}$ ($23 \pm 1.1^\circ\text{C}$) and 50 ± 5 per cent R.H. and test in accordance with Section 6.8.

7. NOTES

7.1 Intended Uses - Adhesives covered by this specification are specifically intended for the repair of tents, tarpaulins and other preservative-treated canvas goods.

Correspondence regarding this specification should be addressed to the Secretary, Canadian Government Specifications Board, National Research Council, Ottawa 2, Canada.