

13-GP-1b
7 April 1961
CANCELLATION
September 1969

CANADIAN GOVERNMENT SPECIFICATION BOARD

Standard
for

HOSE: FORESTRY, UNLINED

This standard is hereby cancelled because this material is covered by CSA Standard B89.5-1968, Unlined Forestry Hose, available from the Canadian Standards Association, 77 Spencer Street, Ottawa 3, Canada.

CANADIAN GOVERNMENT SPECIFICATIONS BOARD

Specification
for

HOSE; FORESTRY, UNLINED

4. DETAIL REQUIREMENTS

4.9 pH of Yarn - Delete

5. PREPARATION FOR DELIVERY

5.1 Marking - Delete and replace by:

Marking - Both ends of each length shall be permanently marked in letters at least 3/4 inch high, starting 2 to 4 feet from each end, with the following:

Specification number

Year of manufacture

The word FORESTRY

Name of prime manufacturer and/or vendor

6. INSPECTION

6.5 pH of Yarn - Delete



NADA

CANADIAN GOVERNMENT SPECIFICATIONS BOARD

SPECIFICATION

FOR

HOSE; FORESTRY, UNLINED

13-GP-1b

7 APRIL 1961

SUPERSEDES 13 - GP - 1A

9 MAY 1958

ARCHIVES COPY

THIS SPECIFICATION APPLIES TO WOVEN UNLINED HOSE OF THE SIZE KNOWN
COMMERCIALY AS 1 - ½ INCH, SUITABLE FOR USE IN FIGHTING FOREST FIRES.

NATIONAL RESEARCH COUNCIL, OTTAWA, CANADA

Price

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CANADIAN GOVERNMENT SPECIFICATIONS BOARD

Specification
for

HOSE; FORESTRY, UNLINED

1. DEFINITION

1.1 This specification applies to woven unlined hose of the size known commercially as 1-1/2 inch, suitable for use in fighting forest fires.

2. APPLICABLE PUBLICATIONS

2.1 The following publications are applicable to this specification:

2.1.1 CGSB 4-GP-2, Canadian Standard Textile Test Methods.

2.1.2 CSA B89-1954, 1-1/2 inch Fire Hose Couplings, Screw-Thread and Tail Piece Internal Diameters.

2.2 Reference to the above publications is to the issues in effect on the date of invitation to tender, unless otherwise specified.

3. GENERAL REQUIREMENTS

3.1 Material and Workmanship - The hose shall be woven from first quality yarns suitable for the purpose, which shall be practically free from knots, shives and other imperfections. The fabric shall be of uniformly even and firm texture and shall be free from all defects that might affect its serviceability. The interior of the hose shall be as smooth as good manufacturing practice will permit. Yarns made from man-made fibers in semidelustered or delustered form are considered unsatisfactory. The vendor shall on request make available to the purchaser and testing agency information on the fibers used.

3.2 Construction - The fabric shall be seamless; the warp yarns shall lie in a direction parallel to the length of the hose and shall cover the weft yarns sufficiently to protect them from abrasion.

4. DETAIL REQUIREMENTS

4.1 Weight - The hose shall have a weight, when dried to constant weight at 100-105 °C, of not more than 14 pounds per 100 feet, exclusive of fittings.

4.2 Diameter - The internal diameter of the hose as received shall be not less than 1-17/32 inches. The outside diameter of the hose shall be such that the hose can be coupled to a standard coupling, as specified in CSA Standard B89-1954, having a lip and bowl diameter of 1-11/16 inches, using regular equipment and expansion rings 1.500 ± 0.003 inches in outside diameter.

4.3 Length - Hose as delivered shall be in 100-foot lengths between coupling shoulders unless otherwise specified by the purchaser.

Par. 6.3

4.4 Shrinkage and Elongation - When the internal pressure is increased from 0 to 10 psi, the hose shall not shrink by more than 5 per cent of the length at 0 psi. When the internal pressure is increased from 10 to 300 psi, the hose shall not increase in length by more than 10 per cent of the length at 10 psi.

Par. 6.4

4.5 Twist - The twist, if any, of the hose shall be in a direction that would tend to tighten couplings with a standard thread.

Par. 6.4

4.6 Leakage

4.6.1 The hose shall lose not more than 0.12 Imperial fluid ounces (3.4 milliliters) of water per foot of length per minute when tested at a hydrostatic pressure of 100 pounds per square inch.

Par. 6.4

4.6.2 The hose shall lose not more than 0.50 Imperial fluid ounces (14.2 milliliters) per foot of length per minute when tested at a hydrostatic pressure of 200 pounds per square inch.

Par. 6.4

4.7 Pressure Test - After being tested for leakage (see 4.6), the hose shall not show any yarn breaks, or leakage in excess of 5.0 Imperial fluid ounces (142 milliliters) per foot of length per minute under a static water pressure of 600 pounds per square inch.

Par. 6.4

4.8 Couplings - The couplings shall remain attached and there shall be no gross leakage between the hose and the couplings at a pressure of 600 psi.

Par. 6.4

4.9 pH of Yarn - The water extract of yarn taken from the sample of the hose as received shall show a pH of 7.0 ± 1.0 .

Par. 6.5

4.10 Resistance to Micro-organisms

4.10.1 The hose shall be made resistant to micro-organisms either by the use of an inherently resistant fiber or by the application of a suitable fungicide (see 7.3). In the latter case the treatment shall not adversely affect the flexibility, durability or serviceability of the hose.

4.10.2 After leaching and soil burial as described in par. 6.6, the hose shall not burst at a pressure of 600 psi or less.

4.11 Heat Resistance - After being subjected to the leakage and pressure tests (see 4.6 and 4.7), there shall be no yarn breaks when the hose is subjected to the heat resistance test.

Par. 6.7

5. PREPARATION FOR DELIVERY

5.1 Marking - Each length of hose shall be permanently marked with the specification number 13-GP-1b; the manufacturer's name, trade mark or other identification; the year of manufacture; and the word "Forestry" -- in letters and figures at least 3/4 inch high. Lettering shall start approximately two feet from one end.

6. INSPECTION

6.1 Specimens Required for Testing

6.4.1 For each sample at least five specimens, 10 feet 9 ± 3 inches in length, four of which shall be complete with couplings, shall be supplied. The length of the latter shall be measured between couplings.

6.2 Diameter

6.2.1 Apparatus - Diameter shall be measured using a tapered plug gauge of metal or wood having a taper of 3/8 inch per foot, marked to indicate variations of 1/64 inch in diameter.

6.2.2 Method - Cut off and discard at least six inches from a specimen other than one of the four with couplings. Insert the tapered plug gauge in the freshly cut end until a close fit is obtained without forcing. The diameter of the gauge at the end of the sample shall be recorded as the actual internal diameter of the hose.

6.2.3 Report - At least two ends, each from a separate cut, shall be measured and the average internal diameter reported.

6.3 Length - The length of hose shall be measured on a smooth level surface, with kinks, folds and bends removed from the hose but with no tension applied.

6.4 Elongation, Twist, Leakage and Pressure Tests - These tests shall be made on two specimens of hose as supplied and on two other specimens that have been subjected to leaching and soil burial (see 6.6), in accordance with the following schedule, pressure being increased at 100 psi per minute:

<u>Time</u> (minutes)	<u>Procedure</u>
-	Measure length dry.
0	Fill hose with water, hold at 10 psi, measure length.
1	Raise pressure to 100 psi and hold.
17½	Start to collect leakage.
27½	Stop collecting leakage. Measure length and twist.
28	Raise pressure to 200 psi and hold.
29½	Start collecting leakage.
39½	Stop collecting leakage; measure length.

<u>Time</u> (minutes)	<u>Procedure</u>
40	Raise pressure to 300 psi and hold.
41	Measure length and twist.
42	Raise pressure to 600 psi and hold.
45½	Start collecting leakage.
55½	Stop collecting leakage; measure length and twist.
56	Raise pressure to failure.

The leakage for any specimen is the total water collected divided by the product of the length of catch trough in feet and the time in minutes. The catch trough shall be not less than 10 feet in length. None of the specimens shall fail to comply with the requirements in par. 4.4, 4.5, 4.6, 4.7 and 4.8.

6.4.1 For each specimen tested report -

- (1) Shrinkage from 0 to 10 psi.
- (2) Elongation from 10 psi to 300 psi.
- (3) Twist, if any, and direction.
- (4) Leakage at 100 psi.
- (5) Leakage at 200 psi.
- (6) Leakage at 600 psi.
- (7) Pressure at burst or at which leakage exceeds pump capacity.
- (8) Whether yarn breaks, if any, are in the warp or weft yarns.
- (9) Leakage at couplings as "none," "slight," "appreciable" or "gross."

6.5 pH of Yarn - Approximately 5 grams of yarn unravelled from the hose shall be boiled for 1 hour with 100 ml. of distilled water with a pH of not less than 6.0 and not greater than 7.5. The water extract shall then be cooled to room temperature and made up to 100 ml. with distilled water, after which its pH value is determined by a glass electrode. Report the pH reading.

6.6 Leaching and Soil Burial - Place two 10-foot specimens of hose, as supplied with couplings attached, in a tank so that water at approximately 15 °C can be run both through and over them for 168 hours. Remove the two specimens and carry out the following procedure with each: Mix 1/2 pound of soil (as described in CGSB 4-GP-2, Method 28.3) with sufficient water to make a thin slurry; pour it into the hose and agitate the hose so that the slurry comes in contact with the interior. Bury two loops of the hose totalling 4 ± 0.5 feet for 14 days. Conditions of burial shall be in accordance with Method 28.3 of CGSB 4-GP-2. The hose shall then be tested by the procedure detailed in par. 6.4.

6.7 Heat Resistance - A block of steel 12 x 3 x 3 inches shall be heated to $400 \pm 5^\circ\text{C}$ throughout, and placed crossways on hose that has been subjected to the leakage and pressure tests only (par. 6.4) and is at a pressure of 50 ± 10 psi with a flow of 1 gallon per minute. After 2 minutes ± 10 seconds the block shall be removed, the flow stopped and the pressure raised, at a rate of 100 psi per minute, to 300 psi and held for 5 minutes. Hose from two separate lengths shall be tested. One or more yarn breaks shall fail the hose.

6.7.1 For each specimen tested report -

- (1) Appearance of the burned area.
- (2) Whether or not the hose withstands 300 psi for 5 minutes without yarn breaks as pass or fail.

7. NOTES

7.1 CGSB 4-GP-2 may be obtained from the CGSB Secretary.

7.2 B89-1954 may be obtained from the Canadian Standards Association, 235 Montreal Road, Ottawa 2, Ontario, Canada.

7.3 A suitable fungicide is solubilized copper 8-hydroxyquinolinolate applied in an amount sufficient to give not less than 0.075 per cent copper metal on the weight of the treated fabric.

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