



Royal Canadian Mounted Police
Gendarmerie royale du Canada

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Specification

Cloth, Fire Resistant, Softshell

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English.

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Français/French

RCMP VIEWING SAMPLE

A viewing sample, when available, will be supplied to the successful bidder.

This will be used for the guidance of the manufacturer in all factors not covered by this specification or referred to therein. Variation from the specification may appear in the sample in which case the specification shall govern.

It may be obtained from:

Royal Canadian Mounted Police
Uniform & Equipment Program
(440 Coventry Road, Warehouse Building)
1200 Vanier Parkway
Ottawa, Ontario
K1A 0R2

It will be sent “prepaid” and is to be returned “prepaid”.

The viewing sample shall be returned to the RCMP in the same condition as received by the manufacturer. Lost or damaged viewing samples shall be replaced by an identical item or the RCMP shall be reimbursed for the cost of an acceptable replacement.

SPECIFICATION

CLOTH, FIRE RESISTANT, SOFTSHELL

1. Definitions

- 1.1 This specification shall govern the manufacture and inspection of Cloth, Fire Resistant, Soft Shell. The specific item covered under this specification with stock number is as follows:
 - i. 9166-000 – Cloth, Fire Resistant, Softshell / Tissu ignifuge souple
 - ii. 9168-000 – Cloth, Fire Resistant, Softshell, Un-laminated / Tissu ignifuge souple non stratifié
- 1.2 This specification, colour sample, or other information issued in connection therewith, may only be used for specific enquiries, solicitations, or orders placed on behalf of the Royal Canadian Mounted Police.
- 1.3 This specification supersedes all previous specifications for RCMP Cloth, Fire Resistant, Softshell.
- 1.4 This specification has been translated into French from this original English language document.

2. Applicable Documents

- 2.1 The following publications are applicable to this specification and to the issues in effect on the date of the solicitation, unless otherwise specified.
- 2.2 American Association of Textile Chemists and Colorists
AATCC Evaluation Procedure 5-2011 Fabric Hand: Guidelines for the Subjective Evaluation of
AATCC Test Method 8-2013 Colorfastness to Crocking: Crockmeter Method
- 2.3 American Society for Testing and Materials
ASTM D3776/D3776M-09a (2013) Standard Test Methods for Mass per Unit Area (Weight) of Fabric
ASTM D4108-87 Standard Test Method for Thermal Protective Performance of Materials for Clothing by open Flame Method
ASTM D4966-12 (2016) Standard Test Method for Abrasion Resistance of Textile Fabrics (Martindale Abrasion Tester Method)

ASTM D6413/D6413M-15 Standard Test Method for Flame Resistance of Textiles
(Vertical Test)

2.4 Canadian General Standards Board

CAN/CGSB 4.2 No. 4.1 Textile Fabrics – Measurement of Width of Pieces

CAN/CGSB 4.2 No. 5.1-M90 (2013) Unit mass of fabrics

CAN/CGSB 4.2 No. 11.2-M89 (R2013) Bursting strength – Ball burst test

CAN/CGSB 4.2 No. 14-2005 Quantitative Analysis of Fibre Mixtures

CAN/CGSB 4.2 No. 18.3-97 (R2010) Textiles – Tests for Colourfastness – Part B02:
Colourfastness to Artificial Light: Xenon Arc Fading Lamp Test (ISO 105-
B02:1994, IDT)

CAN/CGSB 4.2 No. 19.1-2004 (R2013) Colourfastness to washing – Accelerated
test – Launder-Ometer

CAN/CGSB 4.2 No. 22-2004 (R2013) Colourfastness to rubbing (crocking)

CAN/CGSB 4.2 No. 26.2-94 (R2012) Textile fabrics – Determination of resistance
to surface wetting (spray test) (ISO 4920:1981, IDT)

CAN/CGSB 4.2 No. 26.5-M89 (2013) Water resistance – High pressure penetration
test

CAN/CGSB 4.2 No. 27.1-94 Flame Resistance – Vertical burning test

CAN/CGSB 4.2 No. 36-M89 (R2013) Air permeability

CAN/CGSB 4.2 No. 37-2002 (R2013) Fabric Thickness

CAN/CGSB 4.2 No. 49-99 (R2013) Resistance of materials to water vapour diffusion

CAN/CGSB 4.2 No. 58-2004 Dimensional Change in Domestic Laundering of
Textiles

CAN/CGSB 4.2 No. 155.20-2000 Workwear for Protection against Hydrocarbon
Flash Fire

CAN/CGSB 86.1-2003 Care Labeling of Textiles.

2.5 Federal Standard, Textile Test Methods

FED-STD-191A Method 5931 Determination of Electrostatic Decay of Fabrics

2.6 International Standards Organization

ISO 105-B02:1994 Textiles – Tests for colour fastness – Part B02: Colour fastness to
artificial light: Xenon arc fading lamp test

ISO 4920:2012 Textile fabrics – Determination of resistance to surface wetting (spray
test)

3. General Requirements

- 3.1 The article or material covered by this specification shall be free from material and manufacturing defects that may affect its appearance or serviceability. In all particulars not covered by this specification or contract documents, production shall be equivalent in all respects to the viewing sample.
- 3.2 The finished product shall meet all requirements and inspections covered by this specification. No departure from this specification shall be permitted unless authorized by the RCMP.
4. **Detail Requirements**
- 4.1 **Description** – The cloth shall be a membrane, laminated in a 3-layer format. All layers in the cloth shall be a blend containing fibres with inherent fire resistant properties meeting the performance criteria set out in Table I. The layers shall be joined together by a suitable lamination process: the outer shell, the membrane as the middle layer, and the fleece as the back layer. The cloth shall be treated with a durable water resistant finish. The outer shell material as per para. 4.1.1 shall be available in an un-laminated form. Any 3-layer composite fabric not meeting these requirements will be a cause for rejection. Any materials showing any form of delamination shall be cause for rejection.
- 4.1.1 **Outer Shell** – The face material shall be a fibre blend containing minimum 45% inherently fire resistant fibres. The remaining content shall consist of fibres treated with a fire retardant process and a maximum 5% other fibres. The outer shell material shall be green to match the colour sample.
- 4.1.2 **Membrane** – The middle layer shall consist of a fire resistant microporous water resistant moisture vapour permeable membrane.
- 4.1.3 **Fleece Backing** – The fleece shall have a fibre blend containing minimum 10% inherently fire resistant fibres, the remaining content shall consist of fibres treated with a fire retardant process. The fleece backing shall be black in colour or green to match the outer shell.
- 4.2 **Fabric Hand** - The hand will be evaluated by the Technical Authority through use of AATCC Evaluation Procedure 5-2011. Fabrics which are too stiff, papery, or boardy will be cause for rejection.

4.3 **Defects** - All defects (imperfections or blemishes) affecting appearance or serviceability, clearly visible when viewed under lighting conditions of day light 65, shall be strung (flagged) on one selvedge using colour fast strings. All defects shall be indicated on the inspection report and listed in the fault map as provided in Appendix A. Defects shall be separated into two categories; major and minor. Major defects include, but are not limited to, seams, splices, stop marks, mispicks or any defect such as dust patches larger than 0.20 of a metre and less than 0.50 of a metre. Minor defects include, but are not limited to, stains, contamination, dirty spots, knots/slubs broken warp or weft that are no greater than 0.20 metres in size. The number of defects shall not exceed 10 per 100 linear metres of cloth and shall be prorated (9 per 90 etc.) and no more than two shall be major defects. A 0.20 metre allowance for every minor defect shall be made and deducted from the gross piece yardage. A 0.50 metre allowance for every major defect shall be made and deducted from the gross piece yardage. Any defect over 0.50 of a metre shall be cut out.

4.3 **Outright Rejection** - If the following conditions are prevalent throughout, it shall be a cause for rejection of the full piece.

- i) mill creases/calendar marks
- ii) edge to edge shading
- iii) staining
- iv) tears, holes or marks beyond 12mm from the outer edges of the selvedge
- v) weak or tender fabric
- vi) more than 10 defects or 2 major defects per 100 linear metres

4.4 **Piece Marking** - Each piece shall have a ticket attached to the selvedge at one end. The ticket shall be made of heavy cardboard with a reinforced eyelet for attaching a cord or bar coded ticket. Another identical label shall be attached or stick to the outside of the wrapping. Both tickets shall be legibly printed with the following information:

- i) Cloth, Fire Resistant, Softshell
- ii) Contract Number
- ii) RCMP Stock Number 9166-000
- iv) Lot Number
- v) Piece Number
- vi) Colour
- vii) Gross Total (including allowance)
- viii) Net Total (excluding allowance)
- ix) Date of Manufacture
- x) Manufacturer's Identification

OR

- i) Cloth, Fire Resistant, Softshell, Un-laminated
- ii) Contract Number
- ii) RCMP Stock Number 9168-000
- iv) Lot Number
- v) Piece Number
- vi) Colour
- vii) Gross Total (including allowance)
- viii) Net Total (excluding allowance)
- xi) Date of Manufacture
- xii) Manufacturer's Identification

5. **Quality Assurance Provisions**

- 5.1 **Responsibility for Inspection** - Unless otherwise stipulated in the contract, it is the prime contractor's responsibility to satisfy the R.C.M.P., Uniform and Equipment Program that the material and services being supplied conform to this tender, contract and specification. This shall be accomplished by performing the tests specified in this specification. The contractor must use any independent, North American ISO 9001 certified and ISO 17025 "Textile" certified testing facilities.
- 5.2 The RCMP, Uniform and Equipment Program reserves the right to perform any inspection considered necessary to ensure the material and services conform to the specified requirements. Inspection may be done during manufacture and is subject to testing and approval by the RCMP Uniform and Equipment Program. Imperfections shall be assessed in accordance with current RCMP practice. If the cloth is found to be inferior to the viewing sample or not in accordance with this specification, the entire delivery may be rejected. The entire delivery may also be rejected if it is to be found that materials previously rejected due to non-repairable defects are re-delivered for inspection.
- 5.3 The contractor will be promptly notified when any articles are not accepted and such articles will be returned at the contractor's risk and expense.

TABLE I
Properties of Laminated Shell Material (with WMVP Membrane & Fleece Backing)

REQUIREMENT			TEST METHOD
1	Colour	Green Black or green backing	
2	Mass	540 g/m ² ± 25 g/m ²	<ul style="list-style-type: none"> • CAN/CGSB-4.2 No. 5.1-M90 (2013) <li style="text-align: center;">OR • ASTM D3776/D3776M-09a (2013)
3	Width	140 cm (min.)	<ul style="list-style-type: none"> • CAN/CGSB-4.2 No. 4.1-2008
4	Fabric Thickness	<u>No less than</u> 1.6 mm and <u>no more than</u> 2.0 mm	<ul style="list-style-type: none"> • CAN/CGSB-4.2 No. 37-2002 (R2013)
5	Colourfastness to Light- Xenon Arc Method	Equal to or better than L4 using Method 3	Face side shall be tested. <ul style="list-style-type: none"> • CAN/CGSB-4.2 No. 18.3-97 (R2010) <li style="text-align: center;">OR • ISO 105-B02:1994
6	Colourfastness to Crocking Wet & Dry	Dry: Grey Scale 4 or better Wet: Grey Scale 3 or better	Face side shall be tested. <ul style="list-style-type: none"> • CAN/CGSB-4.2 No. 22-2004 (R2013) <li style="text-align: center;">OR • AATCC 8-2013
7	Colourfastness to Washing	Colour change and staining on polyester and cotton: Grey Scale 4 or better	Face side shall be tested. <ul style="list-style-type: none"> • CAN/CGSB-4.2 No. 19.1-2004 (R2013) Test #2
8	Resistance of Materials to Water Vapour Diffusion	20 mm max. value for each: <ul style="list-style-type: none"> • Initial • After 5 launderings according to CAN/CGSB-4.2 No. 58-2004, III, E • After ageing (70°C & 95% RH for 168 hrs) according to ASTM F392-93 	Fleece side shall be tested facing water. <ul style="list-style-type: none"> • CAN/CGSB 4.2 No. 49-99 (R2013), Option 1
9	Water Resistance	<ul style="list-style-type: none"> • 500 kPa min. 	<ul style="list-style-type: none"> • CAN/CGSB-4.2 No. 26.5-M89 (2013)
10	Water Repellency	<ul style="list-style-type: none"> • Initial – 90 • After 5 launderings – <u>No less than</u> 70 	<ul style="list-style-type: none"> • CAN/CGSB 4.2 No. 26.2-94 (R2012) <li style="text-align: center;">OR • ISO 4920:2012
11	Burst Strength	Initial: <ul style="list-style-type: none"> • No less than 600 N 	<ul style="list-style-type: none"> • CAN/CGSB-4.2 No. 11.2-M89 (R2013)
12	Dimensional Change to Domestic Washing	After 3 cycles, <u>no more than</u> : <ul style="list-style-type: none"> • Warp – 5% • Weft – 5% 	<ul style="list-style-type: none"> • CAN/CGSB-4.2 No. 58-2004, III, E
13	Abrasion Resistance	After 4000 cycles, <u>no less than</u> : <ul style="list-style-type: none"> • Colour change – 3-4 • Appearance change – 3-4 	<ul style="list-style-type: none"> • ASTM D4966-12 (2016) Pressure – 9 kPa Abradant – worsted wool

14	Flame Resistance – Vertical Burning	<ul style="list-style-type: none"> • Damaged length – <u>no more</u> than 100 mm • After flame – <u>no more</u> than 2.0 seconds • Afterglow – <u>no more</u> than 2.0 seconds There shall be no melting or dripping.	<ul style="list-style-type: none"> • CAN/CGSB-4.2 No. 27.1-94 (R2011) OR <ul style="list-style-type: none"> • CAN/CGSB-155.20-2000 OR <ul style="list-style-type: none"> • ASTM D6413/D6413M-15
15	TPP with ¼” Spacer	18.0 cal/cm ² minimum	<ul style="list-style-type: none"> • CAN/CGSB 155.20-2000 OR <ul style="list-style-type: none"> • ASTM D4108-87
16	Static Decay	Average <u>no more</u> than 0.5 second No individual samples over 2.0 seconds	<ul style="list-style-type: none"> • FED-STD191 A Method 5931
17	Heat Resistance	No melting, separation, or ignition.	<ul style="list-style-type: none"> • CAN/CGSB-155.20-2000

APPENDIX A**INSPECTION REPORT/ RAPPORT D'INSPECTION**

Contract No.		Specification No. & Date	RCMP-GRC G.S. 1045-373, 2017-05-20
Date:		Inspector:	
Style:		Lot number:	
Colour:			

Piece #	Piece Length Gross Metres	Piece Length Net Metres	Total Defects	Knot/Slub < 7.5 cm (MINOR)	Broken Warp >7.5 cm, <15.2 cm (MINOR)	Broken Weft >7.5 cm, <15.2 cm (MINOR)	Defects > 15.2 cm, < 20 cm (MINOR)	Stop mark Mispick/ seams/splices (MAJOR)	Dyeing Defects			Others	Cuttable width	
									Spots/ Stains (MINOR)	Dust Patches > 20 cm, < 50 cm (MINOR)	Dust Patches > 20 cm, < 50 cm (MAJOR)			
Total				*List the quantity of defects per piece in the appropriate headings. If using "Other", specify type of defect and quantity.										
Additional comments:														

