

**CAN/CSA Z96-09 Specification for
High Visibility Safety Apparel,
Class 2 Level 2 Vest**

**CAN/CSA Z96-09
Class 2 Level 2**

Silver retroreflective trim sewn onto yellow-green background material with Fluorescent orange- red background



1. Vest Background Materials

- a. The background material must be a breathable style material that meets or exceeds the appropriate standard or manufacturer specifications as specified by CAN/CSA Z96-09. **PLEASE BE ADVISED THAT -Open style mesh vests will not be acceptable.**
- b. Vest shall be a hi-viz fluorescent orange-red per CAN/CSA Z96-09 including Section 5, Requirements for Background and Combined-Performance Retroreflective Materials. Note: (The retroreflective background material must be solid fabric.)
- c. Background material shall maintain colour and appearance when subjected to outdoor weathering, UV exposure and meet the care label recommendations.

2. Vest Retroreflective Trim

- a. Retroreflective trim shall consist of wide angle, exposed retroreflective lenses bonded to a durable polyester/cotton cloth backing – 3M™ Scotchlite™ Reflective Material - 8925 Silver fabric– or equivalent. The retroreflective trim shall be sewn onto 4” wide yellow-green background material per the manufacturer.
- b. Retroreflective trim shall be 2 inches wide.
- c. Retroreflective trim, before test exposure retroreflective performance: Shall be CAN/CSA Z96-09 Level 2 compliant (Table 5).

**Table 5 – Minimum Coefficient of Retroreflection in cd/ (lx l m²) for
Level 2 Retroreflective or Combined-Performance Material**

Observation angle	Entrance angle			
	5°	20°	30°	40°
12°	330	290	180	65
20°	250	200	170	60
1°	25	15	12	10
1° 30'	10	7	5	4

- d. Retroreflective trim, after test exposure retroreflective performance: Shall be CAN/CSA Z96-09 Section 6.2, Level 2 compliant. The coefficient of retroreflection (R_A) measured at observation angle 12° and entrance angle 5°, shall exceed 100 cd/(lx l m²) at one of the two orientations described in Clause 8.3 and shall be not less than 75% of the required value at the other orientation and meet the following performance tests:

Trim After Testing Physical and Retroreflective Performance Table

Physical Test

Test Method

Abrasion

EN 530, Method 2 (5000 cycles)

Flexing






ISO 7854, Method A (7500 cycles)

Folding at Cold Temperatures

ISO 4675 @ (-20±1)°C, (-5°F)

Temperature Variation	12 hours at (50±2)°C, (120° F) immediately followed by 20 hours at (-30±2)°C, (-20°F)
Wash	ISO 6330 Method 2A, 75 cycles @ 60°C (140°F)
Dry-clean	ISO 3175 Method 9.1 50 cycles
Influence of Rainfall	ANSI/ISEA 107-1999 Annex A EN 471, Annex A

3. Care Labeling: (Note: For retroreflective material)

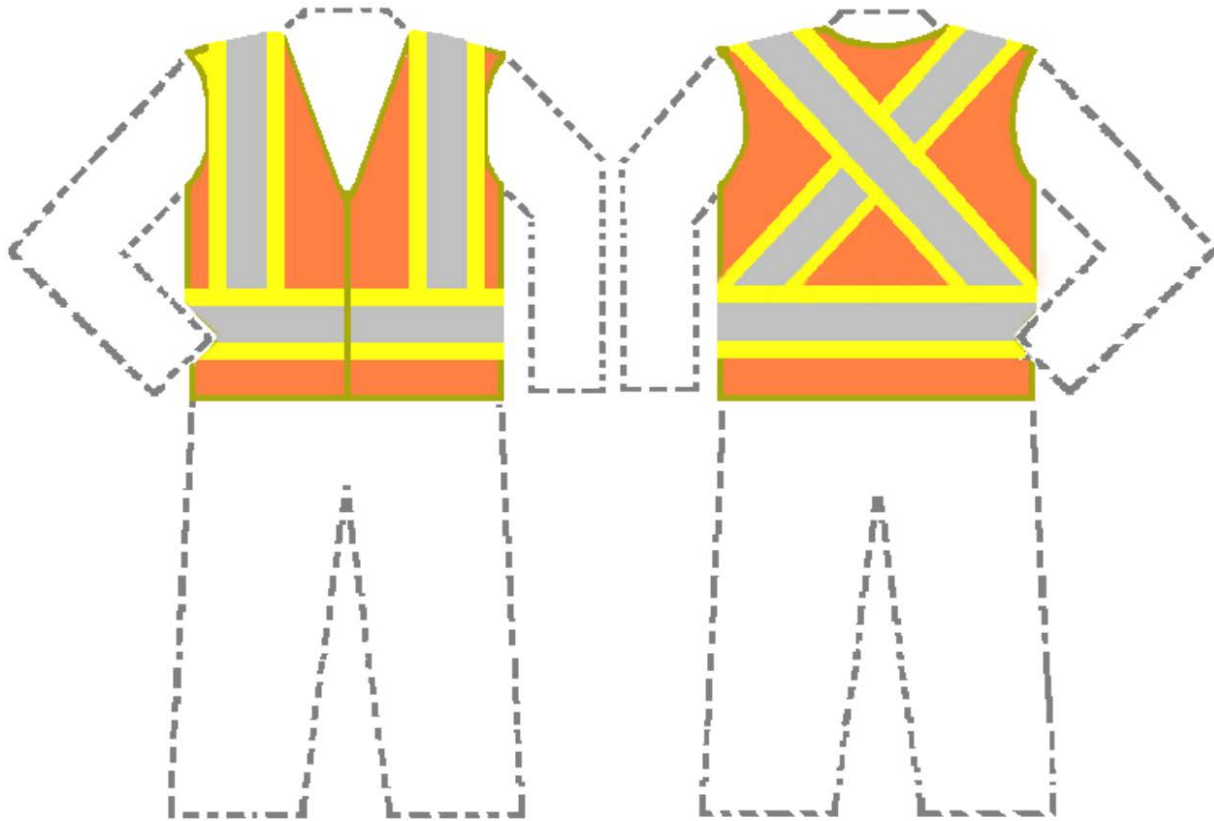
Wash:	Machine wash warm, 60°C (140°F)
	
Bleach:	Only non-chlorine bleach when needed
	
Dry:	Tumble dry low
	
Iron:	Use medium iron, 150°C (300°F)
	
Dry-clean:	Dry-clean, normal cycle
	

4. Trim Placement

<u>Proposed garment design:</u>	CAN/CSA Z96-09 Class 2 Vest (2" trim)
<u>Coverall trim placement:</u>	Single horizontal stripe around torso Double vertical stripes on chest, cross on back

Minimum areas of visible material:

Retroreflective Trim	0.13 m ² (201 in ²)
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Vest Front View

Vest Back View

CAN/CSA Z96-09 fluorescent orange-red background material, as shown above

2" 3M™ Scotchlite™ Reflective Material – 8925 Silver Fabric – or equivalent

Note: Garment to be home washable and dry cleanable

Vest to be equipped hook and loop closure or velcro

Retroreflective trim dimensions are listed in #5 Trim Calculations, below

5. Trim Calculations

Proposed Garment Design: 2" 3M™ Scotchlite™ Reflective Material 8925 Silver Fabric Trim or equivalent.	Length of Trim (inches)
Front Vertical Stripes on Chest - Left and Right	(2 x 17") = 34
Back Diagonal Stripes - Left and Right	(2 x 24") = 48
Horizontal Stripe around Torso	(1 x 44") = 44

Total Number of inches of 2" 8925 or equivalent	126
Total Number of Feet of 2" 8925 or equivalent	11

Number of Square inches trim to meet CAN/CSA Z96-09 Class 2	201
Total Number of Square inches of 2" 8925 or equivalent	252

6. Bidders must supply the following items:

- 1. A sample of the proposed garment or garments offered in their submission. Samples are to be provided with bid and will be returned upon request at the vendor's expense. Bids will not be recognized if a sample is not provided with your bid**
- 2. Copies of product testing which clearly show that the proposed garments meet or exceed the requirements of CAN/CAS Z96-09 must be submitted with the bid.**
- 3. At least 3 references of companies or organizations, including a contact person complete with their phone number and e-mail address, that are using the vests supplied with the tender submission.**

7. Garment Label

The garment label will need the following items listed:

1. Name, trade mark or other means of identification of the manufacturer or authorized representative;
2. Designation of the product type (i.e., Vest), commercial name or code;
3. Size designation;
4. CSA Z96;
5. Apparel Class and Level of performance for the retroreflective material;
6. An indication of background material as fluorescent or bright coloured; and
7. An indication of FR performance if applicable.

Example:

Manufacturer's Name
Vest Model #
 Manufacturer of Reflective Material
 Product number of reflective material
Size: S M L XL XXL XXXL
CSA Z96
Class
Level 2
 Fluorescent orange-red background
