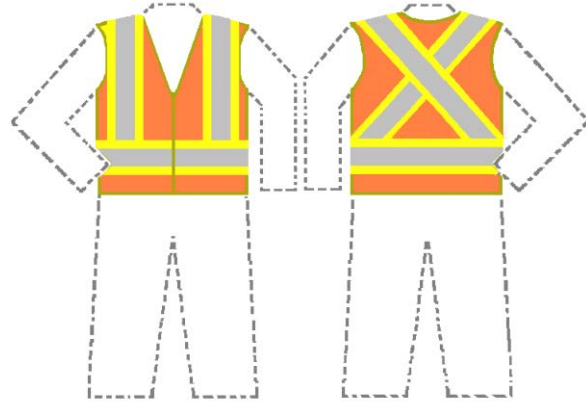


**CAN/CSA Z96-09 Specification for  
High Visibility Safety Apparel,  
Class 2 Level 2 Vest**

**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 1 m<sup>2</sup>) 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<sub>A</sub>) measured at observation angle 12’ and entrance angle 5°, shall exceed 100 cd/(lx 1 m<sup>2</sup>) 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**

<u>Physical Test</u>	<u>Test Method</u>
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)

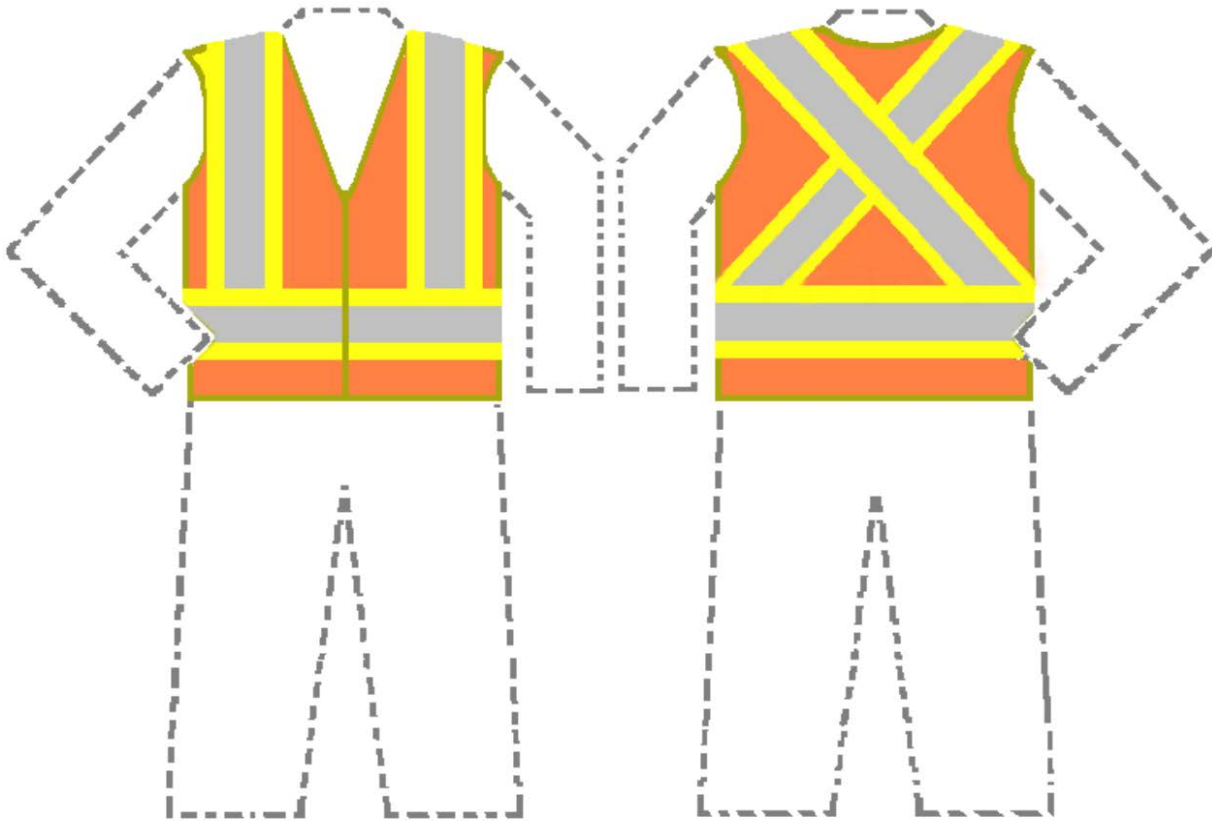
<b>Wash:</b> 	Machine wash warm, 60°C (140°F)
<b>Bleach:</b> 	Only non-chlorine bleach when needed
<b>Dry:</b> 	Tumble dry low
<b>Iron:</b> 	Use medium iron, 150°C (300°F)
<b>Dry-clean:</b> 	Dry-clean, normal cycle

**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 <sup>2</sup> (201 in <sup>2</sup> )
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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**

<b>Proposed Garment Design: 2" 3M™ Scotchlite™ Reflective Material 8925 Silver Fabric Trim or equivalent.</b>	<b>Length of Trim (inches)</b>
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
<b>Total Number of inches of 2" 8925 or equivalent</b>	<b>126</b>
<b>Total Number of Feet of 2" 8925 or equivalent</b>	<b>11</b>

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. 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.

**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 XXXXL XXXXXL**  
**CSA Z96**  
**Class**  
**Level 2**  
 Fluorescent orange-red background  
