



## C412 300

Sew-on tape

Flame resistant m-aramid

Domestic wash

Yellow-silver-yellow

Red-silver-red

Orange-silver-orange

## Technical Data Sheet

### Product Description

Coats Signal C412 300 is an aramid based fluorescent yellow-silver-yellow, red-silver-red and orange-silver-orange reflective tape for domestic wash heat and flame protective clothing especially firefighter uniforms. Combined with retro reflective and fluorescent elements, it helps to maximise the visibility in nighttime, during daytime or low light conditions.

### Product Construction

Coats Signal C412 300 is made of fluorescent yellow, red or orange part and high performance glass beads based silver part laminated on a durable 100% m-aramid fabric backing. The silver part is in the middle of fluorescent yellow, red or orange part.

### Areas of Applications

Coats Signal C412 300 is a sewn-on reflective tape for high visibility industrial wash heat and flame protective clothing especially firefighter uniforms where EN 469, EN ISO 11611, EN ISO 11612, EN ISO 14116, EN ISO 15384 and NFPA certifications are required. All high visibility flame resistant garments should be made according to proper standards.

### Product Certification

#### Colour and Reflective Performance – EN 20471

Coats Signal C412 300 is approved according to EN 20471 high visibility norm. The fluorescent yellow, red or orange part meets the chromaticity and min. luminance factor requirements. The silver part delivers maximum retro reflective performance. The typical reflective performance (RA in cd/lux/m<sup>2</sup>) according to EN ISO 20471, table 4 is shown below.

| Observation angle | Entrance angle | Coats Signal C412 300 | Minimum norm requirement |
|-------------------|----------------|-----------------------|--------------------------|
| 12'               | 5°             | 500 (silver part)     | 330                      |

## Article Number / Make-up

Art. No.: C412 300 - roll of 100 m / available in 50.8mm ( $\pm 0.8$ ) and 75.8mm ( $\pm 0.8$ ) widths

## Care Instructions

### Domestic Wash



High visibility clothing must not be laundered with other coloured garments. Doing so could cause colours to bleed and destroy the luminance of the fluorescent material. The visibility garment would then no longer fulfill requirements according EN ISO 20471.

## Physical Performance

Coats Signal C412 300 silver part meets or exceeds in origin the performance as per EN ISO 20471, clause 6.1 as well as the requirements in clause 6.2 after exposure to abrasion, flexing, folding at cold temperature, temperature variation, washing, dry cleaning and influence of rainfall. The following table shows the detail specifications.

| Tests                                            | Details                                                                                                           |
|--------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| Retro reflective performance in origin           | EN ISO 20471:2013+A1:2016, pt. 6.1, table 4<br>Test method: CIE 54.2                                              |
| Retro reflective performance after pre-treatment | EN ISO 20471:2013+A1:2016, pt. 6.2, table 6<br>Test method: CIE 54.2                                              |
| Colour new, after xenon test and ageing          | EN ISO 20471:2013+A1:2016, pt. 5.1, 5.2, 7.5<br>Test method: CIE 15:2004                                          |
| Abrasion                                         | EN ISO 12947-2:2007, 9 kPa, wool, 5000 cycles                                                                     |
| Flexing                                          | EN ISO 7854:1997, method A, 7500 cycles                                                                           |
| Folding at cold temperature                      | ISO 4675:2017, $(-20 \pm 2)^{\circ}\text{C}$                                                                      |
| Temperature variation                            | EN ISO 20471:2013, pt. 7.4.4, 12 hours @ $(+50 \pm 2)^{\circ}\text{C}$ & 20 hours @ $(-30 \pm 2)^{\circ}\text{C}$ |
| Domestic washing 60°C with tumble drying         | EN ISO 6330:2012, method 6N+F, 60 cycles                                                                          |
| Dry cleaning                                     | EN ISO 3175-2:2010, perchloroethylene, 50 cycles                                                                  |
| Influence of rain                                | EN ISO 20471:2013+A1:2016, annex C                                                                                |

## Heat Resistance and Limited Flame Spread Performance

Coats Signal C412 300 meets the heat resistance and limited flame spread requirements according to EN 469, EN ISO 11611, EN ISO 11612, EN ISO 14116, EN ISO 15384 and NFPA. The following table shows the detail specifications.

| Tests                           | Details                                       |
|---------------------------------|-----------------------------------------------|
| Heat resistance                 | ISO 17493, 5 min. (180 ± 5) °C                |
| EN 469:2020, clause 6.2.6.4     | ISO 17493, 5 min. (260 ± 5) °C                |
| EN ISO 11612:2015, clause 6.2.1 |                                               |
| EN ISO 15384:2020, clause 6.1   |                                               |
| Limited flame spread            | ISO 15025, Procedure A (face ignition)        |
| EN 469:2020, clause 6.2.1.1     | ISO 15025, Procedure B (bottom edge ignition) |
| EN ISO 11611:2015               |                                               |
| EN ISO 11612:2015               |                                               |
| EN ISO 14116:2015               |                                               |
| EN ISO 15384:2020, clause 6.3   |                                               |

|              | NFPA 1950<br>(1951) | NFPA 1970<br>(1971) | NFPA 1950<br>(1977) | NFPA 2112 | CAN/CGSB<br>155.20 | CAN/CGSB<br>155.22 |
|--------------|---------------------|---------------------|---------------------|-----------|--------------------|--------------------|
| C412 300 YSY | X                   | X                   | X                   | X         | X                  | X                  |
| C412 300 OSO | X                   | X                   | X                   | X         | X                  | X                  |

## STANDARD 100 by OEKO-TEX®

This article is certified according to STANDARD 100 by OEKO-TEX®, class II.

## Storage and Shelf Life

Coats Signal reflective tapes should be stored in a cool (5°C to 25°C) and dry place (less than 70% relative humidity) and used within one year of date of receipt. The used rolls should be returned to original packaging or suspended from the middle by using a rod.

## General Safety Information

Since conditions and applications vary considerably in the use of reflective tape, user should assure herself or himself by preliminarily testing that the reflective tape is suitable for the end use intended. Coats Signal cannot guarantee an absolute visibility especially in severe weather conditions.

## Further Assistance

Please contact your local Coats representative for further assistance.