JIUNUO REFLECTIVE

Technical Data Sheet

ANS' Reflective Material

Series Flame retardant UL-209FR-S & UL-239FR Heat Transfer Reflective Tape

Technical Data Sheet **Dec 2023**

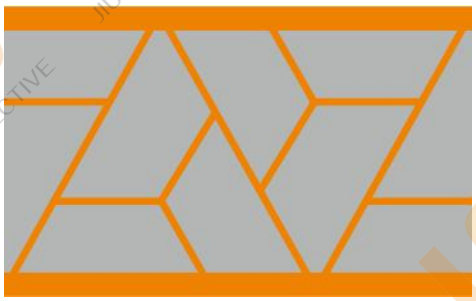
1.General Description

ANS' UL-209FR-S & UL-239FR are breathable and slight stretchable reflective tape , it can pass FR standard. The tape is designed to be heat applied to suitable background fabrics for using on High Visibility Warning Garments ,especially on FR garment . Finished product should read more than 400° cd/(lx.m2) brightness at 0.2° observation angle and 5° Entrance angle.

ANS' UL-209FR-S & UL-239FR could be heat applied to fabric by using recommendations in below of this sheet, however, the users are also advised to determine which parameters would be the best based on their individual equipment and different fabrics. The parameters include Heating Temperature , Heating Time and Heating Pressure. We are always available to test and finalize the parameters for users, however, we need to receive the right fabric samples from the user.

2.Typical Patterns:

UL-209FR-S



UL-239FR

3.Retro-Reflective Performance

The coefficient of retro-reflection (RA , in cd/lux/m2) is measured by methods traceable to the following retro-reflective intensity testing procedures: ISO 20471, ANSI/ISEA 107. The RA values were measured at the listed specific entrances and observations angles.

ANS'UL-209FR-S & UL-239FR Heat Transfer Reflective Tape		
Entrace Angle	Observation Angle	Minimum RA[1]
5.0^0	0.2^0	400
5.0^0	0.33^0	250

4.Compliance Standard

ANS' UL-209FR-S & UL-239FR can meet the following standards：
ISO 20471, ANSI/ISEA 107, AS NZS 1906 , CSAZ96...high-visibility safety apparel standard.
ISO 6330 washing standard
ISO11612 , ISO14116 FR standard

5.Heat Applied Guideline

Work on a flat surface where uniform heat and pressure can be applied. Avoid applying the tape over seams and stitches. Ensure that the temperatures in each zone of the press plate are uniform across the width of the press. For different fabrics, we suggest the user to test the adhesion of the tape and fabric in advance before bulk production by doing washing test , and then adjust the parameter accordingly until find the suitable parameter.
We strongly recommend to heat press the tape onto fabric surface by two times of heating apply. The parameter of each heating as below:

	The First Time	The Second Time
Heating Temperature:	165 - 185 ^{0}C	165 - 185 ^{0}C
Heating Time:	6 - 8 Seconds	12 - 15 Seconds
Heating Pressure:	50-60 psi	50-60psi

After heating press the tape onto fabric for the first time, the protect film of the reflective tape need to be removed before the second time of heating, but it need to be fully cool down.

or

	One Time
Heating Temperature:	165 - 185 ^{0}C
Heating Time:	> 15 Seconds
Heating Pressure:	50-60 psi

Heat press the tape onto fabric surface for one time is also workable . But you need to make sure that the Temperature , time , pressure are suitbable.

6.Care and Maintenance Instruction

Test each application according to appropriate care instructions required for the finished prodcuts. Actual life of ANS' UL-209FR-S & UL-239FR heat applied reflective tape depends on the cleaning method and wear conditions. Care label recommendation as below:

60°C Machine wash, 50 cycles, ISO6330

Only non-chlorine bleach when needed

Tumble dry 2 dots , not suitable fur tunnel dry

Use cool iron, 110° C

Do not dry clean

Sweat, Acidic, and Alkaline Liquids:

Direct contact of sweat or acidic/alkaline liquids with the reflective surface can corrode and damage the aluminized layer, causing irreparable surface defects. To prevent this, reduce direct contact of such liquids with the reflective surface. Generally, mild contamination should be cleaned within 6-12 hours using anhydrous ethanol or water. The cleaned area should be dried promptly to effectively mitigate surface damage.

Surface Wear and Tear:

Due to the special nature of reflective materials, the reflective layer on stress points is prone to wear, scratches, aging, and detachment. This is particularly true for areas like cuffs and hems, which experience significant friction during washing and wearing. These areas are more susceptible to reflective layer damage.

7.Precaution

Many fabrics could be used as lamination substrates for ANS' reflective materials, however, some fabrics like nylons and materials treated with DWR (durable water repellency) finish will be difficult to adhere. Testing should be done continuous to ensure acceptable adhesion on the fabric as materials may vary, please contact our sales representative or customer service for any specific application assistance.

8.Storage and Shelf Life

Store in a cool (4 to 32 °C, 40 to 90 °F), dry area (less than 70% relative humidity) and use within one year of date of receipt from KACHUN . Reflective heat transfers tape stored in humid environments can accumulate dew or water on the reflective surface, gradually corroding the aluminum layer and causing irreparable surface defects.

Store rolls in original shipping cartons. Return partially used rolls to the carton or suspend horizontally through the core. Cut pieces should be stored flat. Ensure that the lot/roll identification remains with product rolls and cut pieces.

For more informations, please email to huanglh@jnuo88.com