

**Test Report No. 7191346642-MEC24-WYL**  
dated 10 Dec 2024



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**SUBJECT:**

Determination of emittance and light reflectance of crosslinked polyolefin foam.

**TESTED FOR:**

PT. Toilon Indonesia  
Jl. Raya Serang Km.  
16,8, Talaga, Cikupa, Tangerang Regency,  
Banten 15710

Attn.: Mr. Je Hwan Young

**TEST METHODS:**

1. ASTM E903:2020 - Standard test method for solar absorptance, reflectance, and transmittance of materials using integrating spheres
2. ASTM G173:2023 - Standard tables for reference solar spectral irradiances : Direct normal and hemispherical on 37° tilted surface
3. ASTM C1371:2015 (2022) - Standard Test Method For Determination Of Emittance Of Materials Near Room Temperature Using Portable Emissometers.

**SAMPLE DESCRIPTION:**

The following items were received on 11 Nov 2024 and claimed to be as follow:

Type of product : Crosslinked Polyolefin Foam  
Brand Name : TOILON THERMOTECH  
Model Name : ThermoShield IXPE FR Class O (Fiber GlassCloth Aluminum - FCAF)  
Description : Toilon Crosslinked Polyolefin Closed Cell Foam  
Thickness : 12mm



LA-2007-0380-A LA-2007-0386-C  
LA-2007-0381-F LA-2010-0464-D  
LA-2007-0382-B LA-2018-0702-B  
LA-2007-0383-G LA-2018-0703-G  
LA-2007-0384-G LA-2020-0747-L  
LA-2007-0385-E

The results reported herein have been performed in accordance with the terms of accreditation under the Singapore Accreditation Council. Inspections/Calibrations/Tests marked "Not SAC-SINGLAS Accredited" in this Report are not included in the SAC-SINGLAS Accreditation Schedule for our inspection body/laboratory.

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**TEST RESULTS:**

Table 1: Light Reflectance of ThermoShield IXPE FR Class O (Fiber GlassCloth Aluminum - FCAF)  
based on ASTM E903

Light Reflectance		Sample	Estimated Uncertainty
Visible Light	Total Reflectance, Front (%)	83.2	± 0.5
	Diffuse Reflectance, Front (%)	77.0	± 0.4
	Calculated Specular Reflectance, Front (%)	6.2	± 1.3
Solar	Total Reflectance, Front (%)	82.5	± 0.6
	Diffuse Reflectance, Front (%)	75.4	± 0.5
	Calculated Specular Reflectance, Front (%)	7.1	± 1.5

**INSTRUMENT:**

Measurements were conducted using a Shimadzu Spectrometer UV3600, with an MPC3100 and a 60 mm integrating sphere.

**CALCULATIONS:**

For computing the visible light reflectance of the sample, the following parameters were taken into consideration:

- i) Weighted ordinates of relative spectral distribution of hemispherical tilt irradiance of air mass 1.5
- ii) Spectral region (380 - 780 nm)

For computing the solar reflectance of the glass, the following parameters were taken into consideration:

- i) Weighted ordinates of relative spectral distribution of hemispherical tilt irradiance of air mass 1.5
- ii) Spectral region (300 - 2500 nm)

**REMARKS:**

- 1. The test was conducted on 09 Dec 2024.
- 2. The expanded uncertainty of measurement is estimated at a level of confidence of approximately 95% with a coverage factor of  $k = 2$ .

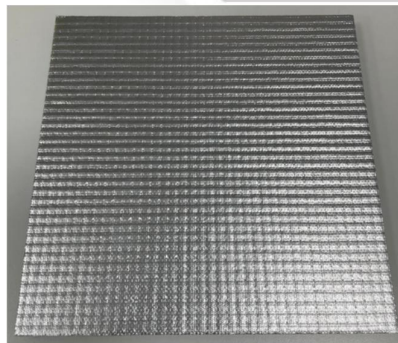


Photo 1: Front surface (Tested surface)

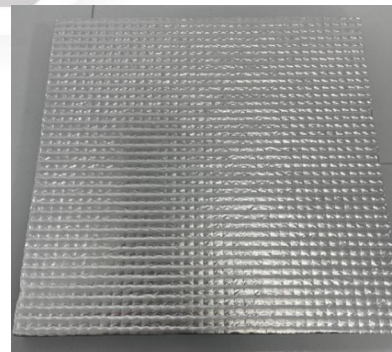


Photo 2: Back surface



**TEST RESULTS: (cont'd)**

Table 2: Emittance of ThermoShield IXPE FR Class O (Fiber GlassCloth Aluminum - FCAF) based on ASTM C1371

Emittance ( $\epsilon$ )			Average
Front	1 <sup>st</sup> Measurement	0.06	0.06
	2 <sup>nd</sup> Measurement	0.06	
	3 <sup>rd</sup> Measurement	0.07	
Back	1 <sup>st</sup> Measurement	0.07	0.06
	2 <sup>nd</sup> Measurement	0.06	
	3 <sup>rd</sup> Measurement	0.06	

**REMARKS:**

The test was conducted on 15 Nov 2024 and the room temperature is 23.1°C.

**PHOTOS:**

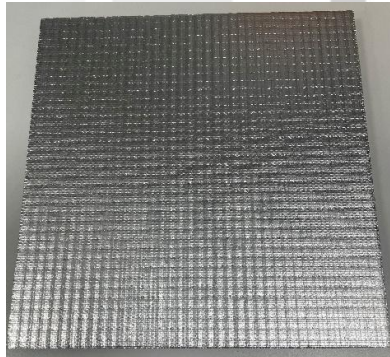


Photo 3: Front surface

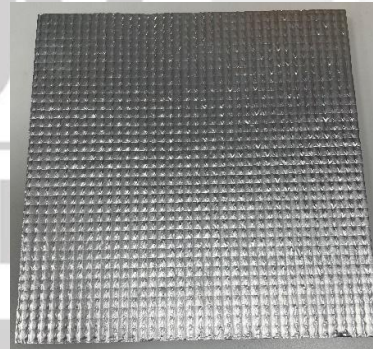


Photo 4: Back surface

  
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Effective 27 March 2024

