



**HIGH
PERFORMANCE
MATERIALS**

Confidential Report

Our Ref: 11/20997/C1

Notified Body
for PPE Directive,
Construction Products
Regulation & Marine Equipment
Directive
I.D. No. 0338 & 0339

**BTTG High Performance Materials
Unit 14, Wheel Forge Way,
Trafford Park, Manchester, M17 1EH**

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Email: info@bttg.co.uk

Date: 7 January 2016
Our Ref : 11/20997/C1/PJH
Your Ref :

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Client: Zhejiang Lanxiang Reflective Materials Co. Ltd.
Jinhua Lanxiang Import & Export Co. Ltd.
No. 566 Huatai
Jinpan New Developing Zone
Jinhua City
321016
CHINA

Job Title: Tests on knitted material

Client's Order No: -

Date of Receipt: 19th October 2015
Date of Test Start: 20th October 2015

Description of Sample(s): One high-visibility orange, knitted fabric, containing antistatic stripes, identified as follows, was received for testing:

**F023-O High Vis FR Antistatic Fabric
98% Polyester/2% Antistatic, Tricot Fabric**

Work Requested: We were asked to make the following tests on the sample:

**EN 1149-1 – Surface Resistivity
EN 1149-3 – Charge Decay**





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Zhejiang Lanxiang Reflective Materials Co. Ltd.

Sample was identified as follows:

F023-O High Vis FR Antistatic Fabric
98% Polyester/2% Antistatic, Tricot Fabric

Laboratory Work

Specimens have been taken from the sample as described in the specified standards.

Prior to testing the sample was washed as follows:

One specimen was washed in accordance with ISO 6330: 2012, "Textiles - Domestic washing and drying procedures for textile testing". Washing was carried out according to procedure 4N (40°C, normal agitation) and drying according to Procedure F – Tumble dry on a cool heat setting (i.e. exhaust temperature ≤60°C) for twenty five cycles.

A Wascator FOM71 machine (Type A automatic, front loading horizontal drum type) was used, with ECE reference detergent plus sodium perborate and bleach activator, and a total mass of 2 kg, which was made up of the specimen and 100 % knitted polyester ballast.

EN 1149-1 Surface Resistivity

The sample was conditioned and tested at 23 ± 1°C and 25 ± 5% relative humidity.

The surface resistivity of five areas from across the sample was determined according to the method specified in BS EN 1149-1: 2006.

EN 1149-3 Charge Decay

The sample was conditioned and tested at 23 ± 1°C and 25 ± 5% relative humidity.

The charge decay time and shielding effect were measured on three areas from across the sample according to BS EN 1149-3: 2004 Method 2 (induction charging).

The results are given in the tables on the following page.





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Zhejiang Lanxiang Reflective Materials Co. Ltd.

RESULTS

Sample Ref: F023-O High Vis FR Antistatic Fabric
98% Polyester/2% Antistatic, Tricot Fabric

| SURFACE RESISTANCE Ω – EN 1149-1 | | | | | | Mean |
|---|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Face | 2.0×10^{13} | 2.1×10^{13} | 2.6×10^{13} | 2.2×10^{13} | 2.4×10^{13} | 2.2×10^{13} |
| Reverse | 2.0×10^7 | 2.1×10^7 | 2.4×10^7 | 2.6×10^7 | 2.2×10^7 | 2.2×10^7 |

| SURFACE RESISTIVITY Ω – EN 1149-1 | | | | | | Mean |
|--|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Face | 4.0×10^{14} | 4.2×10^{14} | 5.1×10^{14} | 4.4×10^{14} | 4.8×10^{14} | 4.5×10^{14} |
| Reverse | 4.0×10^8 | 4.2×10^8 | 4.8×10^8 | 5.1×10^8 | 4.4×10^8 | 4.5×10^8 |


| INDUCTION DECAY TIME – EN 1149-3 | | | | Mean |
|----------------------------------|-------|-------|-------|-----------------|
| Shield Factor (S) | 0.52 | 0.52 | 0.52 | 0.52 |
| Half Decay Time t_{50} (Secs) | <0.01 | <0.01 | <0.01 | <0.01 |


Comments

In our opinion, based on the tests carried out on the sample supplied:

- a) For a material containing conductive threads in a stripe or grid pattern the spacing of the conductive threads in one direction shall not exceed 10mm. The sample passes this requirement.
- b) The maximum acceptable resistance for BS EN 1149-1:2006, specified in BS EN 1149-5:2008 is $\leq 2.5 \times 10^9 \Omega$ measured on at least one surface. The tested sample passes this requirement.
- c) The results of BS EN 1149-3: Method 2: 2004, passes the requirements specified in BS EN 1149-5: 2008 of the shielding factor being greater than 0.2 and/or the half decay time being less than 4 seconds.

An estimation of uncertainty of measurement has not been taken into account when making a judgement to any pass/fail criteria.

Reported by:  Mr P Hutchings
Operational Head

Countersigned by:  Mrs C Austin
Director

Enquiries concerning this report should be addressed to Customer Services.

