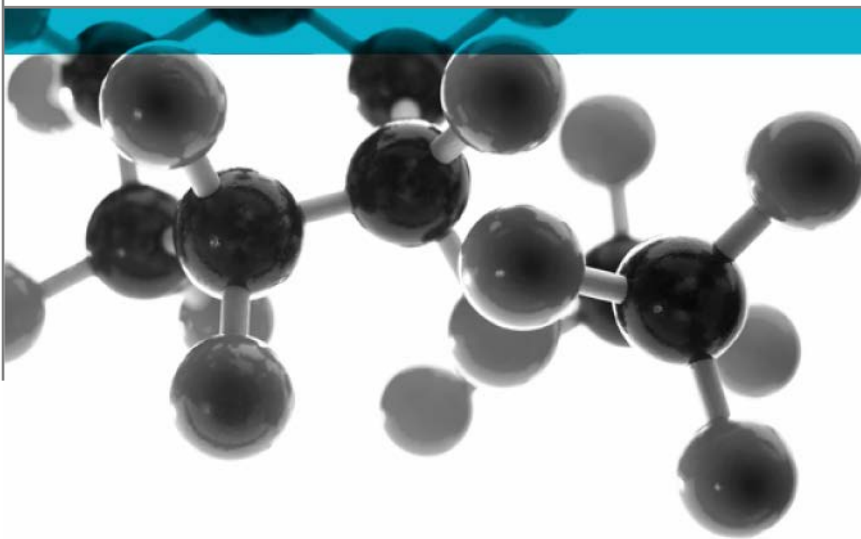


Exova Warringtonfire
Holmesfield Road
Warrington
WA1 2DS
United Kingdom

T : +44 (0) 1925 655116
F : +44 (0) 1925 655419
E : warrington@exova.com
W: www.exova.com



Federal Motor Vehicle Safety Standard No. 302



Flammability Of Motor Vehicle Interior Materials

A Report To: Camira Transport Fabrics Limited

Document Reference: 380036

Date: 4th April 2017

Issue No.: 1

Page 1

Testing
Advising
Assuring



Executive Summary

Objective To determine the performance of the following product when tested in accordance with Federal Motor Vehicle Safety Standard No. 302.

Generic Description	Product reference	Thickness	Weight per unit area
Fabric	"Lucia CS"	0.68mm	265g/m ²
Please see page 5 of this test report for the full description of the product tested			


Test Sponsor Camira Fabrics Limited, Meltham Mills, Meltham Mills Road, Meltham, West Yorkshire, HD9 4AY.

Test Results: Clause S4.3 of FMVSS No. 302 specifies that a material "shall not burn, or transmit a flame front across its surface, at a rate of more than 102mm per minute. However, if a material stops burning before it has burned for 60 seconds from the start of timing, and has not burned more than 51mm from the point where timing has started, it shall be considered to meet this requirement".


The material, as tested, therefore meets the above requirements.

Date of Test 24th March 2017

Signatories



Responsible Officer
C. Jacques *
Technical Officer



Authorised
T. Mort *
Senior Technical Officer

* For and on behalf of **Exova Warringtonfire**.

Report Issued: 4th April 2017

This version of the report has been produced from a .pdf format electronic file that has been provided by **Exova Warringtonfire** to the sponsor of the report and must only be reproduced in full. Extracts or abridgements of reports must not be published without permission of **Exova Warringtonfire**.

CONTENTS	PAGE NO.
EXECUTIVE SUMMARY	2
SIGNATORIES.....	2
TEST DETAILS.....	4
DESCRIPTION OF TEST SPECIMENS.....	5
TEST RESULTS	6
REVISION HISTORY	7



Test Details

Purpose of test	<p>To determine the flammability of the material when it is tested in accordance with Federal Motor Vehicle Safety Standard No. 302, Flammability of Interior Materials - Passenger Cars, Multi-purpose Passenger Vehicles, Trucks and Buses.</p> <p>The test was performed in accordance with the test procedure specified in section S5 of Motor Vehicle Safety Standard No. 302 and this test report should be read in conjunction with that Standard.</p>
Fire test study group/EGOLF	<p>Certain aspects of some fire test specifications are open to different interpretations. The Fire Test Study Group and EGOLF have identified a number of such areas and have agreed Resolutions which define common agreement of interpretations between fire test laboratories which are members of the Groups. Where such Resolutions are applicable to this test they have been followed.</p>
Instruction to test	<p>The test was conducted on the 24th March 2017 at the request of Camira Fabrics Limited, the sponsor of the test.</p>
Provision of test specimens	<p>The specimens were supplied by the sponsor of the test. Exova Warringtonfire was not involved in any selection or sampling procedure.</p>
Conditioning of specimens	<p>The specimens were received on the 14th February 2017.</p> <p>Prior to the test the specimens were conditioned for at least 24 hours in an atmosphere having a temperature of 21°C and a relative humidity of 50%.</p>
Test procedure	<p>The specimens were tested with the marked face downward to the test flame, in accordance with the test procedure specified in the standard, the gas supplied to the Bunsen burner being natural gas.</p>
Specimen orientation	<p>A total of seven specimens were tested. Initial tests were carried out on one specimen in the production direction and one specimen in a direction perpendicular to that direction to establish the worse case condition. The results of these tests indicated that the worse case was with the specimens in the direction of production and these test results have been reported.</p>

Description of Test Specimens

The description of the specimens given below has been prepared from information provided by the sponsor of the test. All values quoted are nominal, unless tolerances are given.

General description	Flat woven crepe fabric
Generic type	Trevira and polyester
Trade name	"Lucia CS"
Name of manufacturer	Camira Fabrics Ltd
Weight per unit area	265g/m ² (stated by sponsor) 276.5g/m ² (determined by Exova Warringtonfire)
Thickness	0.68mm (stated by sponsor) 0.56mm (determined by Exova Warringtonfire)
Colour reference	"Havana" (stated by sponsor) "Black" (observed by Exova Warringtonfire)
Pattern reference	"326605 2002"
Type of weave	"Flat woven crepe"
Thread count or threads per inch (TPI)	See Note 1 Below
Yarn count	See Note 1 Below
Flame retardant details	See Note 1 Below
Brief description of manufacturing process	See Note 1 Below

Note 1: The sponsor of the test was unwilling to provide this information.

Test Results

Results of test The burn rate was calculated using the formula:

$$B = 60 D/T$$

where B = Burn rate in mm per minutes
 D = Length of the flame travels in mm, and
 T = Time in seconds for the flame to travel D mm

Specimen No.	Time for flame to reach the first measuring point (seconds)	Time for flame to reach the final measuring point (seconds)	Burning time, T (seconds)	Distance burnt, D (mm)	Burning Rate (mm/min)
1 ↑	Did not reach	Did not reach	0	Not applicable	0
2 →	Did not reach	Did not reach	0	Not applicable	0
3 →	Did not reach	Did not reach	0	Not applicable	0
4 →	Did not reach	Did not reach	0	Not applicable	0
5 →	Did not reach	Did not reach	0	Not applicable	0
6 →	Did not reach	Did not reach	0	Not applicable	0
7 →	Did not reach	Did not reach	0	Not applicable	0

Conclusions

Clause S4.3 of FMVSS No. 302 specifies that a material "shall not burn, or transmit a flame front across its surface, at a rate of more than 102mm per minute. However, if a material stops burning before it has burned for 60 seconds from the start of timing, and has not burned more than 51mm from the point where timing has started, it shall be considered to meet this requirement".

The material, as tested, therefore meets the above requirements.

Applicability of test result

The test results relate only to the behaviour of the test specimens of the product under the particular conditions of test; they are not intended to be the sole criterion for assessing the potential fire hazard of the product in use.

The test results relate only to the specimens of the product in the form in which they were tested. Small differences in the composition or thickness of the product may significantly affect the performance during the test and may therefore invalidate the test results. Care should be taken to ensure that any product which is supplied or used is fully represented by the specimens which were tested.

Validity

The specification and interpretation of fire test methods are the subject of ongoing development and refinement. Changes in associated legislation may also occur. For these reasons it is recommended that the relevance of test reports over five years old should be considered by the user. The laboratory that issued the report will be able to offer, on behalf of the legal owner, a review of the procedures adopted for a particular test to ensure that they are consistent with current practices, and if required may endorse the test report.

This report may only be reproduced in full. Extracts or abridgements shall not be published without permission of **Exova Warringtonfire**.

Document No.: 380036

Page No.: 6 of 7

Author: C Jacques

Issue Date: 4th April 2017

Client: Camira Fabrics Limited

Issue No.: 1



0249

Revision History

Issue No :	Re-issue Date:
Revised By:	Approved By:
Reason for Revision:	

Issue No :	Re-issue Date:
Revised By:	Approved By:
Reason for Revision:	