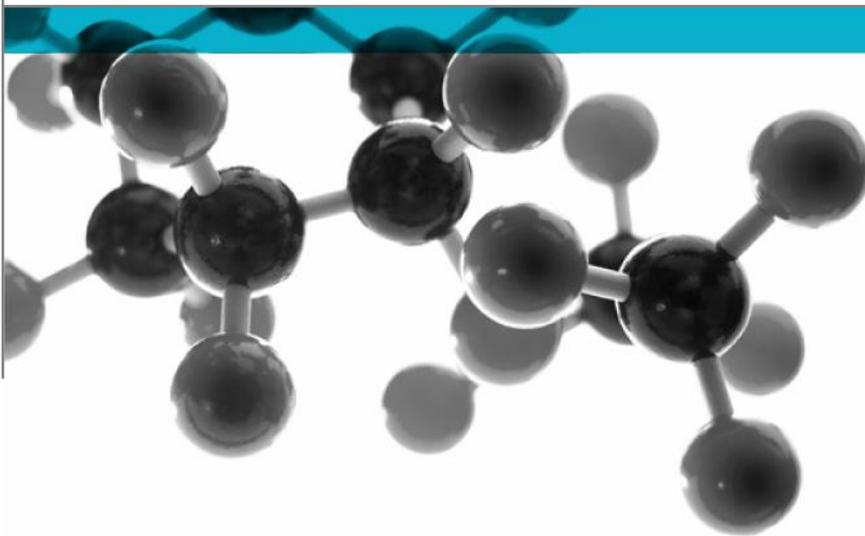


EN 45545-2: 2013+A1:2015



Summary Test Report – Requirement Table 5 (R22 & R23)

Test Method References “T01” (EN ISO 4589-2: 1999. Determination of burning behaviour by oxygen index Part 2: Ambient temperature test), “T10.03” (ISO 5659-2: 2012; Plastics – Smoke Generation. Part 2 Determination of Optical Density by a Single Chamber Method) and “T12” (NF X70-100-1: 2006, NF X70-100-2: 2006 Gas analysis)

A Report To: Shore Auto Rubber Exports Pvt. Ltd.

Document Reference: 398548

Date: 21st May 2018

Issue No.: 1

Page 1

Testing
Advising
Assuring

Executive Summary

Objective To assess the results of tests performed in accordance with methods T01, T10.03 and T12 as defined in EN 45545-2: 2013+A1:2015 at an irradiance level of 25kW/m² with a pilot flame, on specimens of a product and to provide an opinion of compliance with the requirements, as defined in EN 45545-2: 2013+A1:2015.

Generic Description	Product reference	Thickness	Density / specific gravity / weight per unit area
Silicone hose with three layers of fabric reinforcement	No specific reference assigned	7.24mm *	1.25g/cm ³ *
Individual components used to manufacture composite:			
Rubber	"58170C"	Unwilling to provide	1.25
Polyester fabric (Embedded in rubber)	"145 +/- 5 grams per square meter"	3 x 0.6mm	Unwilling to provide
* Determined by Exova Warringtonfire			
Please see page 5 of this test report for the full description of the product tested			

Test Sponsor Shore Auto Rubber Exports Pvt. Ltd., Gat 7, Post- Chimbli, Tal Khed, Dist, Pune – 410501, India

Opinion We consider the results of the tests confirmed in reports referenced 397434 (Issue 2), 397435 & 397436 to the test methods detailed above demonstrate that the product, as tested, complies with requirements R22 (detailed in Table 5 of EN 45545-2: 2013+A1:2015) for a HL1 Hazard Level Classification.

We consider the results of the tests confirmed in reports referenced 397434 (Issue 2), 397435 & 397436 to the test methods detailed above demonstrate that the product, as tested, complies with requirements R23 (detailed in Table 5 of EN 45545-2: 2013+A1:2015) for a HL1 and HL2 Hazard Level Classification.

Signatories



Responsible Officer
 B. Dean *
 Technical Leader



Authorised
 S. Deeming *
 Business Unit Head

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

Report Issued: 21st May 2018

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Author: B. Dean

Issue Date: 21st May 2018

Client: Shore Auto Rubber Exports Pvt. Ltd.

Issue No.: 1

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Test Details

Terms Of Reference To assess the results of tests performed in accordance with methods T01, T10.03 and T12 as defined in EN 45545-2: 2013+A1:2015 at an irradiance level of 25kW/m² with a pilot flame, on specimens of a product and to provide an opinion of compliance with the requirements, as defined in EN 45545-2: 2013+A1:2015.

Introduction Specimens of a product have been tested in accordance with the test methods “T01” (EN ISO 4589-2. Determination of burning behaviour by oxygen index Part 2: Ambient temperature test), “T10.03” (ISO 5659-2: 2012; Plastics – Smoke Generation. Part 2 Determination of Optical Density by a Single Chamber Method) and “T12” (NF X70-100-1: 2006, NF X70-100-2: 2006 Gas analysis)”. The results of the tests are fully reported in the **Exova Warringtonfire** test reports No’s. 397434 (Issue 2), 397435 & 397436.

This summary report has been prepared at the request of the sponsor and relates the results of the tests to the requirements for R22 and R23, as defined in Table 5 of EN 45545-2: 2013+A1:2015.

This summary should be read in conjunction with, and not accepted as a substitute for the **Exova Warringtonfire** test reports No’s. 397434 (Issue 2), 397435 & 397436. Those test reports may include additional information which may be relevant to the assessment of the potential fire hazard of the product.

Face subjected to tests In the case of the ISO 5659-2 test, the specimens were mounted in the test positions such that the outer face was exposed to the heating conditions of the tests.

Results of test The following results were obtained for the specimens, which were tested.

“T01” EN ISO 4589-2: 1999

Oxygen index = 33.8

“T10.03” ISO 5659-2: 2012

D_s max = 302

“T12” NFX 70-100-1: 2006 Gas Analysis

CIT_{NLP} = 0.04

Applicability of test results The test results relate only to the behaviour of the test specimens of the product under the particular conditions of the test, they are not intended to be the sole criterion for assessing the potential 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 will therefore invalidate the test results. It is the responsibility of the supplier of the product to ensure that the product which is supplied is identical with the specimens which were tested.

Description of Test Specimens

The description of the system given below has been prepared from information provided by the sponsor of the test. This information has not been independently verified by **Exova Warringtonfire**.

All values quoted are nominal, unless tolerances are given.

General description		Silicone hose with three layers of fabric reinforcement
Product reference of overall composite		No specific reference assigned
Name of manufacturer of overall composite		Shore Auto Rubber Exports Pvt. Ltd.
Thickness of overall composite		6 ± 1mm (up to 7.5mm at the overlap) (stated by sponsor) 7.24mm (determined by Exova Warringtonfire)
Specific gravity		1.25 (stated by sponsor)
Density overall composite		1.25g/cm ³ (determined by Exova Warringtonfire)
Rubber	Generic type	Silicone
	Product reference	"58170C"
	Name of manufacturer/ further details	Shore Auto Rubber Exports Pvt. Ltd. is compounding the rubber in house. The raw material is bought out along with the pigment, accelerators and fillers.
	Thickness	See Note 1 Below
	Specific gravity	1.25
	Colour reference	"Grey"
	Flame retardant details	See Note 2 Below
Polyester fabric (Embedded in rubber)	Generic type	Polyester fabric
	Product reference	"145 +/- 5 grams per square meter"
	Name of manufacturer	See Note 1 Below
	Colour reference	"White"
	Number of layers	3
	Thickness per layer	0.6 ± 0.1mm
	Density / weight per unit area per layer	See Note 1 Below
	Type of weave / cell dimensions	See Note 1 Below
Flame retardant details	See Note 3 Below	
Brief description of manufacturing process		The Inner Rubber Liner, Fabric Plies and Outer Layer, all 3 are calendared and wrapped on the tool. Following this, they are cured, extracted from the mandrel, and then post-cured.

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

Note 2: The sponsor was unable to provide this information as they are not the manufacturer of the raw material. The base raw material used is FR 8775U from Bluestar Silicones. Bluestar Silicones adds the flame retardants and the sponsor is not aware of the flame retardants contained within the base raw material purchased. The sponsor does the compounding inhouse by adding pigments, accelerators and other fillers.

Note 3: The sponsor of the test has confirmed that no flame retardant additives were utilised in the production of the component.

Classification

Opinion

We consider the results of the tests confirmed in reports referenced 397434 (Issue 2), 397435 & 397436 to the test methods detailed above demonstrate that the product, as tested, complies with requirements R22 (detailed in Table 5 of EN 45545-2: 2013+A1:2015) for a HL1 Hazard Level Classification.

We consider the results of the tests confirmed in reports referenced 397434 (Issue 2), 397435 & 397436 to the test methods detailed above demonstrate that the product, as tested, complies with requirements R23 (detailed in Table 5 of EN 45545-2: 2013+A1:2015) for a HL1 and HL2 Hazard Level Classification.

Validity of opinion

This opinion is based on the requirements of EN 45545-2:2013+A1:2015 at the date of this report. If EN 45545-2+A1:2015 is revised or amended in any way subsequent to that date, care must be taken to ensure that this opinion is not invalidated by those revisions or amendments.

The opinion has been formulated on the assumption that the specimens are representative of the product in practice. **Exova Warringtonfire** was not involved in any sampling or selection procedures which would confirm this or in any audit testing which would provide confidence in the consistency of the product in the tests.

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Revision History

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Revised By:	Approved By:
Reason for Revision:	

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