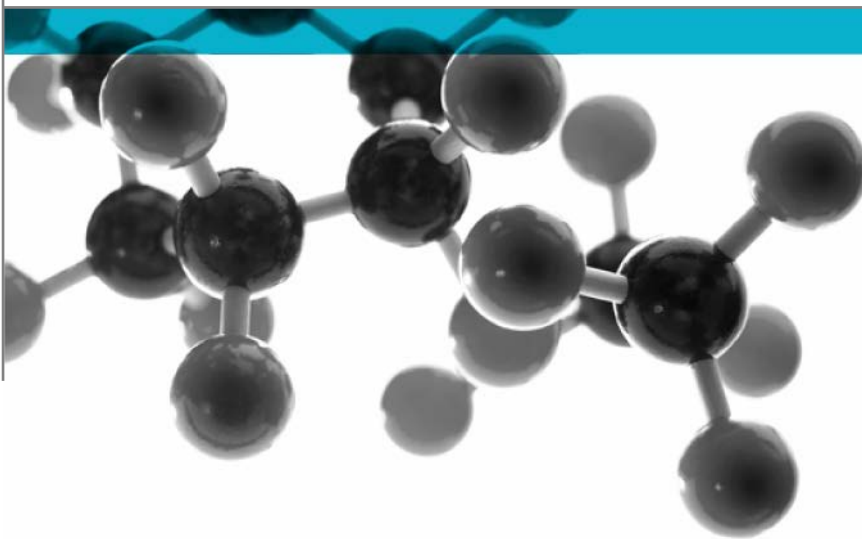


EN 45545-2: 2013 + A1:2015



Summary Test Report – Requirement Table 5 (R10)

Test Method References “T04” (EN ISO 9239-1: 2010; Part 1. Determination of the Burning Behaviour Using a Radiant Heat Source), “T10.03” (ISO 5659-2: 2017; Plastics – Smoke Generation. Part 2 Determination of Optical Density by a Single Chamber Method) and “T11.02” (Gas Analysis in the Smoke Box ISO, using FTIR Technique)

A Report To: Zenith Industrial Rubber Products Pvt. Ltd

Document Reference: 413223

Date: 20th May 2019

Issue No.: 1

Page 1

Executive Summary

Objective

To assess the results of tests performed in accordance with methods T04, T10.03 and T11.02 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	Weight per unit area or density
Rubberised floor covering for use in railway coaches & metro coaches adhered to a birch plywood substrate	"ICF/MD/SPEC-354" (Flooring only)	14.89mm*	9.80kg/m ² *
Individual components used to manufacture composite:			
Rubber flooring	"ICF/MD/SPEC-354"	2mm	2.5-3.4kg/m ²
Adhesive	"Adhesive Fevicol SR 998 IS & Fevicol Hardner C"	Unwilling to provide	Unwilling to provide
Plywood	"Birch Plywood (WBP grade)"	12mm	Unable to provide
*determined by Warringtonfire			
Please see page 6 of this test report for the full description of the product tested			


Test Sponsor

Zenith Industrial Rubber Products Pvt. Ltd. 141/144 Free Press house, Free Press Journal Marg, 215 Nariman Point, Mumbai, India, 400021.


Opinion

We consider the results of the tests confirmed in reports referenced 413221 & 413222 to the test methods detailed above demonstrate that the product, as tested, complies with requirements, R10 (detailed in Table 5 of EN 45545-2: 2013 + A1:2015) for a HL1, HL2 and HL3 Hazard Level Classification.

Signatories



Responsible Officer
C. Henry *
Fire Scientist



Authorised
S. Deeming *
Business Unit Head

* For and on behalf of [Warringtonfire](#).

Report Issued: 20th May 2019

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Document No.: 413223

Author: C. Henry

Client: Zenith Industrial Rubber Products Pvt. Ltd.

Page No.: 2 of 7

Issue Date: 20th May 2019

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Test Details

Terms Of Reference

To assess the results of tests performed in accordance with methods T04, T10.03 and T11.02 as defined in EN 45545-2: 2013 + A1:2015 at an irradiance level of 25kW/m^2 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 "T04" (EN ISO 9239-1: 2010; Part 1. Determination of the Burning Behaviour Using a Radiant Heat Source), "T10.03" (ISO 5659-2: 2017; Plastics – Smoke Generation. Part 2 Determination of Optical Density by a Single Chamber Method) and "T11.02" (Gas Analysis in the Smoke Box ISO, using FTIR Technique) as specified in EN 45545-2:2013 + A1:2015 "Requirements for Fire Behaviour of Materials and Components". The results of the tests are fully reported in the [Warringtonfire](#) test reports No's. 413221 & 413222.

This summary report has been prepared at the request of the sponsor and relates the results of the tests to the requirements for R10, 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 [Warringtonfire](#) test reports No's. 413221 & 413222. Those test reports may include additional information which may be relevant to the assessment of the potential fire hazard of the product. Where this assessment covers a system used on European rolling stock covered by the Technical Specification for Interoperability (LOC&PAS TSI (Commission Regulation (EU) No. 1302/2014)) all tests must have been conducted within the last 5 years or the test reports must have been reviewed within the last five years.

Face subjected to tests

The specimens were mounted in the test positions such that the rubber face was exposed to the heating conditions of the tests.

Results of test

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

"T04" ISO 9239-1: 2010

Average critical radiant flux = 8.05kW/m^2

"T10.03" ISO 5659-2: 2017

$D_s \text{ max} = 137$

"T11.02" Gas Analysis in the Smoke Box ISO, Using FTIR Technique

$CIT_{4\text{mins}} = 0.10$

$CIT_{8\text{mins}} = 0.23$

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 specimens given below has been prepared from information provided by the sponsor of the test. This information has not been independently verified by [Warringtonfire](#). All values quoted are nominal, unless tolerances are given.

General description		Rubberised floor covering for use in railway coaches & metro coaches adhered to a birch plywood substrate
Name of manufacturer		Zenith Industrial Rubber Products Pvt. Ltd.
Overall thickness		14.89mm (determined by Warringtonfire)
Overall weight per unit area		9.80kg/m ² (determined by Warringtonfire)
Rubber	Generic type	Rubberised floor covering
	Product reference	"ICF/MD/SPEC-354"
	Detailed description / composition details	Halogen Free 2 mm thick rubberised floor coverings for use in railways coaches & metro coaches
	Name of manufacturer	Zenith Industrial Rubber Products Pvt. Ltd.
	Thickness	2mm
	Weight per unit area	2.5–3.4kg/m ²
	Colour reference	"Grey"
	Flame retardant details	See Note 1 Below
Adhesive	Generic type	Synthetic rubber based solvent contact adhesive & hardener
	Product reference	"Adhesive Fevicol SR 998 IS & Fevicol Hardner C"
	Name of manufacturer	PIDILITE INDUSTRIAL PRODUCTS
	Colour reference	See Note 1 Below
	Application rate / thickness	See Note 1 Below
	Application method	See Note 1 Below
	Flame retardant details	See Note 2 Below
Plywood	Generic type	Birch plywood
	Product reference	"Birch Plywood (WBP grade)"
	Timber species	Birch
	Thickness	12mm
	Density / weight per unit area	See Note 3 Below
	No. of Ply's	Seven (observed by Warringtonfire)
	Trade name of adhesive used to bond the wood together	See Note 3 Below
	Name of manufacturer / supplier	See Note 3 Below
	Flame retardant details	See Note 3 Below
	Cycle details	See Note 3 Below
Brief description of manufacturing process		See Note 1 Below

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

Note 2: The sponsor of the test has confirmed that no flame retardants were used in the production of this component.

Note 3: The sponsor of the test was unable to provide this information.

Classification

Opinion

We consider the results of the tests confirmed in reports referenced 413221 & 413222 to the test methods detailed above demonstrate that the product, as tested, complies with requirements, R10 (detailed in Table 5 of EN 45545-2: 2013 + A1:2015) for a HL1, HL2 and HL3 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 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. [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

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

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Revised By:	Approved By:
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