

## Reaction to fire tests for floorings - Part 1: Determination of the burning behaviour using a radiant heat source - EN ISO 9239-1 and ignitability according to EN ISO 11925-2

(2 appendices)

### Introduction

RISE has by request of Tarkett AB performed fire tests according to EN ISO 9239-1 and EN ISO 11925-2. The purpose of the tests are to form a basis for technical fire classification.

### Product

According to client:

Floor covering called "Standard Plus", consisting of following material:

Components	Specification	Weight (%)	g/m <sup>2</sup>
Polymer	Polyvinyl chloride (Cas-nr: 9002-86-2)	32	1060
Platicizer	DINCH, 1,2 Cyclohexanedicarboxylic acid, diisononylester (Cas-nr: 166412-78-8)	10	330
	Epoxidised soya bean oil (Cas-nr: 8013-07-8)	3	100
Stabilizer	CaZn soaps	<1	<40
Filler	Mineral fillers	52	1700
Pigment	Titanium dioxide (Cas-nr: 13463-67-7) and other pigments	1	40
Other products	PUR Surface treatment	<1	<30

The product has a nominal area weight of 3300 g/m<sup>2</sup> and a nominal thickness of 2.0 mm.

### Manufacturer

Tarkett AB, Ronneby, Sweden.

### Sampling

The sample was delivered by the client. It is not known to RISE Safety – Fire Research if the product received is representative of the mean production characteristics.

The sample was received on November 22, 2017 at RISE Safety – Fire Research.

### RISE Research Institutes of Sweden AB

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**Test results**

The test results are given in appendix 1 - 2.

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

**Note**

The accreditation referred to is valid for EN ISO 9239-1 and EN ISO 11925-2.

According to the classification standard, EN 13501-1, floor coverings should be tested in more than one test method for classification.

**RISE Research Institutes of Sweden AB  
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Performed by

Examined by

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**Appendices**

1 – 2      Test results

Appendix 1

**Test results – EN ISO 9239-1:2010**

**Product**

According to client:

Floor covering called ”Standard Plus”, consisting of following material:

Components	Specification	Weight (%)	g/m <sup>2</sup>
Polymer	Polyvinyl chloride (Cas-nr: 9002-86-2)	32	1060
Platicizer	DINCH, 1,2 Cyclohexanedicarboxylic acid, diisononylester (Cas-nr: 166412-78-8)	10	330
	Epoxidised soya bean oil (Cas-nr: 8013-07-8)	3	100
Stabilizer	CaZn soaps	<1	<40
Filler	Mineral fillers	52	1700
Pigment	Titanium dioxide (Cas-nr: 13463-67-7) and other pigments	1	40
Other products	PUR Surface treatment	<1	<30

The product has a nominal area weight of 3300 g/m<sup>2</sup> and a nominal thickness of 2.0 mm.

**Application**

The specimen was loosely put on to a particle board, having a density of 680 kg/m<sup>3</sup> approximately.

**Test results**

Test no	1	2	3	4
Direction	→	↑	↑	↑
Flame spread distance, mm	Time, min:s	Time, min:s	Time, min:s	Time, min:s
60	2:47	2:47	2:46	2:43
Flames at flame front were extinguished	3:57	4:19	4:59	4:16

Appendix 1

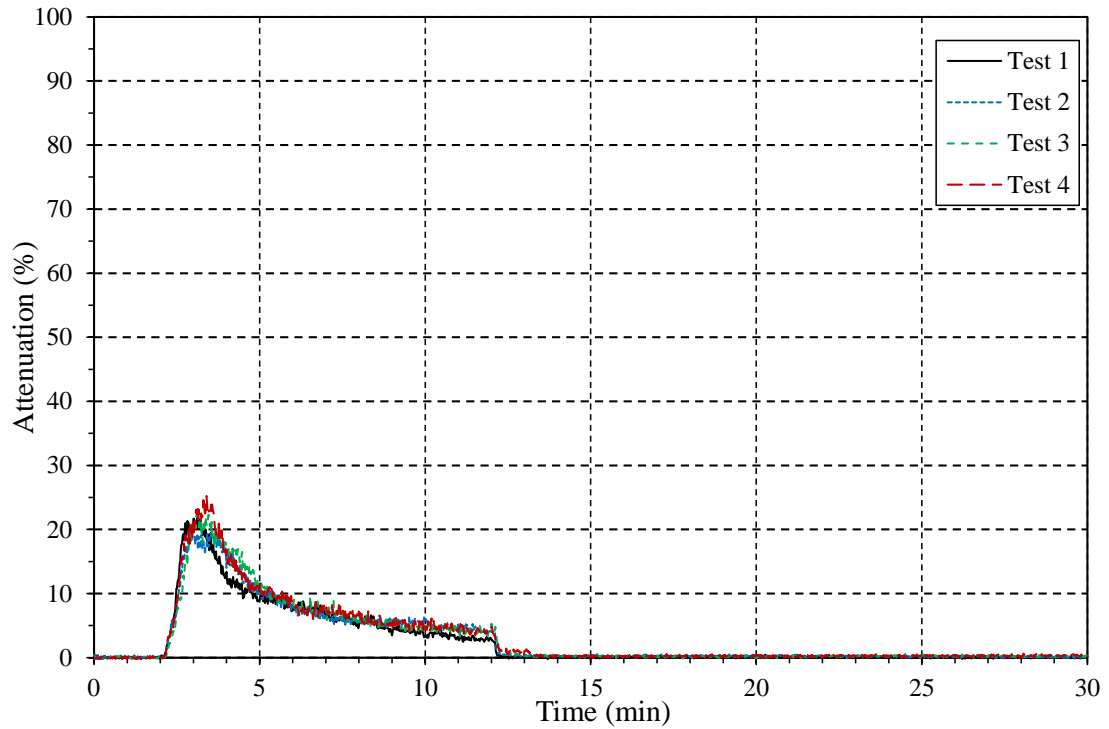
Test no	1	2	3	4
Direction	→	↑	↑	↑
Time, min	Flame spread distance, mm	Flame spread distance, mm	Flame spread distance, mm	Flame spread distance, mm
HF-10	60	70	70	60
HF-20	-	-	-	-
HF-30	-	-	-	-

Test no	1	2	3	4	Average value*
Direction	→	↑	↑	↑	
Maximum flame spread, mm	80	90	100	90	-
Critical radiant flux (CHF), kW/m <sup>2</sup>	≥11	≥11	≥11	≥11	<u>≥11</u>
Heat flux at 30 min (HF-30), kW/m <sup>2</sup>	-	-	-	-	=
Peak smoke production, %	22	21	22	25	<u>23</u>
Light absorption (area under curve), % x min	80	87	90	94	<u>90</u>

\* The mean value is from the test data on the three specimens with the same directional orientation.

## Appendix 1

## Smoke generation sample no 1 to 4

**Measured data**

Thickness 1.9 mm, approximately.

Area weight 3300 g/m<sup>2</sup>, approximately.

**Conditioning**

According to EN 13238:2010.

Temperature (23 ± 2) °C.

Relative humidity (50 ± 5) %.

**Date of test**

December 11 and 12, 2017.

Appendix 2

**Test results – EN ISO 11925-2:2010/AC:2011**

**Product**

According to client:

Floor covering called ”Standard Plus”, consisting of following material:

Components	Specification	Weight (%)	g/m <sup>2</sup>
Polymer	Polyvinyl chloride (Cas-nr: 9002-86-2)	32	1060
Platicizer	DINCH, 1,2 Cyclohexanedicarboxylic acid, diisononylester (Cas-nr: 166412-78-8)	10	330
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Stabilizer	CaZn soaps	<1	<40
Filler	Mineral fillers	52	1700
Pigment	Titanium dioxide (Cas-nr: 13463-67-7) and other pigments	1	40
Other products	PUR Surface treatment	<1	<30

The product has a nominal area weight of 3300 g/m<sup>2</sup> and a nominal thickness of 2.0 mm.

**Application**

Surface exposure. Flame exposure time was 15 seconds.

**Test results**

Test no	1	2	3	4	5	6
Direction	→	→	→	→	→	→
The sample ignited, s	NI	NI	NI	NI	NI	NI
The flames reach 150 mm, s	-	-	-	-	-	-
Burning droplets	No	No	No	No	No	No
Time when filter paper ignited, s	-	-	-	-	-	-

NI = no ignition

**Deviation from standard**

The relative humidity in the test room was too low according to standard but it is deemed to be a worst case scenario.

## Appendix 2

**Measured data**

Thickness 1.9 mm, approximately.

Area weight 3300 g/m<sup>2</sup>, approximately.

**Conditioning**

According to EN 13238:2010.

Temperature (23 ± 2) °C.

Relative humidity (50 ± 5) %.

**Date of test**

December 15, 2017.