Document: Technical Construction File

File No: TCF(17)-244-CPR

Revision: A1

Revision Date: 25th.Jul.2017

Product: PVC FLOORING

MODEL : 3MM/4MM/5MM/6MM/7MM/8MM

According to

Regulation (EU) No 305/2011 Construction products

presented by

CHANGZHOU DITAI NEW MATERIALS TECHNOLOGY CO., LTD.

NO.6, RONGSHENG ROAD, HENGLIN TOWN, WUJIN DISTRICT,

CHANGZHOU, JIANGSU, CHINA

Technical File No.	Issue Date	Prepared by	Approved by
TCF(17)-244-CPR	25th.Jul.2017		

Technical Construction File

File No.: TCF(17)-244-CPR

Type of Equipment:	**PVC Flooring**
Model No.:	**3MM, 4MM, 5MM, 6MM, 7MM, 8MM**
Issued Date:	**25th.Jul.2017**
Brand Name/ Trade mark:	**---**
Directive(S)	**Regulation (EU) No 305/2011 Construction Products**
Standard(s):	**EN 14041:2004/AC:2006/AC:2006**

CE

Presented by

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Test Conducted:
Resilient, textile and laminate floor coverings – Essential Characteristics
(Reference to BS EN 14041:2004/AC:2006/AC:2006)

<table>
<tr><th>Test Property</th><th>Test Method</th><th>Test Principle / Requirements</th><th>Test Result</th></tr>
<tr><td>Reaction to fire</td><td>EN 14041:2004 /AC:2006 (clause 4.1)</td><td>The specimen shall be tested on one of the two standard substrates specified for floorings in EN 13238:2001 according to the intended end use.
The composition of the product, including the presence of any fire retardant additive, shall be declared by the manufacturer prior to type testing.</td><td>B_{fl}-S1
Refer to Result 1 for further details</td></tr>
<tr><td>Content of pentachlorophenol(PCP)</td><td>EN 14041:2004 /AC:2006 (clause 4.2)</td><td>Resilient, textile and laminate floor shall not contain PCP. In case of where verification is required, if the content is less than 5ppm in the parts of the product, this requirement shall be considered to be met. For laminate floor the method CEN/TR 14823,for textile floor the method CEN/TS 14494 shall be used. For resilient floor verification is not required.</td><td>Pass
See Result 2</td></tr>
<tr><td>Formaldehyde emission</td><td>EN 14041:2004 /AC:2006 (clause 4.3)</td><td>When formaldehyde-containing materials have been added to the product as a part of the production process, the product shall be tested and classified into one of two classes: E1 or E2.
<table>
<tr><td></td><td>Test method</td><td colspan="2">Formaldehyde class and Requirement</td></tr>
<tr><td rowspan="2">Initial type testing</td><td rowspan="2">ENV 717-1</td><td>Class E1</td><td>Release≤ 0.124 mg/m³</td></tr>
<tr><td>Class E2</td><td>Release> 0.124 mg/m³</td></tr>
</table></td><td>Class E1
See Result 3</td></tr>
<tr><td>Water-tightness</td><td>EN 14041:2004 /AC:2006 (clause 4.4 refer to EN 13553:2002)</td><td>Cover the supporting base with the indicator paper. Place the test specimen on the paper with the use surface side upwards. Place the box over the test specimen and press the support towards the box to ensure water tightness.
Fill the box with water to a level of 200mm above the upper surface of the test specimen. This water level is maintained for 24h after which the water is drained off. The moisture</td><td>Pass</td></tr>
</table>

Test Property	Test Method	Test Principle / Requirements	Test Result
		indicator and the test specimen are examined for any signs of water penetrating the specimen. The test specimen is considered watertight if there is no sign of penetrating water.	
Slip resistance	EN 14041:2004 /AC:2006 (clause 4.5)	If a claim for slip resistance is made, the floor covering intended to be used in dry and non-contaminated conditions shall have a dynamic coefficient of friction of ≥0,30 when tested ex-factory under dry conditions in accordance with EN 13893 and shall be declared as technical class DS. Although such floors may be subjected to occasional spillage and wet cleaning, the manufacturer does not guarantee the performance under these conditions. If no claim for slip resistance is made, the floor coverings for which no performance has been determined shall be declared as technical class NPD.	Class DS See Result 4
Electrical behavior (static electricity)	EN 14041:2004 /AC:2006 (clause 4.6)	The body voltage, measured in accordance with EN 1815 for resilient and laminate floor coverings or ISO 6356 for textile floor coverings, shall not exceed 2,0 kV Static dissipative floor coverings: The vertical resistance, measured in accordance with EN 1081 for resilient and laminate floor coverings or ISO 10965 for textile floor coverings, shall not exceed $10^9\Omega$ Conductive floor coverings: The vertical resistance, measured in accordance with EN 1081 for resilient and laminate floor coverings or ISO 10965 for textile floor coverings, shall not exceed $10^6\Omega$	Not applicable
Thermal conductivity	EN 14041:2004 /AC:2006 (clause 4.7)	When floor coverings are to be installed over an under- floor heating system the design thermal conductivity values given in EN 12524 shall be assumed for design calculation purposes. Alternatively, the thermal resistance measured in accordance with EN 12667 may be used.	Not applicable

Results 1:
Test conducted

This test is conducted as per EN 13501-1:2007+A1:2009 Fire classification of construction products and building elements — Part 1: Classification using data from reaction to fire tests. And the test methods as following:

1. EN ISO 9239-1:2010 Reaction to fire tests for floorings —Part 1: Determination of the burning behaviour using a radiant heat source.
2. EN ISO 11925-2:2010 Reaction to fire tests — Ignitability of building products subjected to direct impingement of flame — Part 2: Single-flame source test.

Details of classified product

a) Nature and end use application

The product "PVC Flooring" is defined as "Flooring materials". Its classification is valid for the following end use application " for building decorative use as flooring".

b) Description

Color	Light PVC stripes board
Thickness	About 4mm
Mass per unit area	About 5.7kg/m^2

*---Measured by laboratory

Mounting and fixing:
Fire cement board, with its density approximate 1800kg/m^3, thickness approximate 6mm, is as the substrate. The specimens are fixed mechanically to the substrate with no cavity behind it.

Test results

Test method	Parameter	Number of tests	Results
EN ISO 9239-1	Critical flux (kW/m^2)	3	10.1
	Smoke (%×minutes)		127
EN ISO 11925-2 Exposure = 15 s	$F_s \leq 150$ mm	6	YES

Classification and direct field of application

This classification has been carried out in accordance with EN **13501-1:2007+A1:2009**.

a) Classification

The product, PP Interlocking Sports Flooring, classification is as following,

Fire behaviour		**Smoke production**	
B fl	—	s	1

Reaction to fire classification: B fl — S1

Remark: The classes with their corresponding fire performance are given in annex A.

b) Field of application

This classification for the submitted sample is valid for the following end use condition:

--- With all substrates classified A1 and A2

--- With mechanical fixing

--- No joint

This classification is valid for the following product parameters:

--- Characteristics are described in § II b of this test reports

Statement: 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.

Warning:

This classification report does not represent type approval or certification of the product.

The test laboratory has, therefore, play no part in sampling the product for the test, although it holds appropriate references to the manufacturer's factory production control that is aimed to be relevant to the samples tested and that will provide for their traceability.

Annex A

Classes of reaction to fire performance for floorings

class	Test methods		Classification	Additional classification
$A1_{fl}$	EN ISO 1182 [a] and		$\Delta T \leq 30℃$, and $\Delta m \leq 50\%$, and $t_f = 0$ (i.e. no sustained flaming)	-
	EN ISO 1716		PCS≤2.0MJ/kg [a] and PCS≤2.0MJ/kg [b] and PCS≤1.4MJ/m^2 [c] and PCS≤2.0MJ/kg [d]	-
$A2_{fl}$	EN ISO 1182 [a] or	and	ΔT≤50℃, and Δm≤50%, and t_f≤20s	-
	EN ISO 1716		PCS≤3.0MJ/kg [a] and PCS≤4.0MJ/m^2 [b] and PCS≤4.0MJ/m^2 [c] and PCS≤3.0MJ/kg [d]	-
	EN ISO 9239-1 [e]		Critical flux [f] ≥8.0kW/ m^2	Smoke production [g]
B_{fl}	EN ISO 9239-1 [e] and		Critical flux [f] ≥8.0kW/ m^2	Smoke production [g]
	EN ISO 11925-2 [h] Exposure=15s		Fs≤150mm within 20 s	-
C_{fl}	EN ISO 9239-1 [e] and		Critical flux [f] ≥4.5kW/ m^2	Smoke production [g]
	EN ISO 11925-2 [h] Exposure=15s		Fs≤150mm within 20 s	-
D_{fl}	EN ISO 9239-1 e and		Critical flux f ≥3.0kW/ m2	Smoke production [g]
	EN ISO 11925-2 h Exposure=15s		Fs≤150mm within 20 s	-
E_{fl}	EN ISO 11925-2 h Exposure=15s		Fs≤150mm within 20 s	-
F_{fl}	No performance determined			

[a] For homogeneous products and substantial components of non-homogeneous products.

[b] For any external non-substantial component of non-homogeneous products.

[c] For any internal non-substantial component of non-homogeneous products.

[d] For the product as a whole.

[e] Test duration = 30 min.

[f] Critical flux is defined as the radiant flux at which the flame extinguishes or the radiant flux after a test period of 30 min, whichever is the lower (i.e. the flux corresponding with the furthest extent of spread of flame).

[g] **s1** = Smoke ≤ 750 % minutes;

Results 2:

Test Part Description:

Specimen No.	Sample Description
1	4MM Light PVC stripes board

Remarks :
(1) 1 mg/kg = 1 ppm = 0.0001%
(2) MDL = Method Detection Limit
(3) ND = Not Detected (< MDL)
(4) "-" = Not Regulated

BS EN 14342:2005 - Pentachlorophenol (PCP)
Test Method: With reference to CEN/TR 14823:2006

Test Item(s)	Limit	Unit	MDL	001
Pentachlorophenol (PCP)	5	mg/kg	0.5	ND
Conclusion	PASS			

Results 3: Formaldehyde Emission

Test Method: With reference to EN 717-1:2004.

Test Item(s)	Unit	MDL	001
Formaldehyde Emission (In air)	mg/m^3	0.080	ND
Conclusion	PASS		

Notes:
(1) mg/m^3 = milligrame per cubic meter
(2) Reference Limit: EN13986:2004(E) Formaldehyde class E1: $\leqslant$0.124 mg/m^3 air
Formaldehyde class E2: >0.124 mg/m^3 air

Results 4:

Slip resistance

Test Method:

EN 14041:2004/AC:2006 Clause 4.5 and EN 13893:2002

The test was conducted in accordance with EN 13893:2002. Sliders made from the defined material and having a definite shape are loaded to impose a specified force on the floor covering. The loaded sliders are pulled parallel to the surface of floor covering at constant speed 0.2m/s to 0.3m/s. The horizontal force applied to pull the sliders is recorded over the length of a trace at least 0.30m. And the results were calculated by the formulae below:

$\mu = F/M$

F– is the average horizontal force (in Newton).

M– is the total vertical load on the sliders (in Newton).

Test Condition:

Specimen thickness: 4mm

Total mass of loaded slider: 10.0kg

Testing speed: 0.26m/s

Test Result:

Dynamic coefficient of friction	0.31
Classification of dynamic coefficient of friction	Technical class DS

Standard's Requirement:

When declared, the floor covering intended to be used in dry and non-contaminated conditions shall have a dynamic coefficient of friction of ≥0.30 when tested ex-factory under dry conditions per EN 13893:2002 and shall be declared as technical class DS.

Conclusion: Pass

Sample photos

Fig.1

Fig.2