

Test ReportNo.:CZHL2111007949HIDate:DEC. 16, 2021Page 1 of 5CHANGZHOU DACHUAN ENVIRONMENTAL PROTECTION TECHNOLOGY DEVELOPMENT CO.,LTD.NO.2,CHUANGSHENG ROAD,INDUSTRIAL CONCERNTRATION AREA,LUOYANG TOWN,WUJINDISTRICT, CHANGZHOU, JIANGSU, CHINA

The following sample(s) was/were submitted and identified by/on behalf of the client as:

Sample Description	:	MSPC (MINERAL STONE POLYCOMPOSITE)
Requested Age Grading	:	15
		*****
Sample Receiving Date	:	DEC. 03, 2021
Testing Period	:	DEC. 03, 2021 TO DEC. 16, 2021
Testing Performed	:	Follow selected test(s) as requested by client.

	Test Requirement	Conclusion
1	Resilient floor coverings — Determination of dimensional stability and	See Result
	curling after exposure to heat (ISO 23999:2018)	

\*\*\* FOR FURTHER DETAILS, PLEASE REFER TO THE FOLLOWING PAGE(S) \*\*\*

Berix Li Authorized Signatory



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# <u>1. Resilient floor coverings — Determination of dimensional stability and curling after exposure to heat (ISO 23999:2018)</u>

1) Number of test sample: 3 pieces

2) Test details see below table :

Clause	Tes	t Description	Result
Determination	1. Condition the test specimens on a flat surface, such as a table		Dimensional
of dimensional		surface, to ensure that they are in contact with the support	stability:
stability and		plate uniformly during the measurements.	MD: -0.05%
curling after		Condition the test specimens at a temperature of 23 °C $\pm$ 2 °C	AMD: -0.05%
exposure to		and relative humidity of 50 $\%$ ± 5 $\%$ for a minimum of 24 h.	
heat	2.	Make eight scores on each sheet or tile test specimen	Curling: 0.5mm
		approximately 20 mm from the edges.	
		Make four scores in each direction to form four crosses, at a	
		distance of 200 mm ± 1 mm.	
		If utilized for planks, a different spacing is required for width.	
		Mark the two reference points for measurement on the top of	
		the test specimen and measure, with the wear surface up, on	
		the block and the optical bench assembly, to ensure that any	
		embossing along the edge of the test specimen wear surface	
		does not affect the measurements.	
		To make the scores more easily visible, the scores may be	
		marked with a solution of dye in aqueous alcohol (i.e.	
		whiteboard marker or equivalent).	
		Place each test specimen on a support plate with its surface	
		facing upward. Condition the test specimen.	
	3.	Measure the vertical distance between the support plate and	
		the wear surface of the test specimen in four places around	
		the edge (usually the corners), where the distance is greatest.	
		Carry out the measurements with the micrometer.	
		CAUTION — When handling test specimens and making	
measure		measurements, to avoid distortion, do not apply undue force	
		to the test specimen.	
	4.	On each test specimen, determine the length of four	
		measurement sections: two in the manufacturing direction	



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Test Description	Result
(MD) of the flooring material and two in the transverse or	
across-manufacturing (TD or AMD) direction.	
Put the rigid plate on top of the test specimen and measure	
the length between the crosses formed by the scores.	
Start the heat exposure portion of the test within 1 h of making	
the initial dimensional measurements.	
5. Place the test specimens horizontally onto support plates,	
previously placed in the oven.	
Allow to come to test temperature (80 $\pm$ 2) °C (standard	
default temperature unless otherwise cited in a flooring	
specification document). Maintain the test specimens at this	
temperature for $6h_0^{+15}$ min (standard default time, unless	
otherwise cited in a flooring specification document) in the	
oven. If a different temperature and/or time is utilized, the test	
sheet shall accurately reflect the conditions used to test the	
curling and dimensional stability. The same tolerances for	
temperature and time, as required for default conditions, apply	
to any different set of temperature/time conditions utilized.	
6. Remove the test specimens from the oven. Allow the test	
specimens to recondition for 24 h (unless otherwise specified	
for the product). Do not remove the test specimens from the	
metal plate until the reconditioning time has elapsed and the	
measurements are to be performed.	
7. After reconditioning, measure the dimensional changes to the	
test specimen.	
8. Re-measure curling as described before. Make sure that the	
optical device is at the same reference points for both the	
initial and final measurements.	
1) For sheet, tile and if utilized on plank test specimens	
Make sure to place the rigid metal plate on top of the	
specimens and re-measure the length between the crosses	
formed by the scores, i.e. the new distance of each	
measurement section.	
	<ul> <li>Test Description <ul> <li>(MD) of the flooring material and two in the transverse or across-manufacturing (TD or AMD) direction.</li> <li>Put the rigid plate on top of the test specimen and measure the length between the crosses formed by the scores.</li> <li>Start the heat exposure portion of the test within 1 h of making the initial dimensional measurements.</li> </ul> </li> <li>Place the test specimens horizontally onto support plates, previously placed in the oven. Allow to come to test temperature (80 ± 2) °C (standard default temperature unless otherwise cited in a flooring specification document). Maintain the test specimens at this temperature for 6h<sub>0</sub><sup>+15</sup>min (standard default time, unless otherwise cited in a flooring specification document). Maintain the test specimens for the curling and dimensional stability. The same tolerances for temperature and time, as required for default conditions, apply to any different set of temperature/time conditions utilized.</li> <li>Remove the test specimens from the oven. Allow the test specimens to recondition for 24 h (unless otherwise specified for the product). Do not remove the test specimens from the metal plate until the reconditioning time has elapsed and the measurements are to be performed.</li> <li>After reconditioning, measure the dimensional changes to the test specimen.</li> </ul> 8. Re-measure curling as described before. Make sure that the optical device is at the same reference points for both the initial and final measurements. <ul> <li>For sheet, tile and if utilized on plank test specimens formed by the scores, i.e. the new distance of each</li> </ul>

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Clause	Test Description	Result
	Make sure that the optical device is at the same reference	
	points for both the initial and final measurements.	
	2) For tile and plank (partial) test specimens measured	
	using block and dial gauge	
	Place the test specimen on the block and dial gauge. Record	
	the length at the specified location. For planks, use the	
	calibrated shim or spacer block to allow the measurement of	
	plank width differences with the block and dial gauge	
	apparatus.	
	9. Calculation and expression of results	
	9.1 For curling	
	Calculate the mean value of the four measurements for	
	each test specimen. The initial and final values are	
	expressed separately. Calculate the mean value for the	
	three test specimens. Express the results in millimetres to	
	the nearest 0,5 mm.	
	9.2 For dimensional stability	
	For each of the test directions (machine direction and	
	across machine direction), record the variations for the six	
	length measurements (two readings from three test	
	specimens). Calculate the dimensional change for each	
	measurement section related to the initial length. The	
	linear change, $dL_{complete}$ , expressed as a percentage, is	
	given by the following formula:	
	$dL_{complete} = \frac{(L_0 - L_1)}{L_0} \times 100$	
	Where :	
	$dL_{complete}$ is the linear change in dimension(s) after complete test,	
	expressed as a percentage;	
	L₀ is the initial length	
	L <sub>1</sub> is the length after test	





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Photo Appendix

Photo relative to overall specimen:



Received Sample (front view)



Received Sample (back view)

### Result/Rating/Record Key(s)

- Result/Rating Keys: P = Pass = Meet; F = Fail = Not Meet; N/A = Not applicable = Not suitable; NR = NC = Test not conduct/requested per client request; TT = Test terminated due to the earlier failure of last test.
- II. Record Keys: "C:" means Claimed parameter; "A:" means Actual recorded from test; "D:" means Data for reference only.

#### General Report Note(s)

- A. N.B. Only applicable clauses were shown.
- B. (1) 1mg/kg = 0.0001% (2) MDL = Method Detection Limit (3) ND = Not Detected (< MDL)</li>
  (4) "-" = Not Regulated
- C. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.
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