

# **Product test**

Carried out by Stia Holzindustrie GmbH

## **„Tokyo Gas“**

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## **Product test**

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### **„Tokyo Gas“**

Test leader:	<b>Christian Schwarzingner</b>
Test implementors:	<b>Atzlinger, Gügerl, Schwarzingner</b>

Product:	<b>ANB ash Mocca dark</b>
Surface:	<b>Sanded natural oiled</b>
Dimension:	<b>2000/154/15</b>
Start of test:	<b>14.03.06</b>

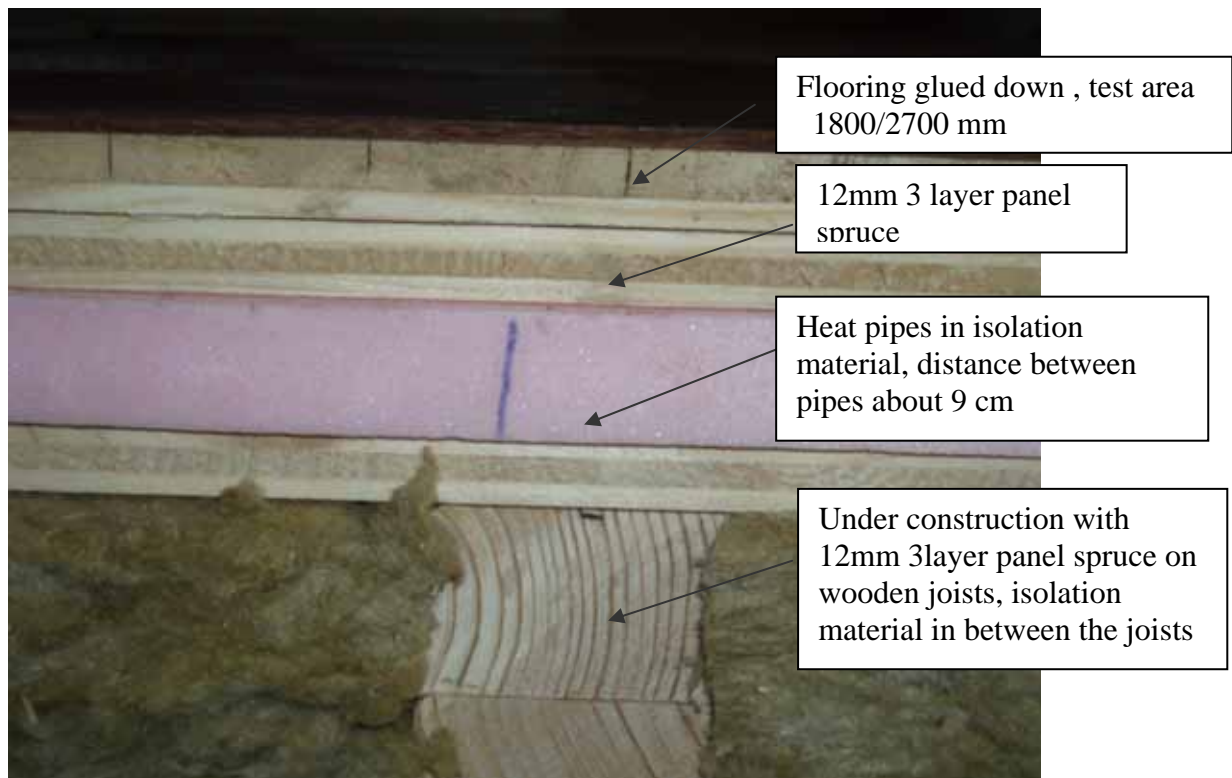
#### **General description:**

In order to receive a registration by Tokyo Gas for a brand of flooring for the Japanese market it is necessary to take a special test of the flooring. Because of the high costs involved in this test by Tokyo Gas we have simulated these tests in house in order to learn about the chances that our product will pass the test.

#### **Test regime**

As different kinds of subfloor are used in Japan than in Austria, we had to create a test area corresponding to Japanese rules.

A 12mm plate made of spruce was fixed on wooden joists. On top of this plate the heating pipes were put inside a foam panel. On top of this another spruce plate was put closely in order to guarantee best possible heat transfer. The glueing of the floor was done with elastic PU glue.



### Test run:

The tests consist of two partes, the „repeated hot water test“ and the “continuous hot water test”, which are carried out one after the other. Additionally, the “overheating test”, the “test with a wet towel” and the “water spilling test” are carried out.

<b>Repeated hot water test</b>	For 8 hours, hot water with about 80°C is pumped through the system. Then there are 4hrs of natural cooling down. Duration of test: 100 cycles (50 days)
<b>Continuous hot water test</b>	For 300 hrs (12,5 days) hot water with 80 °C is pumped through the system
<b>Overheating test</b>	A carpet size 600 x 600mm is placed centered on a connection point between two floor panels.
<b>Test with wet towel</b>	A towel which is placed on a connection point between two floor panels is daily wet with 300cc water.
<b>Water spilling test</b>	300cc of water are spilled every day on a connection point between two floor boards. This test is carried out in the same row as the „test with wet towel“.

**Evaluation** (according to Tokyo Gas rules):

1. Visual evaluation

After the test, the floor generally shows a very good appearance. Only in the area of the water tests there are small cracks which started showing from the 40<sup>th</sup> day of testing.

The rest of the test area was free of cracks or splintering.

Under the carpet the surface temperature was about 5 °C higher than on the other areas. There were no gaps or cracks in this area.

In spite of the very dry climate and the high surface temperature there was no occurrence of gaps on the small sides!

2. Change in dimension

During the entire test time there was only a minimal occurrence of gaps on the test area. Difference in height between the individual panels up to 0.1mm occurred. Based on the minimal change in dimension under extreme climates the good dimensional stability of ash mocca in connection with glue down installation could be shown.

**Maximum change during the entire test run**

Measuring point	Parameter	max. value		Measuring point	Parameter	max. value
a	MC	- 0,9		6	Gaps	0,05
b	MC	- 0,9		7	Gaps	-
c	MC	- 0,8		8	Gaps	-
d	MC	- 0,7		9	Gaps	-
e	MC	- 0,9		10	Gaps	-
f	Height difference	-		(1)	Gaps	-
g	Height difference	0,1		(2)	Gaps	-
h	Height difference	0,15		(3)	Gaps	-
i	Height difference	0,1		(4)	Gaps	0,1
j	Height difference	-		(5)	Gaps	-
k	Height difference	-		(6)	Gaps	0,05
l	Height difference	0,1		(7)	Gaps	0,05
m	Height difference	-		(8)	Gaps	-
n	Height difference	0,1		(9)	Gaps	-
o	Height difference	-		(10)	Gaps	-
1	Gaps	-		I	Cupping	0,05
2	Gaps	-		II	Cupping	0,05
3	Gaps	-		III	Cupping	-
4	Gaps	-		IV	Cupping	0,05
5	Gaps	-		V	Cupping	-

3. Floor sounds

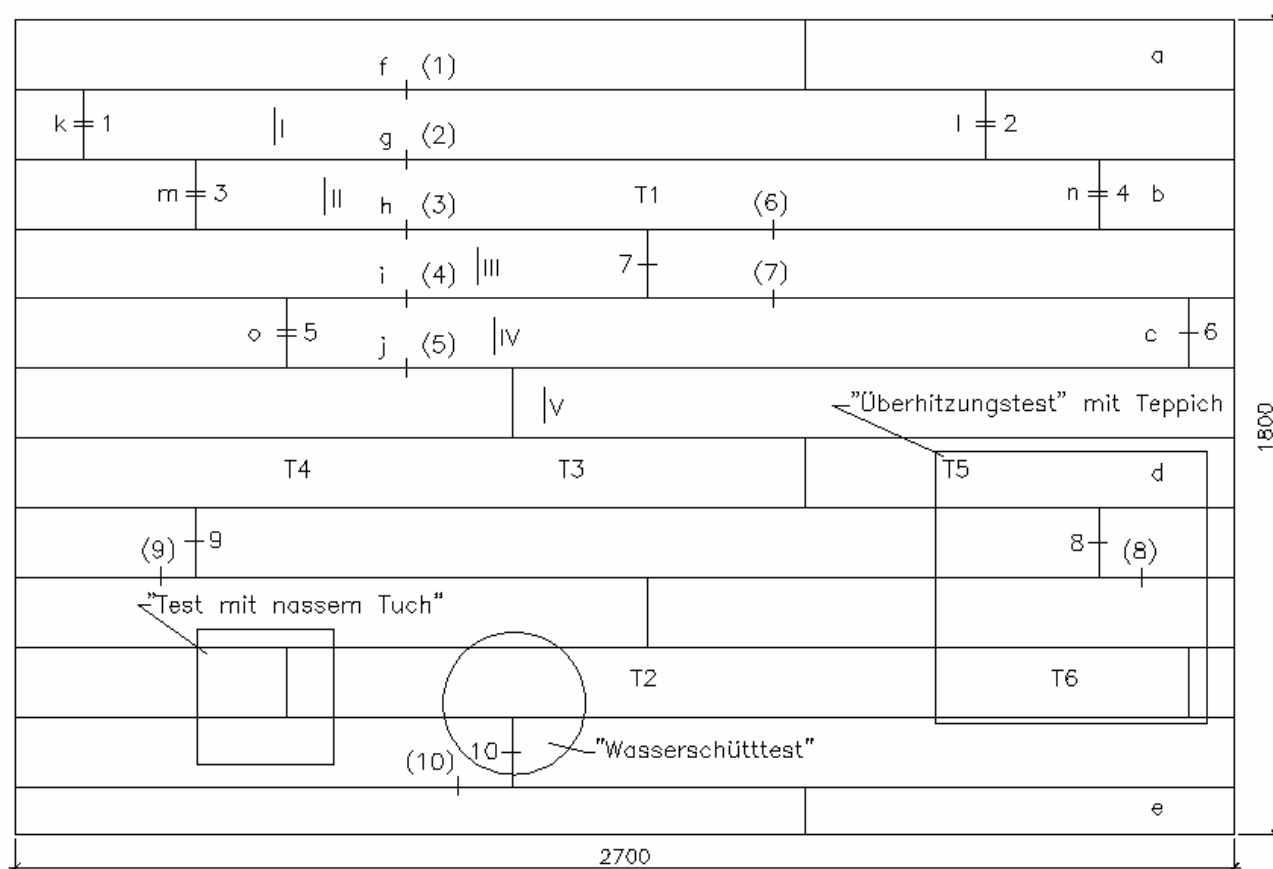
Because of the glue down installation there are no floor sounds possible.

Summary:

In general, the requirements of the „Tokyo Gas Test“ were fulfilled, the only problem is posed by the natural oil surface as in the area of the water tests some water could get into the wood which can lead to cracks. This problem should be solved when testing a lacquered or a UV oiled floor.

**Description of test run:**

All relevant data (gaps, difference in height, cupping, moisture content) was determined before starting the test and written down in the attached protocols. Control of the data was carried out after 30, 50 and 100 cycles as well as after finishing the "continuous hot water test". All measuring points were placed according to the test rules.

**Drawing of measuring points**


"Überhitzungstest mit Teppich" = overheating test with carpet

"Test mit nassem Tuch" = "test with wet towel"

"Wasserschütttest" = "water spilling test"

**Climate during the test:**

During the entire test run all relevant climatic data was measured electronically and recorded. For this the integrated measuring system of the climate-controlled test rooms was used. Additionally, mobile test equipment was used. The accuracy of the measurements is for temperature  $\pm 0,2\text{ }^{\circ}\text{C}$  and for humidity  $\pm 0,3\text{ }\%$

Average values during the entire test run

<b>Room temperature:</b>	28 – 35 °C
<b>Humidity:</b>	19 – 25 %
<b>Surface temperature:</b>	32 – 40 °C
<b>Water temperature:</b>	70 – 76 °C