

TEST REPORT No. 320952

Place and date of issue: Bellaria-Igea Marina - Italy, 19/12/2014

Customer: INGROSERVICE ITALIA S.r.l. - Via del Pantano, 71 - 50018 SCANDICCI (FI) - Italy

Date test requested: 02/12/2014

Order number and date: 65036, 03/12/2014

Date sample received: 10/12/2014

Test date: from 10/12/2014 to 16/12/2014

Purpose of test: thermal conductivity by the heat flow meter technique of paint in accordance with standard ASTM E1530 - 11

Test site: Istituto Giordano S.p.A. - Blocco 2 - Via Rossini, 2 - 47814 Bellaria-Igea Marina (RN) - Italy

Sample origin: sampled and supplied by the Customer

Identification of sample received: No. 2014/2516

Sample name*

The test sample is called "ARTEVIVA".

Description of sample*

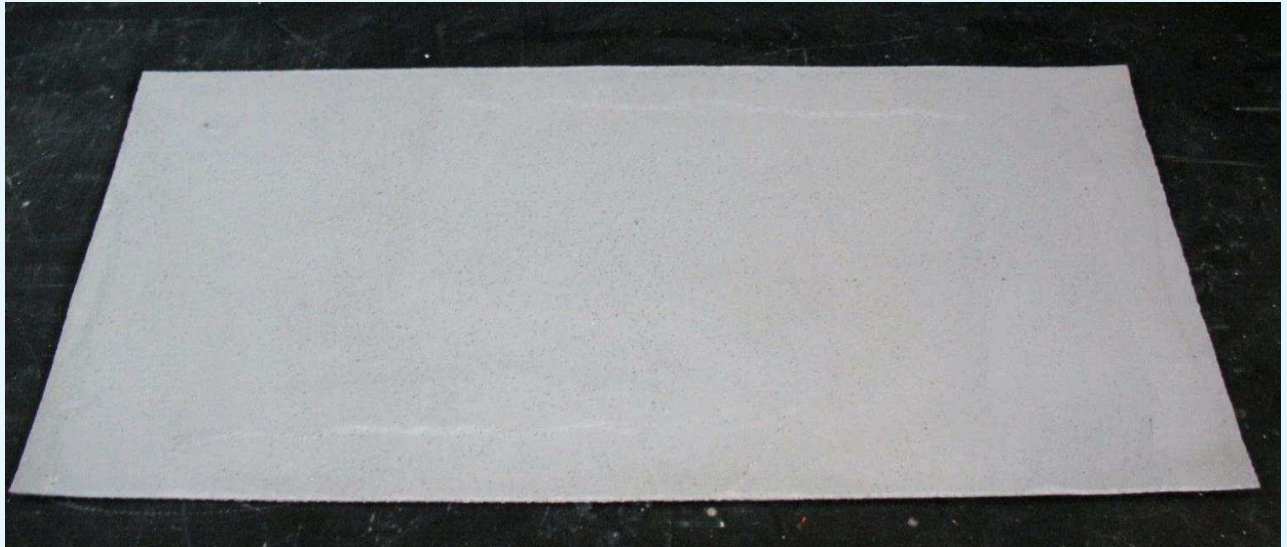
The Customer-supplied sample is an acrylic-resin product filled with quartz aggregate of various particle size.

(*) according to that stated by the Customer.

Comp. AV
Revis. PR

This test report consists of 5 sheets.
This document is the English translation of the test report No. 320952 dated 19/12/2014 issued in Italian; in case of dispute the only valid version is the Italian one. Date of translation: 31/07/2015.

Sheet
1 of 5



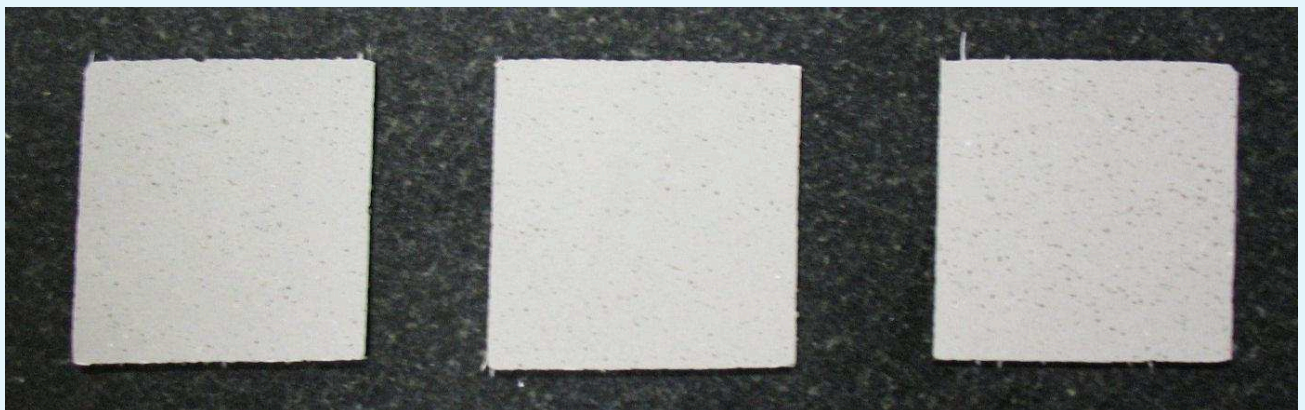
Sample photo

Normative References

The test was carried out in accordance with the requirements of standard ASTM E1530 - 11 "Standard test method for evaluating the resistance to thermal transmission of materials by the guarded heat flow meter technique".

Description of specimens

3 specimens were cut from the test sample.



Specimen photo

Test apparatus

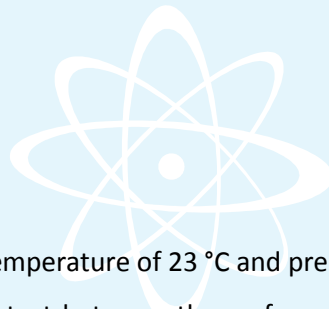
The test was carried out using a guarded heat flow meter complying with standard ASTM E1530 - 11 having a square front section, size 50 × 50 mm, and downward vertical flow.

The apparatus was calibrated using 4 sheets of glass whose thermal resistance had been previously measured in the guarded hot plate (in-house identification code FT004).

Conditioning of specimens

The specimens were conditioned at a temperature of 23 °C and 50 % relative humidity.

Conditioning time: 24 days.



Test method

The test was carried out at a mean temperature of 23 °C and pressure 0,28 MPa.

In order to improve the thermal contact between the surfaces of the specimen and the apparatus, rubber sheets were placed between them.

The temperature of the room containing the apparatus was set to the value of the mean test temperature and the edges of the specimens were insulated with insulation board in order to reduce heat loss.

Sample measurements

Size	207 × 435 mm
Thickness	1,36 mm
Mass of material as received	191,11 g

Specimen measurements

Specimen [No.]	Thickness "Δx" [mm]	Size		Mass [g]	Density "ρ _c " [kg/m ³]
		[mm]	[mm]		
1	1,29	49,75	49,47	5,03	1581
2	1,30	49,83	49,56	5,12	1601
3	1,31	49,11	49,43	5,06	1588

Data obtained during testing

Specimen [No.]	Mean steady- state hot-side temperature "T ₁ " [°C]	Mean steady- state cold-side temperature "T ₂ " [°C]	Mean test temperature " $T_m = \frac{T_1 + T_2}{2}$ " [°C]	Average temperature difference "ΔT" = T ₁ -T ₂ [°C]	Mean steady- state temperature in the guarded hotplate "T _g " [°C]
1	26,02	20,25	23,14	5,77	23,06
2	26,01	20,26	23,14	5,75	23,09
3	26,03	20,25	23,14	5,78	23,03

Test results

Specimen [No.]	Thermal resistance "R _s " [m ² ·K/W]	Thermal conductance "C _s " [W/(m ² ·K)]	Thermal conductivity "λ" [W/(m·K)]
1	0,0017	600	0,779
2	0,0015	650	0,842
3	0,0017	610	0,796
Mean	-	-	0,81*

(*) The thermal conductivity value has been rounded to the second significant figure as requested by standard ASTM E1530.

Test results were obtained under the following conditions:

Specimen hygrothermal conditions	Condition "IIB"**: reference temperature 23 °C, moisture content in equilibrium with air at 23 °C and relative humidity of 50 %
Mean density of conditioned specimens "ρ _c "	1590 kg/m ³

(**) In accordance with Table 1 "Determination of declared thermal values" of standard UNI EN ISO 10456:2008 dated 22/05/2008 "Building materials and products. Hygrothermal properties. Tabulated design values and procedures for determining declared and design thermal values".

Test Technician:
Dott. Ing. Paolo Ricci

Head of Applied Physics Laboratory:
Dott. Ing. Vincenzo Iommi

Chief Executive Officer
(Dott. Arch. Sara Lorenza Giordano)

