

## Thermal conductivity according to ASTM C 335

Test report No: G.3-088a/17

**Applicant:** Saudi International Insulation Manufacturing Co. (SIIMCO), 2895 Kingdom of Saudi Arabia, Saudi Arabien

**Material:** Mineral wool pipe sections

**Labeling:** -----  
(as given by producer)

**Material identification:** Pipe section made of resin bonded stone wool  
(as given)

**Nominal dimensions:** Internal diameter: 60 mm      Insulation thickness: 60 mm      Length: 1200 mm

**Nominal density:** ----- kg/m<sup>3</sup>

**Sampling:** Sent by applicant

**Goods Receipt:** No. 3060

**Test equipment:** Test pipe with calculated end caps according to ASTM C 335:2010 Diameter 61 mm, horizontal, Length 2000 mm

**Preparation:** Experimental data according to EN 13467 :  
Internal diameter: ---- mm      Insulation thickness: ---- mm      Length: ---- mm  
Density: ---- kg/m<sup>3</sup>

**Installation according to DIN 4140:** Internal diameter: 60.61 mm      Insulation thickness: 62 mm      Length: 2400 mm  
Density: \*) 104 kg/m<sup>3</sup>      Mass: 5.92 kg

**Remarks:** The pipe sections are installed in state of delivery on the test pipe.

### Experimental data:

Test No	Heat flow rate W	Temperature of the		Average temperature of the specimen °C	Temperature-difference of the specimen K	Thermal conductivity W/(m·K)
		Warm Side °C	Cold Side °C			
1	6.53	34.4	18.1	26.3	16.3	0.0355
2	76.8	182.7	31.3	107.0	151.4	0.0448
3	176	324.9	49.2	187.1	275.7	0.0565
4	300	446.2	68.1	257.2	378.1	0.0700
5	471	568.6	88.9	328.8	479.7	0.0867

Uncertainty: < 3%      Thermal conductivity is calculated for temperature differences on the specimen.

Properties of the material after conductivity-measurement up to 568.6 °C warm side: (Values at end of the test)

Density: \*) 104 kg/m<sup>3</sup>      Mass: 5.90 kg      Change in mass: -0.4 %

**Remarks:** -----

\*) The given values of the density refer to the insulation of the specimens installed on the test pipe without facings.

### Results:

Mean temperature °C	50	100	150	200	250	300	350	---	---
Thermal conductivity W/(m·K)	0.038	0.044	0.051	0.059	0.068	0.080	0.092	---	---

These thermal conductivity values refer to the material in a dry state installed as pipe insulation and are related to the mean temperature of the specimen ( $\lambda_{Lab,R}$  as specified in the guidelines VDI-2055).

**Final remarks:** -----

Gräfelfing, 12.05.2017

Department Specialist

*R. Hofmockel*

Robert Hofmockel, M.Sc.



Tester

*S. Tana*

S. Tana

Test results only refer to test objects.

The prior written consent of our Institute is required for any publication or reference concerning parts of this report.