Test Report according to VDI 2055
Ü2.013.1-06a/08

Summary of results in accordance with section 3.3 Gütesicherung
Leading testing institute:Forschungsinstitut für Wärmeschutz e.V. München (FIW)

Test requested by:	**PAROC GmbH, Hamburg**
Manufacturer:	Werk L
Designation of material:	**PAROC Lock 140 und Section 140**
Type of material:	Resin bonded stone wool pipe section with or without a z-joint on the longitudinal and circumferential seams.
Designation and properties:	Insulation designation code according to AGI-Working document Q 132: 10.04.02.68.14 refer to product data sheet (dated 15.12.2008), thermal conductivity from 50 °C to 300 °C mean temperature, AS quality, hydrophobic Fire Classification: see 4.1
DIN CERTCO Reg.Nr.:	6V084
Type of control:	Surveillance contract No: U2.013/08
Sample taking:	By employee of the FIW in the plant L on 27.06.08
Goods Receipt:	No. 9844
Internal quality control:	On 27.06.08 the Factory Production Control was checked by an employee of the FIW München and found according to the rules.

Results:

1. Dimensions/Density - according to EN 13467 / 13470 (Average values)

Nominal-ø /thickness mm	Length mm	Inside diameter mm	Outside diameter mm	Section thickness mm	Deviation in squareness mm	Deduction of mass g/m²	Longitudinal mass kg/m	Density of insulant kg/m³
159/100	**1200**	**160**	**363**	**102**	**2**	------ *)	**10.618**	**127**
324/100	**999**	**325**	**516**	**96**	**4**	------ *)	**18.450**	**146** **)

*) of facing or carrier material, **) of these diameters there were less than 5 samples available.

2. Thermal conductivity according to EN ISO 8497

Nominal-ø / Thickness mm	Testing Pipe ø mm	Thickness mm	Density kg/m³	Average Temperature °C	50	100	150	200	250	300	---
159/100	**159**	**102**	**126**	W/(m·K)	**0.039**	**0.046**	**0.054**	**0.065**	**0.078**	**0.094**	---
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These thermal conductivity values refer to the material installed as pipe insulation and are related to the average temperature of the specimen

3. Behaviour at higher temperatures: (maximum service temperatures)
3.1 Test method **EN 14707:** As regards the test according to section 7.4.1 of the AGI-working document Q132 during 72 h at a test pipe temperature of 680 °C and under a load of 0.5 kN/m² (related to the diameter of the test pipe) the decrease in thickness did not exceed 5 %. The mean apparent density was 130 kg/m³.
3.2 Self Heating: minor amount of internal self-heating

4. Further properties

4.1 Fire behaviour: **EN 13501-1 A1**

4.2 Ignition loss EN 13820: **1.8** - % in mass

4.3 AS quality: Chloride content EN 13468: **3.3** mg/kg
(requirement according to AGI Q132:2006: ≤ 10 mg/kg)

4.4 Airflow resistance EN 29053
Nom.-ø/Nom. thickness **159/100** mm: **47000** Pa·s/m²
Nom.-ø/Nom. thickness **324/100** mm: **81000** Pa·s/m²

4.5 Hydrophobic property EN 13472:
0.13 kg/m² after 24h
(requirement ≤ 1.0 kg/m² acc. to Q132, section 5.11)

4.6 Compressive strength EN 826: **----** kPa

5. Other data:
5.1 Shot content: 0.8 % regarding a mesh size of 0.5 mm and 5.1 % regarding a mesh size of 0.25 mm.
5.2 Sulfid content: -----

Remarks: The mineralwool product complies with the characteristics required by the AGI insulation designation code. The basis of the calculation of the heat loss are the nominal values according to the product data sheet. The given values of the thermal conductivity only apply to the measured samples.

Comment: As regards the characteristics tested, the stone wool product fulfils the standards determined by the VDI-AG "Gütesicherung" (quality control) in the guidance papers and their supplements.

Gräfelfing, 22.01.09

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