

Thermal Conductivity according to EN 12667

Test report No: F.2-762a/04

Applicant: L'ISOLANTE K-FLEX S.r.L., I-20040 Roncello (Mi)
Name of the product: " K-Flex ST "
Product identification: Sheets of flexible closed celled foam on the basis of synthetic rubber.
 (as given by applicant) Thickness: 32 mm
 Colour: black
 Designation code according to AGI working document Q 143: 36.01.01.06.04

Sampling: By FIW at the 15.06.2004 from the plant in Roncello.

Test equipment: Guarded hot plate apparatus according to EN 12667:
 Metering section 400 x 400 mm with guard section 800 x 800 mm

Preparation: ^{+) Mean values (two specimens)}

Tested thickness⁺⁾ : 0.0332 m Mass⁺⁾ : 0.4440 kg
 Surface area tested: 0.2500 m² Density⁺⁾ : 53.5 kg/m³

Remarks: The specimens were installed with a thickness of 33.2 mm in the testing apparatus. The thickness was reduced for each measuring point in dependence of the contraction of the material.

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 | 5.274 | -18.9 | -32.8 | -25.9 | 13.9 | 0.0332 |
| 2 | 5.254 | 9.3 | -4.2 | 2.6 | 13.5 | 0.0364 |
| 3 | 5.184 | 42.6 | 29.7 | 36.2 | 12.9 | 0.0401 |
| 4 | 5.093 | 74.1 | 61.9 | 68.0 | 12.2 | 0.0433 |
| 5 | ---- | ---- | ---- | ---- | ---- | ---- |

Uncertainty: < 2%

Properties of the material after conductivity-measurement up to 74.1 °C warm side: ^{+) Mean values (two specimens)}

Thickness⁺⁾ : 0.0280 m Mass⁺⁾ : 0.4440 kg
 Density⁺⁾ : 63.4 kg/m³ Change in mass: 0.0 %

Remarks: --

Results:

| Mean temperature °C | -30 | -20 | 0 | 20 | 40 | 50 | 70 | --- | --- |
|------------------------------|-------|-------|-------|-------|-------|-------|-------|-----|-----|
| Thermal conductivity W/(m·K) | 0.033 | 0.034 | 0.036 | 0.038 | 0.040 | 0.041 | 0.044 | --- | --- |

Final remarks:

These thermal conductivity values refer to the material in a dry state and represent thermal conductivity values $\lambda_{Lab,P}$ as specified in the guidelines VDI 2055. The thermal conductivity values are conform to the nominal values of the technical data sheet "03 ST/SK" and to requirements of the limitation curve 1, specified by the AGI insulation material designation code for flexible elastomeric foam. For calculation of the thermal resistance to lower temperature the contraction to cold temperatures as a function of medium temperature must be considered.

Gräfelfing, 23.11.04

Department Specialist


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Tester


 A. Bergler



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.