

Determination of water vapour permeability acc. to EN 13469

Test report no.: R-127/12

Applicant: ROLS ISOMARKET, Vyatskaya st. 27 - building 2, 127015 Moscow, Russia

Product name: Energoflex Black Star

Material designation: 15 / 6

Material description: Flexible heat - insulating tubes made of polyethylene foam. Colour: black;
 (acc. to indication) Nominal thickness: 6 mm; Nominal inner diameter: 15 mm

Origin of the material: Samples were sent by applicant on 15.10.2012 to the FIW Munich.
 Goods receipt no.: 6721

Test procedure: Determination of water vapour permeability in accordance with EN 13469.
 As agreed with the applicant 4 samples were tested.
 Test conditions according to clause 5: 23°C - 0/50% r.h.
 Specimen: tube; Length: 230 mm

Conditioning: Comment: $\mu_{\text{tube}} = (2 \cdot \pi \cdot l \cdot \delta_L \cdot \Delta p) / (G \cdot \ln((d_i + 2 \cdot d) / d_i))$

Period of testing: October - December 2012

Results: The water vapour diffusion resistance index μ_{tube} has been tested at four specimens with an average density of 27 kg/m³.


Specimen no.	inner diameter d_i mm	thickness d mm	density kg/m ³	water vapour resistance index μ_{tube}	water vapour diffusion-equivalent air layer thickness s_d m	water vapour permeability δ kg/(m ² s Pa)
1	19.0	4.8	26.7	3960	19.0	$5.21 \cdot 10^{-14}$
2	19.0	4.7	27.2	4250	20.0	$4.85 \cdot 10^{-14}$
3	19.0	5.0	25.8	4330	21.4	$4.76 \cdot 10^{-14}$
4	19.0	4.8	26.6	4070	19.5	$5.06 \cdot 10^{-14}$
average	19	5	27	4200	20	$5.0 \cdot 10^{-14}$

Remarks: The measured values are applicable only for the tested specimens with the thickness d , the inner diameter d_i and the chosen test conditions 23°C - 0/50% r.h.

Gräfelfing, 17.01.2013

Department specialist

Examiner


 Dipl.-Ing.(FH) Stefan Kutschera


 Michael Zimmermann

Test results only refer to tested objects. The prior written consent of our Institute is required for any publication or reference concerning parts of it.

Determination of water vapour permeability acc. to EN 13469

Test report no.: R-128/12

Applicant: ROLS ISOMARKET, Vyatskaya st. 27 - building 2, 127015 Moscow, Russia

Product name: Energoflex Black Star Split

Material designation: 15 / 6

Material description: Flexible heat - insulating tubes made of polyethylene foam. Colour: black;
 (acc. to indication) Nominal thickness: 6 mm; Nominal inner diameter: 15 mm

Origin of the material: Samples were sent by applicant on 15.10.2012 to the FIW Munich.
 Goods receipt no.: 6721

Test procedure: Determination of water vapour permeability in accordance with EN 13469.
 As agreed with the applicant 4 samples were tested.
 Test conditions according to clause 5: 23°C - 0/50% r.h.
 Specimen: tube; Length: 230 mm
 Comment: $\mu_{\text{tube}} = (2 \cdot \pi \cdot l \cdot \delta_L \cdot \Delta p) / (G \cdot \ln((d_i + 2 \cdot d) / d_i))$

Conditioning: ---

Period of testing: October - December 2012

Results: The water vapour diffusion resistance index μ_{tube} has been tested at four specimens with an average density of 42 kg/m³.

Specimen no.	inner diameter d_i mm	thickness d mm	density kg/m ³	water vapour resistance index μ_{tube}	water vapour diffusion-equivalent air layer thickness s_d m	water vapour permeability δ kg/(m ² s Pa)
1	18.0	6.0	41.1	9670	57.6	$2.13 \cdot 10^{-14}$
2	18.0	5.9	41.8	10280	60.1	$2.00 \cdot 10^{-14}$
3	18.0	5.9	41.5	9000	53.1	$2.29 \cdot 10^{-14}$
4	18.0	5.9	42.1	9470	55.4	$2.18 \cdot 10^{-14}$
average	18	6	42	9600	57	$2.2 \cdot 10^{-14}$

Remarks: The measured values are applicable only for the tested specimens with the thickness d , the inner diameter d_i and the chosen test conditions 23°C - 0/50% r.h.

Gräfelfing, 17.01.2013

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