FM APPROVED

c UL us

GREENGUARD

VALIDATED

KSA
ISO 9001/14001 CERTIFIED

GERMAN CERT
ISO 45001:2018

카이플렉스
KAIFLEX®

Flexible Elastomeric Foam for Thermal Insulation

Certificates of KAIFLEX

FM Approvals Class : 4924

UL 94

UL GREENGUARD GOLD

UL ECV 2282

Certificates of KAIFLEX

ISO 9001

ISO 14001

ISO 45001

Korean Eco-Label Certificate

Performance of KAIFLEX

Thermal resistance (R-Value) is a unit of heat loss resistance performance and quantifies the characteristics that impede heat transfer.
The higher the R-Value, the greater the insulation's ability to resit heat loss.
The table below shows the R-Values of KAIFLEX SHEET in more detail.

KAIFLEX SHEET and ROLL Insulation R-Values

Wall thickness [mm]	9mm	13mm	19mm	25mm	32mm	38mm
R-Value	0.27	0.38	0.57	0.75	0.96	1.13

Test Report of KAIFLEX

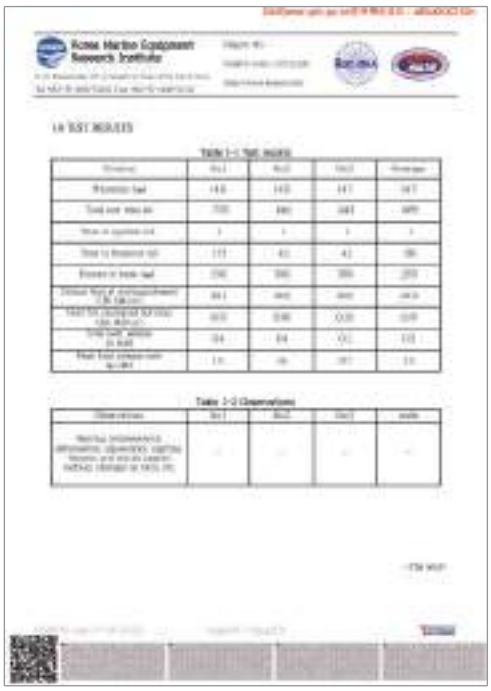

TEST REPORT

Test Results

Korea Testing & Research Institute

President

KS M 6962 (L.O.I.)


Korea Marine Equipment Research Institute

CFE


TEST REPORT

Test Results

Korea Testing & Research Institute

President

Horizontal Burning Characteristics


TEST REPORT

Test Results

Korea Testing & Research Institute

President

Hazardous Gas Test

Test Report of KAIFLEX

Performance Test Result Table

KAIFLEX (Flexible Elastomeric Foam for Thermal Insulation)

Test Item		Unit	Standard	Results	Decision	Test Method
Apparent Density		g/㎤	≧ 0.040	0.047	Y	KS M 6962 : 2012 *MDL : HCHO - 0.1㎎/L
Thermal Conductivity [Mean Temperature (20±5)℃]		W/(m·k)	≦ 0.035	0.034	Y	
Water Vapor Permeance		ng/(㎡·s·Pa)	≦ 6	3	Y	
Formaldehyde emission		㎎/L	≦ 0.3	0.1 below	Y	
Aging Test - Dimensional Stability [48h, (40±1) ℃]	Horizontal Direction	%	≦ 7	-0.1	Y	
	Vertical Direction	%	≦ 7	0.1	Y	
Water Absorption		g/100㎠	≦ 1.0	0.30	Y	
Compression Set [Compression 50%, 22h, (23±2)℃]		%	≦ 30	13	Y	
Oxygen index		%	≦ 28	40	Y	Applied KS M ISO-4589-2 : 2017
Critical flux at extinguishment (CFE)		㎾/㎡	≦ 20	33.3	Y	ISO 5658-2:2006 / Amd 1: 2011
Horizontal Burning Characteristics		-	HF-1	HF-1	Y	KS M ISO 9772 : 2012
Hazardous Gas test-Average Deed stopping time		m:s	≧ 9 m	14m 49s / 14m 55s	Y	KS F 2271 : 2021
TVOC emission		㎎/㎥	≦ 0.5	0.001	Y	Indoor Air Quality UL 2821
Formaldehyde emission		ppm	≦ 0.05	0.001 below	Y	
Antibacterial Test (Escherichia coli / Pseudomonas aeruginosa / Staphylococcus aureus)		%	> 90	99.9	Y	KCL-FIR-1003 : 2018
Antifungal Test (log values) * CFU : colony forming unit		log(CFU)	≦ 3.0	1.0	Y	ASTM D 6329-98(2015)

※ Y - Meets Standards / N – Substandard

※ For detailed test report number, please contact Kyunghyang

Test Report of KAIFLEX

Thermal resistance 13T

the way to trust KCL

TEST REPORT

1. NO : CT23-096341E
2. Client
   - Name : KYUNG-HYANG INDUSTRY CO., Ltd.
   - Address : 56, Eco-gil, Daeyang-eup, Damyang-gun, Jeollanam-do, Republic of Korea
3. Date of Test : 2023.10.31 ~ 2023.11.08
4. Use of Report : Quality control
5. Test Sample : Flexible Elastomeric Foam For Thermal Insulation(KAIFLEX)
6. Test Method
   (1) KS L 9016:2010
7. Test Results

1) Flexible Elastomeric Foam For Thermal Insulation(KAIFLEX)

Test Item(s)	Unit	Test Method	Test Results	Remark	Loc.
Thermal resistance(mean temperature : 20 ℃) (thickness : 13.42 ㎜)	㎡·K/W	[1]	0.38	(25±2) ℃ (50±5) % R.H	A

- Measuring method's type : Flat plate heat current thermometer method(square)
- Drying method : [70±5] ℃
- Calibration plate's type : 14506 (Mean temperature : 20 ℃ : 0.032 W/(m·K))
- Test Item's temperature difference : 20 ℃
- Location
  A : 73, Yangcheong 3-gil, Ochang-eup, Cheongwon-Gu, Cheongju-Si, Chungbuk, Korea

—— End of Report ——

Affirmation	Tested By	Technical Manager
	Name : CHOI, SUEK JOO	Name : JUN SIK SEO

This report is not accredited by KOLAS and KS Q ISO/IEC 17025.
Our report apply only to the standards or procedures identified and to the sample(s) tested unless otherwise specified. The test results are not indicative of representative of the qualities of the lot from which the sample was taken or of apparently identical or similar products. The results of using only a portion of this report cannot be guaranteed. The authenticity of this test report can be checked on KCL website(www.kcl.re.kr).

2023.11.08

Korea Conformity Laboratories President Jo. Yung Tae

Result Inquiry : 73, Yangcheong 3-gil, Ochang-eup, Cheongwon-Gu, Cheongju-Si, Chungbuk, Korea (82-43-210-8910)

Page 1 of 1

Test Report of KAIFLEX

Thermal resistance 19T

the way to trust KCL

TEST REPORT

1. NO : CT23-105451E
2. Client
   - Name : KYUNGHYANG INDUSTRY CO., Ltd.
   - Address : 63, Geumseongongdan-gil, Geumseong-myeon, Damyang-gun, Jeollanam-do, Republic of Korea
3. Date of Test : 2023.11.24 ~ 2023.12.18
4. Use of Report : Quality control
5. Test Sample : Flexible Elastomeric Foam For Thermal Insulation(KAIFLEX)
6. Test Method
   (1) KS L 9016:2010
7. Test Results

1) Flexible Elastomeric Foam For Thermal Insulation(KAIFLEX)

Test Item(s)	Unit	Test Method	Test Results	Remark	Loc.
Thermal resistance(Mean temperature : 20 ℃) (thickness : 20.04 ㎜)	㎡·K/W	(1)	0.99	(23±2) ℃ (50±5) % R.H.	A

- Measuring method's type : Flat plate heat current thermometer method(square)
- Drying method : (70±5) ℃
- Calibration state's type : 145De (Mean temperature : 30 ℃, 0.032 W/(m·K))
- Test item's temperature difference : 20 ℃
- Location
  A : 73, Yangcheong 3-gil, Ochang-eup, Cheongwon-Gu, Cheongju-Si, Chungbuk, Korea

—— End of Report ——

Affirmation	Tested By	Technical Manager
	Name : CHOI, SUEK JOO	Name : JUN SIK SEO

This report is not accredited by KOLAS and KS Q ISO/IEC 17025.
Our report apply only to the standards or procedures identified and to the sample(s) tested unless otherwise specified. The test results are not indicative of representative of the qualities of the lot from which the sample was taken or of apparently identical or similar products. The results of using only a portion of this report cannot be guaranteed. The authenticity of this test report can be checked on KCL website(www.kcl.re.kr).

2023. 12. 18

Korea Conformity Laboratories President Jo, Yung Tae

Result Inquiry : 73, Yangcheong 3-gil, Ochang-eup, Cheongwon-Gu, Cheongju-Si, Chungbuk, Korea (82-43-210-8910)

Page 1 of 1

Test Report of KAIFLEX

Thermal resistance 25T

the way to trust KCL

TEST REPORT

1. NO : C723-C86342E
2. Client
   - Name : KYUNGHYANG INDUSTRY CO., Ltd.
   - Address : 56, Eco-gil, Damyang-eup, Damyang-gun, Jeollanam-do, Republic of Korea
3. Date of Test : 2023.10.31 ~ 2023.11.08
4. Use of Report : Quality control
5. Test Sample : Flexible Elastomeric Foam For Thermal Insulation_KAIFLEX
6. Test Method
   (1) KS L 9016:2010
7. Test Results

1) Flexible Elastomeric Foam For Thermal Insulation_KAIFLEX

Test Item(s)	Unit	Test Method	Test Results	Remark	Loc.
Thermal resistance(mean temperature : 20 ℃) (thickness : 26.14 ㎜)	(㎡·K)/W	(1)	0.75	(25±2) ℃ (50±5) % R.H.	A

- Measuring method's type : Flat plate heat current thermometer method(square)
- Drying method : (70±5) ℃
- Calibration plate's type : 1450e (Mean temperature : 20 ℃, 0.032 W/(m·K))
- Test item's temperature difference : 20 ℃
- Location
  A : 73, Yangcheong 3-gil, Ochang-eup, Cheongwon-Gu, Cheongju-Si, Chungbuk, Korea

—— End of Report ——

Affirmation	Tested By Name : CHOI, SUEK JOO	Technical Manager Name : JUN SIK SEO

This report is not accredited by KOLAS and KS Q ISO/IEC 17025.
Our report apply only to the standards or procedures identified and to the sample(s) tested unless otherwise specified. The test results are not indicative of representative of the qualities of the lot from which the sample was taken or of apparently identical or similar products. The results of using only a portion of this report cannot be guaranteed. The authenticity of this test report can be checked on KCL website(www.kcl.re.kr).

2023.11.08

Korea Conformity Laboratories President Jo, Yung Tae

Result Inquiry : 73, Yangcheong 3-gil, Ochang-eup, Cheongwon-Gu, Cheongju-Si, Chungbuk, Korea (82-43-210-8810)

Page 1 of 1

Test Report of KAIFLEX

Thermal resistance 40T

the way to trust KCL

TEST REPORT

1. NO : CT23-105452E
2. Client
   - Name : KYUNGHYANG INDUSTRY CO., Ltd.
   - Address : 63, Geunseongpongidan-gil, Geunseong-myeon, Dasyang-gun, Jeollanam-do, Republic of Korea
3. Date of Test : 2023.11.24 ~ 2023.12.11
4. Use of Report : Quality control
5. Test Sample : Flexible Elastomeric Foam For Thermal Insulation(KAIFLEX)
6. Test Method
   (1) KS L 9016:2010
7. Test Results

1) Flexible Elastomeric Foam For Thermal Insulation(KAIFLEX)

Test Item(s)	Unit	Test Method	Test Results	Remark	Loc.
Thermal resistance(Mean temperature : 20 ℃) (thickness : 40.72 mm)	(㎡·K)/W	(1)	1.18	(25±2) ℃ (50±5) % R.H	A

* Measuring method & type : Flat plate heat current thermometer method(square)
* Drying method : (70±5) ℃
* Calibration plate & type : 145Dc (Mean temperature : 20 ℃, 0.032 W/(m·K))
* Test item's temperature difference : 20 ℃
* Location
  A : 73, Yangcheong 3-gil, Ochang-eup, Cheongwon-Gu, Cheongju-Si, Chungbuk, Korea

—— End of Report ——

Affirmation	Tested By	Technical Manager
	Name : CHOI, SUEK JOO	Name : JUN SIK SEO

This report is not accredited by KOLAS and KS Q ISO/IEC 17025.
Our report apply only to the standards or procedures identified and to the sample(s) tested unless otherwise specified. The test results are not indicative of representative of the qualities of the lot from which the sample was taken or of apparently identical or similar products. The results of using only a portion of this report cannot be guaranteed. The authenticity of this test report can be checked on KQ website(www.kcl.re.kr).

2023.12.11

Korea Conformity Laboratories President Jo, Yung Tae

Result Inquiry : 73, Yangcheong 3-gil, Ochang-eup, Cheongwon-Gu, Cheongju-Si, Chungbuk, Korea (82-43-210-8910)

Page 1 of 1

Application case of KAIFLEX

Mechanical facility - Installation on PIPE

Fire-fighting facility - Installation on PIPE

Air conditioning & ventilation facility - Installation on DUCT

KyungHyang

KyungHyang Industry Co., Ltd.

Seoul : Overseas Sales Office
Yongin : Domestic Sales Office
Damyang : PE H.Q. / RUBBER H.Q.