



# DET NORSKE VERITAS

## TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. F-19708

This is to certify that the  
**Thermal and sound insulation material with low flame-spread characteristics**

with type designation(s)  
**Kaiflex ST, Kaiflex HF, Kaiflex KKplus**

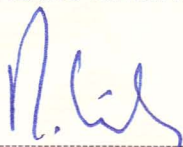
Manufactured by  
**Kaimann GmbH**  
**HÖVELHOF, Germany**

is found to comply with  
Det Norske Veritas' Interpretation of SOLAS 1974 Convention as Amended  
Det Norske Veritas' Offshore Standards  
Det Norske Veritas' Rules for Classification of Ships

Application

**Approved for use as insulation material of low flame spread characteristics, not generating excessive quantities of smoke nor toxic products in fire. The materials are not defined as non-combustible**

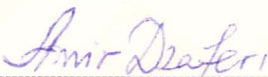
Høvik, 2011-05-13  
for Det Norske Veritas AS

  
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✓ **Petter Langnes**  
Head of Section



DNV local office:  
**Essen**

This Certificate is valid until  
**2015-06-30**

  
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**Amir Dzaferi**  
Surveyor

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.

The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 2 million. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.



Certificate No.: F-19708  
File No.: 471.61  
Job Id.: 262.1-001470-4

## Product description

### “Kaiflex ST”

is a synthetic rubber based thermoplastic insulation material in the form of plates and tubes with wall thickness range 6 - 50 mm and nominal density of 60 – 110 kg/m<sup>3</sup>.

When the material is glued to the pipes, ducts, etc., the adhesive Kaiflex glue “Kaiflex Kleber 414” is to be used.

### “Kaiflex HF”

composed of elastomeric foam based on a synthetic rubber, thermoplastics and additives. Density of insulation material is approx. 65 kg/m<sup>3</sup>.

Approved thickness for the insulation material is 13-19 mm.

### “Kaiflex KKplus”

is a synthetic rubber based thermoplastic insulation material in the form of plates and tubes with wall thickness range 6 - 50 mm. When the material is glued to the pipes, ducts, etc., the adhesive Kaiflex glue “Kaiflex Spezial Kleber” is to be used.

Pipes insulated with “Kaiflex KKplus” may be supported using “Kaiflex RT” composed from two PU cubes cut into “Kaiflex KKplus”, covered with PVC foil.

## Application/Limitation

The product may be used on cold service pipework/fittings for refrigeration systems everywhere onboard, and for pipework, fittings, air ducts and tanks insulation in cargo areas, mail rooms, baggage rooms and refrigerated compartments of service spaces, and exterior locations (SOLAS II-2/5.3.1.1).

Piping for hot and cold sanitary water can not be considered "cold service pipe work/fittings.

Extent of application is to be considered and accepted for each case/project.

Any adhesive used has to be tested for low flame spread characteristics according to IMO FTPC Part 5.

Each product is to be supplied with its manual for installation and use.

## Type Approval documentation

Certification in accordance with Standard for Certification No. 1.2, Type Approval, April 2009.

Test report Nos.:

- SN02/1856.1 dated 26 February 2002, and No. SN01/1466.2 dated 8 February 2002 from Brandversuchshaus Hamburg, TÜV Nord, Germany ( Kaiflex ST).
- SN02/2645.2 and SN02/2645.3 dated 20 September 2002 from TÜV Nord Bauqualität GmbH & Co. KG, Hamburg, Germany (Kaiflex HF).
- SN99.62.1 and SN99.62.2 dated 27 August 1999, and No. SN99.82.1 dated 9 November 1999 from Brandversuchshaus Hamburg, TÜV Nord, Germany.
- SN01/1466.1 dated 18 October 2001 from Brandversuchshaus Hamburg.
- 16-902 058 000/1 dated 16 April 2002 and
- 16-902 058 000/3 dated 30 September 2002 from Otto Graf Institut, Universität Stuttgart, Germany (Kaiflex KK – new name “Kaiflex KKplus”).

Certificate Retention Survey Report dated 13 December 2010 from DNV Essen.

Testing according to IMO FTPC Part 5 (Res. A.653(16)) and IMO FTPC Annex 2, ch. 2.2.

## Marking of product

The product or packing is to be marked with name of manufacturer, type designation and fire-technical rating.

## Certificate Retention Survey

Det Norske Veritas' surveyor is to be given permission to perform Certification Retention Surveys at any time during the validity period of this certificate and at least every second year. The arrangement is to be in accordance with procedure described in Standard for Certification No. 1.2, item 4.