K-FLEX®
IN CLAD SYSTEM

- Non-metallic flexible coating
- Designed for oil & gas and industrial use
- Developed for the most challenging environments
- High mechanical and chemical resistance
- Resistance to UV, sea salt, oil and other atmospheric agents
- Easy to install without special tools
- Full range of accessories
- Can be applied to any insulation system
IN CLAD SYSTEM

TECHNICAL DATA

K-FLEX® IN CLAD SYSTEM - TECHNICAL DATA

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
<th>Test method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material</td>
<td>Flexible polymeric barrier</td>
<td></td>
</tr>
<tr>
<td>Colour</td>
<td>Grey and Black</td>
<td></td>
</tr>
<tr>
<td>Thickness</td>
<td>1.2 mm (± 0.2)</td>
<td></td>
</tr>
<tr>
<td>MAX Surface Temperature</td>
<td>80°C (176°F)</td>
<td></td>
</tr>
<tr>
<td>MAX application temperature, IN CLAD System</td>
<td>10°C (50°F)</td>
<td></td>
</tr>
<tr>
<td>MIN application temperature, IN CLAD System</td>
<td>20°C (68°F)</td>
<td></td>
</tr>
<tr>
<td>Water Vapour Permeability</td>
<td>Moisture Resistance Factor (covering)</td>
<td>p &gt; 90,000</td>
</tr>
<tr>
<td>Specific weight</td>
<td>1.8 (± 0.1 g/cm²)</td>
<td></td>
</tr>
<tr>
<td>Tensile Strength</td>
<td>&gt;=6.9 MPa</td>
<td>ISO 37 (Typical value 7.5 MPa)</td>
</tr>
<tr>
<td>Elongation to break</td>
<td>&gt;100%</td>
<td>ISO 37 (Typical values: elongation at 70%, elongation to break 300%)</td>
</tr>
<tr>
<td>Elastic Modulus</td>
<td>&gt;=60 MPa</td>
<td>ISO 37 (Typical value 70 MPa)</td>
</tr>
<tr>
<td>Modulus 10%</td>
<td>&gt;=1.5 MPa</td>
<td>ISO 37</td>
</tr>
<tr>
<td>Peel adhesion</td>
<td>&gt;=50 KPa</td>
<td>ISO 2411</td>
</tr>
<tr>
<td>Shear strength</td>
<td>&gt;=20 N/25mm</td>
<td>ISO 34-1</td>
</tr>
<tr>
<td>Hardness</td>
<td>&gt;=80 ShA</td>
<td>ISO 7619, ASTM D3240</td>
</tr>
<tr>
<td>UV Resistance</td>
<td>Extremely good</td>
<td>2 years of exposure in New River, Arizona (USA) as per ASTM G 7-97, no pitting, no cracking, no blistering</td>
</tr>
<tr>
<td>Salt Spray resistance</td>
<td>Extremely good</td>
<td>ISO 3786 / ASTM B 117-73, 480 hours, No color shade, no scaling, no blistering</td>
</tr>
<tr>
<td>Ozone resistance</td>
<td>Extremely good</td>
<td>ASTM D1117 72h:50ppm 20%, no oxidation</td>
</tr>
<tr>
<td>Resistance to aging</td>
<td>Extremely good</td>
<td>ISO 4982, after 360h, 720hA, elongation to break and modulus conform to specification</td>
</tr>
<tr>
<td>Resistance to oil</td>
<td>Extremely good</td>
<td>ISO 1817, after 120h immersion in oil BM 903, elongation to break and modulus conform to specification</td>
</tr>
<tr>
<td>Impact resistance</td>
<td>Extremely good</td>
<td>EN12691: 1 Kg, 20mm, 600mm</td>
</tr>
<tr>
<td>Health aspects</td>
<td>Dust and fiber free</td>
<td></td>
</tr>
<tr>
<td>Spread o flame</td>
<td>Pass</td>
<td>BS 476 pt 7</td>
</tr>
<tr>
<td>Fire propagation</td>
<td>Pass</td>
<td>NF 92501</td>
</tr>
<tr>
<td>Fire requirements for shipbuilding</td>
<td>Pass</td>
<td>BS 476 pt 6</td>
</tr>
<tr>
<td>Approvals and Supervisions</td>
<td>CE Marine Mark Approved (MED, module I)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Type approved by American Bureau of Shipping</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Type approved by Lloyd’s Register</td>
<td></td>
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<tr>
<td></td>
<td>Type approved by Det Norske Veritas</td>
<td></td>
</tr>
<tr>
<td>Other properties</td>
<td></td>
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</tbody>
</table>

K-FLEX® reserves the right to change data and technical requirements without notice.

K-FLEX® IN CLAD SYSTEM - RANGE

K-FLEX® IN CLAD SYSTEM TUBES

Insulation system specifically designed for aggressive environments such as offshore platforms, industrial, oil and petrochemical plants exposed to the sun and sea water and in situations where a high performance material is required. IN CLAD SYSTEM tubes are composed of K-FLEX® ST insulation coated with IN CLAD flexible polymeric film. The overlap facilitates installation and provides the coating system with a weather-proof seal. K-FLEX® IN CLAD SYSTEM prevents corrosion under insulation (CUI) in your installation.

K-FLEX® IN CLAD SYSTEM SHEETS

K-FLEX® IN CLAD SYSTEM sheets are ideal for insulating large industrial pipes, tanks, silos and awkwardly shaped equipment. The system is flexible, easy to work and does not require special tooling for cutting and gluing. Sealing the joints with silicone ensures total water- and weather-proofing. The protective IN CLAD foil is the ideal solution to protect thermal and acoustic insulation materials. It can be applied on different insulating materials such as mineral wool, PUR/PIR, FOAMGLASS, Aerogel, etc.

K-FLEX® IN CLAD SYSTEM ACCESSORIES

Preformed IN CLAD elbows - Gray
Preformed IN CLAD elbows - Black
Preformed “T” connections - IN CLAD - Gray
Preformed “T” connections - IN CLAD - Black
IN CLAD foil - Gray
IN CLAD foil - Black

IN CLAD tape - Gray
IN CLAD tape - Black
IN CLAD pipe support
IN CLAD pipe support with collar
Silicone