

# EUROBATEX FLEXIBLE CRYOGENIC SYSTEMS



Multi-layered flexible elastomeric foam based systems for the insulation of pipework, tanks and other components of cryogenic systems.



advanced elastomeric thermal and acoustic insulation materials

## APPLICATION FIELDS

- LNG Terminals
- Production and storage plants of Ethylene, Ammonia etc
- Storage tanks.

## THE SYSTEM'S PERFORMANCE AND BENEFITS

Our EUROBATEX FLEXIBLE CRYOGENIC SYSTEMS have rigorously tested and specifically designed to ensure that an excellent insulation performance can be achieved and maintained in the long term in very low temperature environments. As all components are flexible and have a very high resistance to the passage of water vapour we are able to offer systems which minimise the risk of corrosion and maximize energy conservation. The systems offer ease of installation as compared to traditional rigid insulation materials and can hence save both time and cost.

## MAIN FEATURES

Low thermal conductivity ( $\lambda$  at  $-160\text{ }^{\circ}\text{C}$  of  $0,017\text{ W/m}\cdot\text{K}$ )

Suitable for use in systems carrying fluids with temperatures ranging from  $-200\text{ }^{\circ}\text{C}$  to  $+150\text{ }^{\circ}\text{C}$ \*  
\*The maximum operating temperature for sheets is  $+130\text{ }^{\circ}\text{C}$

Reduces the risk of corrosion

Excellent water vapour diffusion barrier

Excellent low temperature flexibility and mechanical resistance

Low density and weight

Easy and safe to install

CFC, HCFC, and Fibre free

It does not damage the ozone layer (ODP zero) and does not contribute to the greenhouse effect (GWP zero)

Its high flexibility allows for ease of use and facilitates the production of complex components such as flange and valve covers etc.



## THE SYSTEM'S COMPOSITION AND A DESCRIPTION OF ITS COMPONENTS

- 1 Layers of EUROBATEX/AT/HF insulation.
- 2 KEVLAR type protective coating (installed on the first layer of insulation in contact with the cold piping).
- 3 Polymeric covering (grey or black) and/or metallic covering (exterior protection of the insulation system).



### VIEW OF THE FINISHED SYSTEM COMPLETE WITH THE VARIOUS LAYERS



**IMPORTANT NOTE: The layer of insulation material in direct contact with the cold piping must under no circumstances be glued.**

## TECHNICAL CHARACTERISTICS OF THE COMPONENTS

TECHNICAL DATA	TYPE OF INSULATION			POLYMERIC COATING	Test Method
	EUROBATEX	EUROBATEX AT	EUROBATEX HF	EUROBATEX RP	
Type of material	FEF	FEF	FEF	Polymeric coating	
Density	45/55 Kg/m <sup>3</sup>	60/70 Kg/m <sup>3</sup>	50/60 Kg/m <sup>3</sup>	1,80 g/cm <sup>3</sup>	ASTM D 1622
Operating temp.	-200/+110 °C*	-200/+150 °C*	-200/+110 °C*	-20/+120 °C	EN 14706/14707
λ at tm 0 °C	≤ 0,034 W/m·K	≤ 0,036 W/m·K	≤ 0,036 W/m·K	—	EN 12667
μ factor	≥ 7000	≥ 2000	≥ 2000	≥ 90000	EN 13469/12086
Water absorb	< 0,1 Kg/m <sup>2</sup>	< 0,1 Kg/m <sup>2</sup>	< 0,1 Kg/m <sup>2</sup>	—	EN 13472/1609
PH	7.0 - 8.5	7.0 - 8.5	7.0 - 8.5	—	EN 13468
Fire performance	tubes B1,s2,d0 sheets B,s3,d0	E	tubes D1,s2,d0 sheets E	B,s3,d0	EN 13501
Ozone resistance	Excellent	Excellent	Excellent	Good	ISO 7326
UV resistance	Good	Excellent	Good	Good	UNI ISO 4892-2
Corrosion risk	Meets test requirements	Meets test requirements	Meets test requirements	—	EN 13468
Shipyards	Suitable	—	Suitable	Suitable	MED 96/98/CE
Breaking load	—	—	—	5 MPa	ASTM D412 C
Elongation at break	—	—	—	150%	ASTM D412 C

\*NB - The maximum operating temperatures for sheets are: EUROBATEX and EUROBATEX HF: +85 °C  
EUROBATEX AT: +130 °C



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## EXAMPLES OF CALCULATIONS FOR MINIMUM INSULATION THICKNESSES REQUIRED TO AVOID THE FORMATION OF CONDENSATION ON FLAT SURFACES (values in mm)

Fluid temp. °C	AMBIENT RELATIVE HUMIDITY VALUES (%)					
	60%	70%	80%	85%	90%	95%
0	14	22	37	52	82	173
-20	23	34	56	78	122	254
-40	31	45	74	103	160	331
-60	38	56	91	125	195	403
-80	45	66	106	147	228	471
-100	52	75	121	167	259	533
-120	58	83	134	185	287	592
-140	63	91	147	202	313	645
-160	68	98	158	218	337	694
-180	73	105	168	232	359	734
-196	76	109	175	242	374	770

NB: Calculations carried out taking into consideration the following parameters:

Insulation on flat surfaces

T<sub>a</sub> (external ambient temperatures): 40 °C

α<sub>a</sub>: External surface coefficient: 9 W/m<sup>2</sup>•K

VARIATIONS IN THE ABOVE-MENTIONED PARAMETERS WILL NECESSITATE A RECALCULATION OF THE INSULATION THICKNESSES.



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