

## Introduction

Teqtix Phenolic Solutions has developed the Insulphen phenolic foam range of closed cell insulation products focusing on achieving the highest possible thermal insulation value.

Insulphen Phenolic Foam is supplied in block format and available in a wide range of densities from 2.5 PCF to 10 PCF.

Increased awareness of energy consumption is driving the construction industry to higher standards of thermal insulation. Insulphen 2.5 PCF excels in thermal insulation value with an aged thermal conductivity of 0.173 BTU-in/hr-ft<sup>2</sup>-°F.

High density material like Insulphen 5 PCF and over provide high mechanical strength required for applications like pipe supports and industrial applications. With the use of Insulphen we are providing solutions to achieve higher insulation values at minimum thickness.

All products in the Insulphen product range are combining one other unique feature next to the highest thermal insulation value and mechanical strength; its fire performance.

Insulphen does not have a melting temperature unlike most thermoplastic and inorganic insulation materials. Official testing concludes Insulphen has an extremely low smoke emission nor creates burning droplets. In case of fire it will develop a carbonaceous layer on the exposed surface which is protecting the deeper layers of the material.

## Type

Block type insulation based on closed cell phenolic foam.

## Temperature range

Insulphen phenolic foam will maintain its performance at continuous operating temperatures of -58°F to +230°F.

Under special installation conditions Insulphen can be used in petrochemical applications up to cryogenic temperatures.

Short term exposures which could exceed the recommended continuous operating temperatures are pending on the application. Please contact Teqtix Phenolic Solutions for advice.

## Application

Insulphen phenolic foam is supplied as block which can be processed to any size and shape. Teqtix has developed a standardized system with adhesive and aluminium facing which is certified and delivers thermal insulation, fire safety and durability. The aluminium facing on Insulphen pipe insulation is easing quick installation and if correctly installed can have an indefinite life.

## Typical applications:

- Pipe insulation for the HVAC market;
- Pipe insulation for application in the chemical process- and cold storage industry;
- Pipe supports from high densities;
- Thermal insulation board with high dimensional tolerances;
- Fire resistant core material in doors and composite panels; General technical insulation of tanks, ducts, vessels and technical installations.

## Benefits

- Excellent insulation performance;
- High fire resistance and fire behavior;
- Excellent thermal stability;
- Low heat storage;
- Resistance to thermal shock;
- High strength;
- Easily cut to size.



Properties measured at ambient conditions			Teqtix Insulphen, Typical values				
	Standard	Unit	40	60	80	120	160
Nominal dry density	ASTM D1622	PCF	2.5	3.7	5	7.5	10
Continuous use temperature <sup>2</sup>		°F	-58 to +230				
Compressive strength	ASTM D1621						
Parallel to rise		psi	22	58	102	145	218
Perpendicular to rise		psi	18	50	87	123	145
Tensile strength	ASTM D1623						
Parallel to rise		psi	22	58	not tested	not tested	not tested
Perpendicular to rise		psi	20	54	not tested	not tested	not tested
Closed cell content	ASTM D2856	%	95	92	90	85	85
Dimensional stability	EN 1601	%	< 1				
Water absorption	EN 13087	%	< 3				
Water vapour transmission	EN 1286	µm	30	45	50	60	75
Fire properties:							
Euroclass (SBI)	EN 13501-1						
Naked product			C-s1,d0	C-s1,d0	B-s1,d0	not tested	not tested
Pipe section with ASJ facing <sup>3</sup>			Bi-s1,d0	not tested	not tested	not tested	not tested
Surface burning characteristic	ASTM E84						
Flame spread index			< 25	not tested	not tested	not tested	not tested
Smoke development index			< 50	not tested	not tested	not tested	not tested
UL-C Surface burning characteristic	CAN/ULC-S102-03/S127-04						
Flame spread index			< 10	not tested	not tested	not tested	not tested
Smoke development index			< 10	not tested	not tested	not tested	not tested
Thermal conductivity (λ-value) <sup>4</sup>	EN 12667 @ 50°F						
Initial		BTU-in/ hrft <sup>2</sup> °F	0.146	0.167	0.201	0.236	0.278
(verified within 8 days after production)							
Aged		BTU-in/ hrft <sup>2</sup> °F	0.173	0.194	0.236	0.278	0.347
(verified after 26 wks @ 158°F)							

### Availability

Insulphen is manufactured as a rigid foam block. The standard size is 100x40 inch or 96x48 inch. Height as shown in the table are approximates and pending production parameters. Please note that other sizes are available on request

Density	100x40 inch	Availability	96x48 inch	Availability
2.5 PCF	36 inch	x	36 inch	o
3.75 PCF	32 inch	x	32 inch	o
5 PCF	30 inch	x	30 inch	o
7.5 PCF	28 inch	o	28 inch	o
10 PCF	24 inch	o	24 inch	o
Standard item x/ On request o				

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<sup>1</sup> System is based on testing at Effects using Teqtix Phenolic Solutions selected facings and glue system.

<sup>2</sup> Thermal Conductivity values are given @ 10°C and are monitored on a regular basis as part of certification purposes. Aging and higher temperatures effect the thermal performance of the material.

<sup>3</sup> Under special installation instructions, insulphen can be used to -250°F.

### Certification

All products in the Teqtix Insulphen product range are manufactured to the latest production technology and meeting the strictest standards.

The quality of Teqtix Insulphen is covered by CE-marking under KIWA certificate FPC-90988/02 and UL-C certificate R22387.

