



# TECHNICAL DATA

## User Reference

TDCD  
**15.101**

POLYURETHANE FOAM PROPERTIES

3.14.07

### POLYURETHANE FOAM

This data is intended to provide you with a quick reference point for some of the physical properties important in the application of Thermacor's Polyurethane foam. The statements and properties contained herein are based on results obtained from the research laboratories of 3 major chemical companies as well as published data from information in the Plastic Encyclopedia. Variations from separate data is less than 2% in all instances. This information is believed to be reliable. However, Thermacor Process Inc. assumes no liability for the information. We recommend that you make your own evaluation. We will be happy to assist you with whatever applicable data we have. Plus, Thermacor Process Inc. has evaluation specialists available to work with you in establishing your particular requirements.

### PROPERTIES OF POLYURETHANE FOAM

A. Density -- Urethane core is nominally 2 lbs./ cubic ft.

B. Insulation Value (K factor = BTU/hr./ sq. ft./ °F/in.)

Polyurethane	0.15
Polystyrene Foam	0.24
Fiberglass Board	0.25
Mineral Wool	0.26
Cork	0.27
Molded Asbestos	0.32
Foamglass	0.40

Note: 1" of Polyurethane is equal to approximately 2"-3" of other insulating materials.

C. Moisture Vapor Transmission -- (grains/ hr./ sq. ft./ in.) on cut surface is 2 - 3 Perm-in.

D. Water absorption -- .05 lbs./ sq. ft. of cut surface.

E. Moisture pick up after 4 years submersion under 8' head of water on cut surface 5%.

F. Solvent resistance

Concentrated Alkali	Excellent
Dilute Alkali	Excellent
Hydrocarbons	Good to Excellent
Dilute Acids	Good
Concentrated Acids	Poor
Degradation by Fungus	Good
Degradation by Molds	Good

G. Temperature limitations (minus 250°F) to 250°F.

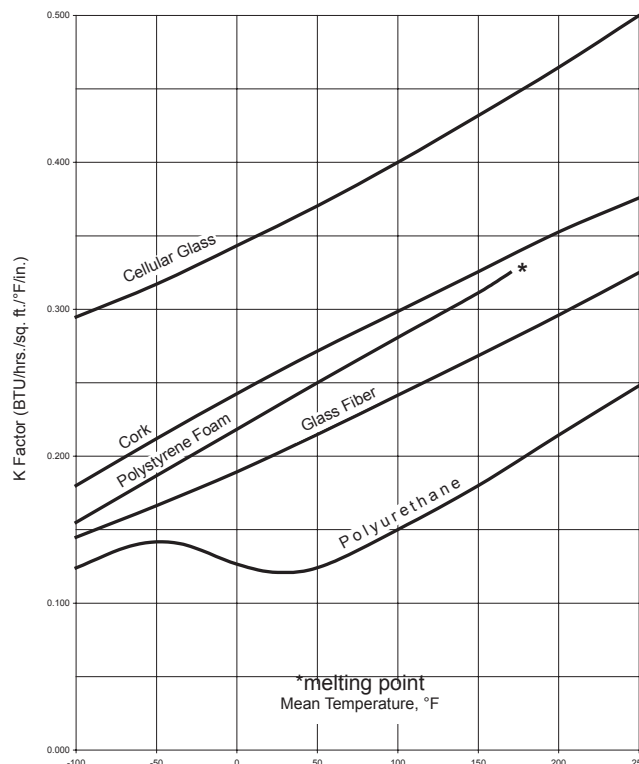
H. Compressive strength 30 psi depending on density.

I. Dielectric strength 103 CP S. 1.06

J. Tensile strength 56 psi

K. Bond Excellent

### COMMON K FACTORS



### CRYOGENIC INSULATION FOAM REQUIREMENTS

Nom IPS	PIPE TEMPERATURE °F									
	-300	-250	-200	-150	-100	-60	-40	-20	0	20
½	2	2	2	1½	1½	1½	1½	1		
¾	2½	2	2	2	1½	1½	1½	1		
1	2½	2½	2	2	1½	1½	1½	1	1	
1¼	3	2½	2	2	1½	1½	1½	1½	1	
1½	3	2½	2	2	1½	1½	1½	1½	1	
2	3	2½	2½	2	1½	1½	1½	1½	1	
2½	3	2½	2½	2	1½	1½	1½	1½	1	
3	3	3	2½	2½	2	1½	1½	1½	1	
3½	3	3	2½	2½	2	1½	1½	1½	1	
4	3½	3	2½	2½	2	1½	1½	1½	1	1
4½	3½	3	2½	2½	2	1½	1½	1½	1	1
5	3½	3	3	2½	2	2	1½	1½	1½	1
6	3½	3½	3	2½	2½	2	1½	1½	1½	1
8	4	3½	3	2½	2½	2	1½	1½	1½	1

Cold pipe insulation thickness based on 90°F ambient air, 80% relative humidity, zero M.P.H. wind velocity, and a minimum surface temperature of 84°F.