IT Insulation Systems

TRYMER Design Table for an Installation Inside a Cold Storage Room

ambient temp. = 40°F	Outer surface = PVC ($\epsilon = 0.9$)
ambient relative humidity = 90%	wind velocity = 0 mph
dewpoint = 37°F	geometry = Horizontal Pipe

Insulation Thickness In Inches Necessary to Prevent Condensation Or limit Heat Gain to 8 btu/hr-ft2, whichever is greater

Nom pipe size (in)	Service Temperature (°F)																
	-300	-280	-260	-240	-220	-200	-180	-160	-140	-120	-100	-80	-60	-40	-20	0	10
0.5	7	7	6.5	6.5	6	6	5	5	4.5	4	3.5	3	2.5	2.5	2	1.5	1
0.75	7.5	7	7	7	6.5	6	6	5	5	4.5	4	3.5	3	2.5	2	1.5	1.5
1	7.5	7.5	7.5	7	7	6.5	6	5	5	4.5	4	3.5	3	2.5	2	1.5	1.5
1.25	8	8	8	7.5	7	7	6.5	6	5.5	5	4.5	4	3.5	3	2.5	1.5	1.5
1.5	8.5	8.5	8	7.5	7.5	7	6.5	6.5	6	5	4.5	4	3.5	2.5	2	1.5	1.5
2	9	8.5	8.5	8	8	7.5	7	6.5	6	5.5	5	4	3.5	3	2.5	1.5	1.5
2.5	9.5	9	9	8.5	8	8	7.5	7	6.5	6	5	4.5	3.5	3	2.5	1.5	1.5
3	9.5	9.5	9	9	8.5	8	7.5	7.5	7	6	5.5	4.5	4	3.5	2.5	2	1.5
4	10	10	10	9.5	9	8.5	8	7.5	7	6.5	6	5	4.5	3.5	3	2	1.5
5				10	9.5	9	8.5	8	7.5	7	6	5	4.5	4	3	2	1.5
6					10	9.5	9	8.5	8	7	6.5	5.5	4.5	4	3	2	2
8						10	9.5	9	8.5	7.5	6.5	6	5	4	3	2.5	2
10							10	9.5	9	8	7	6	5	4.5	3.5	2.5	2
12								9.5	9	8	7.5	6.5	5.5	4.5	3.5	2.5	2
14								10	9	8.5	7.5	6.5	5.5	4.5	3.5	2.5	2
16								10	9.5	8.5	7.5	6.5	5.5	4.5	3.5	2.5	2
18									9.5	8.5	7.5	6.5	5.5	5	3.5	2.5	2
20									10	9	8	7	6	5	4	2.5	2
24									10	9	8	7	6	5	4	2.5	2

This table is based on the ASTM C-680 algorithm for thickness of insulation required to control condensation on the outer surface of an insulated pipe, as used in the NAIMA 3E PLUS program.

The required insulation thickness values do not include a safety factor. Actual operating conditions can vary. Consult a design engineer for an appropriate safety factor.

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