

General Product Information:

ROXUL® products are mineral wool fibre insulations made from basalt rock and slag. This combination results in a non-combustible product with a melting point of approximately 2150°F (1177°C), which gives it excellent fire resistance properties. ROXUL mineral wool is a water repellent yet vapour permeable material.

Techton® 1200 Marine is impregnated to provide high water-repellent characteristics, making it suitable for application in conditions where moisture can penetrate the insulation system.

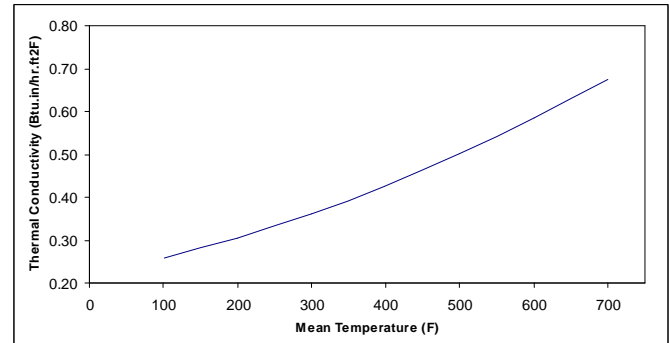
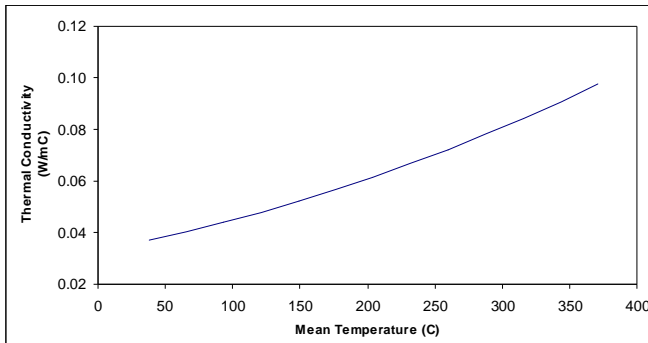
Description & Common Applications:

These rigid mandrel wound pipe sections are strong, preformed mineral wool insulation with excellent thermal performance. Techton® 1200 Marine is ideal for steam and process pipe systems operating at temperatures up to 1200°F (650°C), where energy conservation, personnel protection and fire control are concerns. Designed for thermal and fire protection for marine applications. Marine certificates of approval have been issued by Transport Canada, United States Coast Guard and Lloyd's Register in accordance with IMO A.799 and ISO 1182:1990, Annex 1, Part 1 of IMO/FTP Code and carries the European Wheel Mark.

Compliance and Performance:

CAN/CGSB 51.9-92	Mineral Fibre Thermal Insulation for Piping and Round Ducting	Type 1, Class 1, 2 & 3 Grade A
ASTM C 547	Standard Specification for Mineral Fibre Preformed Pipe Insulation	Type I, II, IV, Complies
CAN4 S114	Test For Non-Combustibility	Non-Combustible
ASTM E136	Behavior Of Materials at 750 C (1382 F)	Non-Combustible
IMO A.799	Non-Combustibility	Non-Combustible
ISO 1182:1990, Annex 1		USCG Cert. No. 164.109/27/0
Part 1, of IMO/FTP Code		Transport Canada Cert.No. T.C. 261-F1.323
		European Cert. No 1408/08
		Lloyd's Register Cert. No. SAS F090282
		USCG & European Certification
"A-60" Class Steel Bulkhead And Deck as per IMO/FTP Code A.754 (18)	See Roxul's Bulkead & Deck Installation Instructions For 450mm past penetration	
CAN/ULC S102	Surface Burning Characteristics	Flame Spread = Passed Smoke Developed = Passed
ASTM E 84(UL 723)	Surface Burning Characteristics	Flame Spread = Passed Smoke Developed = Passed
ASTM C 411	Hot Surface Performance	In Compliance with ASTM C547 @ 1200°F (650°C)
ASTM C 447	Maximum Surface Performance	In Compliance with ASTM C547 @ 1200°F (650°C)
ASTM C 795 *	Stainless Steel Stress Corrosion Specification as per Test Methods C871 and C692: U.S. Nuclear Regulatory Commission, Reg. Guide #1.36: U.S. Military Specifications	Conforms
ASTM C 356	Linear Shrinkage	≤ 1.30% @ 1200°F (650°C)
ASTM C 1104	Moisture Sorption	< 0.1%
ASTM C 585	Inner & Outer Diameters for Nominal Pipe Sizes	Complies
ASTM C800	Wicking	Zero

Thermal Conductivity (k):



Thermal Performance:

Roxul can perform an individual computer analysis for your specific needs in accordance with the NAIMA 3E Plus software program. The following data sheet is an example. All data was derived from given input information shown below while the thermal performance equations are based on laboratory conditions and may not represent all actual conditions of use.

Horizontal Pipes

Ambient Temperature:	75°F	NT:	Nominal Thickness
Wind speed:	1 mph	HL:	Heat Loss (Btu/ft/hr)
Base Metal:	Steel	ST:	Surface Temperature (°F)
Emissance of outer jacketing:	0.1	NPS:	Nominal Pipe Size

Process Temperature Table For Nominal Pipe Sizes vs. Nominal Thickness(NT), Outer Surface Temperature(ST), and Heat Loss(HL)

NPS	200°F			400°F			600°F			800°F			1000°F			1200°F		
	NT	HL	ST	NT	HL	ST	NT	HL	ST	NT	HL	ST	NT	HL	ST	NT	HL	ST
0.5	1.0	13.4	86.1	1.5	34.0	98.3	2.5	51.1	100.6	3.0	79.5	110.6	3.0	120.4	127.1	4.0	156.6	131.7
0.75	1.0	13.7	86.5	1.5	39.6	101.9	2.5	57.0	103.4	3.0	88.0	114.2	3.0	133.3	132.2	4.0	171.8	136.5
1.0	1.0	16.7	87.5	1.5	42.8	102.2	3.0	60.0	102.4	3.0	99.2	118.7	3.5	141.0	130.5	4.5	182.3	135.1
1.25	1.0	21.3	90.8	1.5	47.6	103.3	3.0	68.8	106.1	3.0	113.8	124.5	4.0	150.8	129.8	5.0	195.0	135.1
1.5	1.0	22.2	90.2	2.0	49.8	99.2	3.0	68.7	103.9	3.0	113.6	120.8	3.5	161.4	133.3	5.0	199.2	132.9
2.0	1.0	25.1	91.1	2.5	45.9	96.2	3.0	81.5	108.7	3.0	134.8	128.3	4.0	175.6	133.2	6.0	234.1	133.7
2.5	1.5	19.8	85.3	2.5	48.6	95.8	3.0	86.6	108.3	4.0	124.2	115.4	4.0	188.2	133.3	6.0	225.6	130.0
3.0	1.5	25.6	88.1	2.5	58.8	99.9	3.0	103.0	114.0	4.0	143.6	121.0	4.5	205.8	134.5			
3.5	1.0	31.4	91.0	2.5	60.2	98.8	3.0	105.4	112.0	4.0	150.1	120.3	5.0	212.2	132.3			
4.0	1.5	30.6	89.4	3.0	61.0	97.4	4.0	100.6	106.7	4.0	166.6	124.6	5.0	220.8	131.5			
5.0	1.5	36.9	91.0	3.0	71.2	99.4	4.0	114.1	108.4	4.0	188.9	126.8	5.5	240.0	130.5			
6.0	1.5	42.8	92.2	3.0	81.3	101.2	4.0	128.5	110.4	4.0	212.8	129.7	5.5	267.7	133.5			
8.0	1.5	51.1	92.9	3.0	95.6	102.2	4.0	154.1	113.1	4.0	255.4	133.6						
10.0	1.5	59.9	93.6	3.0	115.1	104.5	4.0	183.3	115.9	4.5	279.2	131.2						
12.0	1.5	69.1	94.4	4.0	106.8	98.9	4.0	208.8	117.5	5.0	294.2	128.2						
14.0	2.0	63.4	91.6	4.0	113.6	99.5	4.0	222.1	118.4	5.0	323.4	130.7						
16.0	2.0	71.1	92.2	4.0	126.4	100.3	4.0	247.2	119.6	5.5	336.4	127.8						
18.0	2.0	78.7	92.7	4.0	139.1	100.9	4.0	272.3	120.7	5.5	368.6	129.1						
20.0	2.0	86.3	93.1	4.0	151.9	101.5	4.0	297.2	121.5	5.0	428.3	134.6						

Installation:

- Pipe sections are water repellent, but cartons are not designed for outside storage. Techton® 1200 Marine can be used outdoors but will require the use of a suitable weatherproofing system.
- Cuts easily with a serrated knife.
- Stagger half-sections and/or butt the one piece sections firmly together.
- Techton® 1200 Marine is designed for operating temperatures from below ambient to 1200°F (650°C). During initial start-up, controlled binder decomposition will occur at the inside surface of the insulation when the internal temperature of the insulation exceeds 450°F (232°C). Provide adequate ventilation to prevent odour and smoke.
- For satisfactory performance, properly installed protective vapor retarders or barriers should be used on sub-ambient temperature applications to reduce movement of moisture through or around the insulation to the colder surface.
- Wire insulation to pipe and fix the metal jacketing with metal bands or sheet metal screws. Position metal bands at butt joint overlaps and in between joints to secure jacket.

Packaging:

The Packaging Standards Charts below identify the number of linear feet per carton.
 All Techton 1200 sections are cut in 3.28 foot lengths, and the letters represent the carton size.
 Sizes ABOVE the bold line on each chart are normally one piece hinged.
 Sizes BELOW the bold line on each chart are normally two-piece.

CARTON SIZE

T1 = 15 5/8" x 15 5/8" x 39 1/2" = 5.58 cu ft.
 T2 = 23 5/8" x 15 5/8" x 39 1/2" = 8.44 cu ft.
 T3 = 31 5/8" x 18 5/8" x 39 1/2" = 13.46 cu ft.
 T4 = 23 5/8" x 20 5/8" x 39 5/8" = 11.14 cu ft.
 T5 = 27 5/8" x 23 5/8" x 39 5/8" = 14.97 cu ft.
 P = 48" x 48" Pallet

LOADING FACTORS PER 53FT TRAILER

T1 Carton = 558
 T2 Carton = 402
 T3 Carton = 243
 T4 Carton = 300
 T5 Carton = 236
 Pallets = 48

Nominal Wall Thickness (Inches)

Nominal Pipe Size	1" T1200	1.5" T1200	2" T1200	2.5" T1200	3" T1200	3.5" T1200	4" T1200	4.5" T1200	5" T1200
0.50	82/T1	39.4/T1	26.2/T1	-	-	-	-	-	-
0.75	88.6/T1	65.6/T2	42.6/T2	23/T2	-	-	-	-	-
1.00	65.6/T1	49.2/T2	36.1/T2	23/T2	13.1/T1	13.1/T2	-	-	-
1.25	59/T1	29.5/T1	36.1/T2	19.7/T2	19.7/T2	13.1/T2	9.8/T2	6.6/T2	-
1.50	72.2/T2	45.9/T2	23/T2	13.1/T1	13.1/T2	13.1/T4	9.8/T4	9.8/T4	-
2.00	59/T2	36.1/T2	23/T2	19.7/T2	13.1/T2	9.8/T2	13.1/T4	9.8/T4	-
2.50	45.9/T2	23/T2	19.7/T2	16.4/T4	9.8/T2	13.1/T4	9.8/T4	6.6/T4	-
3.00	36.1/T2	32.8/T4	19.7/T2	16.4/T4	9.8/T2	13.1/T4	9.8/T4	6.6/T4	-
3.50	32.8/T4	13.1/T1	19.7/T4	9.8/T2	9.8/T4	9.8/T4	9.8/T5	6.6/T4	-
4.00	29.5/T4	19.7/T2	23/T3	9.8/T2	13.1/T4	6.6/T2	9.8/T5	6.6/T4	-
4.50	26.2/T4	16.4/T4	19.7/T3	13.1/T3	6.6/T2	3.3/T1	3.3/T1	3.3/T1	-
5.00	26.2/T4	19.7/T4	13.1/T4	9.8/T4	9.8/T4	9.8/T5	6.6/T4	-	-
6.00	23/T3	19.7/T3	9.8/T4	13.1/T5	6.6/T4	3.3/T1	3.3/T1	4.9/T2	4.9/T4
7.00	13.1/T4	16.4/T5	13.1/T5	9.8/T5	3.3/T1	3.3/T1	6.6/T3	6.6/T3	3.3/T2
8.00	16.4/T5	13.1/T5	6.6/T2	6.6/T3	6.6/T3	6.6/T4	6.6/T3	4.9/T5	3.3/T2
9.00	6.6/T2	9.8/T5	3.3/T1	3.3/T1	6.6/T4	6.6/T3	4.9/T4	3.3/T2	3.3/T4
10.00	6.6/T4	3.3/T1	3.3/T1	6.6/T4	6.6/T4	4.9/T4	3.3/T2	3.3/T4	3.3/T4
11.00	9.8/T4	9.8/T3	6.6/T4	6.6/T4	6.6/T3	3.3/T2	3.3/T2	3.3/T4	3.3/T4
12.00	13.1/T5	6.6/T2	6.6/T4	6.6/T4	4.9/T4	4.9/T4	3.3/T4	3.3/T4	3.3/T3
14.00	-	6.6/T4	6.6/T4	6.6/T5	6.6/T5	4.9/T5	3.3/T4	3.3/T4	3.3/T5
15.00	-	6.6/T4	6.6/T5	3.3/T2	3.3/T2	4.9/T5	3.3/T3	3.3/T3	3.3/T3
16.00	-	6.6/T5	4.9/T4	4.9/T4	3.3/T4	3.3/T4	3.3/T3	3.3/T3	3.3/T3
17.00	-	6.6/T5	3.3/T2	3.3/T2	3.3/T4	3.3/T3	3.3/T3	3.3/T3	1.6/T3
18.00	-	6.6/T5	3.3/T2	3.3/T4	3.3/T3	3.3/T3	3.3/T3	3.3/T3	1.6/T3
19.00	-	6.6/T5	3.3/T4	3.3/T4	3.3/T3	3.3/T3	3.3/T3	1.6/T3	1.6/T3
20.00	-	3.3/T4	3.3/T4	3.3/T3	3.3/T3	3.3/T3	1.6/T3	1.6/T3	1.6/T3
21.00	-	3.3/T4	3.3/T3	3.3/T3	3.3/T3	1.6/T3	1.6/T3	1.6/T3	1.6/T3
22.00	-	3.3/T3	3.3/T3	3.3/T3	3.3/T3	1.6/T3	1.6/T3	1.6/T3	1.6/T3
23.00	-	3.3/T3	3.3/T3	3.3/T3	1.6/T3	1.6/T3	1.6/T3	1.6/T3	1.6/P
24.00	-	3.3/T3	3.3/T3	3.3/T3	1.6/T3	1.6/T3	1.6/T3	1.6/T3	6.6/P
25.00	-	-	1.6/T3	1.6/T3	1.6/T3	1.6/T3	6.6/P	6.6/P	6.6/P
26.00	-	-	1.6/T3	1.6/T3	1.6/T3	6.6/P	6.6/P	6.6/P	6.6/P
27.00	-	-	1.6/T3	1.6/T3	1.6/T3	6.6/P	6.6/P	6.6/P	6.6/P
28.00	-	-	1.6/T3	1.6/T3	6.6/P	6.6/P	6.6/P	6.6/P	6.6/P
29.00	-	-	-	-	-	-	-	-	-
30.00	-	-	6.6/P	6.6/P	6.6/P	6.6/P	6.6/P	6.6/P	-
31.00	-	-	-	-	-	-	-	-	-
32.00	-	-	6.6/P	6.6/P	6.6/P	6.6/P	-	-	-
33.00	-	-	6.6/P	6.6/P	6.6/P	-	-	-	-
34.00	-	-	6.6/P	6.6/P	-	-	-	-	-

Note:

As ROXUL Inc. has no control over installation design and workmanship, accessory materials or application conditions, ROXUL Inc. does not warranty the performance or results of any installation containing ROXUL Inc's. products. ROXUL Inc's. overall liability and the remedies available are limited by the general terms and conditions of sale. This warranty is in lieu of all other warranties and conditions expressed or implied, including the warranties of merchantability and fitness for a particular purpose.

Provisions for lot testing may be required, consult manufacturer.

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Revised: May 6, 2010
 Supersedes: April 21, 2010