

#### General Product Information:

ROXUL<sup>®</sup> 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.

#### Description & Common Applications:

The advanced CAD/CAM technology, exclusive to the manufacture of today's Roxul<sup>®</sup> 1200, ensures remarkable precision throughout the production process.

Dimensional characteristics are reliably exact, meeting and exceeding, in most cases, all required standards and specifications. Nesting is consistently accurate. The result is not only an exacting fit every time, but also a smooth outer surface for a jacketed finish that ensures a professional appearance.

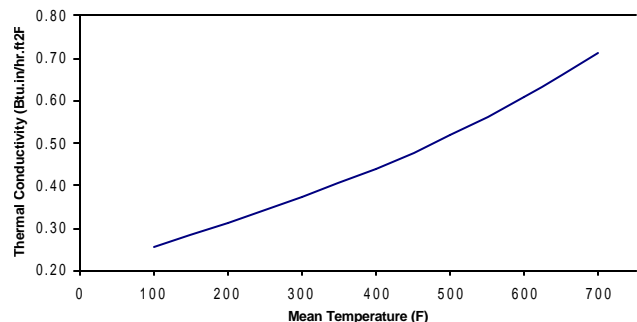
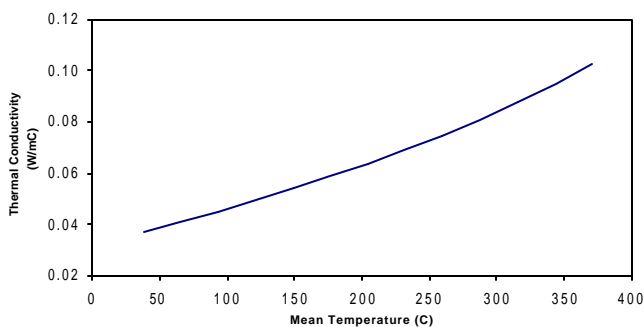
This product is made exclusively for pipe when temperature demands, as well as, weight reduction and moisture resistance, are critical.

Roxul<sup>®</sup> 1200's CAD/CAM manufacturing process is patent pending.

#### Compliance and Performance:

CAN/CGSB 51.9-92	Mineral Fibre Thermal Insulation for Piping and Round Ducting	Type 1, Class 1,2, & 3
ASTM C 547	Standard Specification for Mineral Fiber Preformed Pipe Insulation	Type I, II, IV, Complies
MEA Approval CAN/ULC S102	New York City Approval Surface Burning Characteristics	340-97-M 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 Use Temperature	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 MIL-I-24244 (all versions including B and C)	Conforms
ASTM C 356	Linear Shrinkage	≤ 1% @ 1200°F (650°C)
ASTM C 1104	Moisture Sorption	< 0.4%
ASTM C 585	Inner & Outer Diameters for Nominal Pipe Sizes	Complies

#### Thermal Conductivity (k):



# ROXUL® 1200

## 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.

Ambient Temperature: 75°F  
 Windspeed: 1 mph  
 Emittance of outer jacketing: 0.1

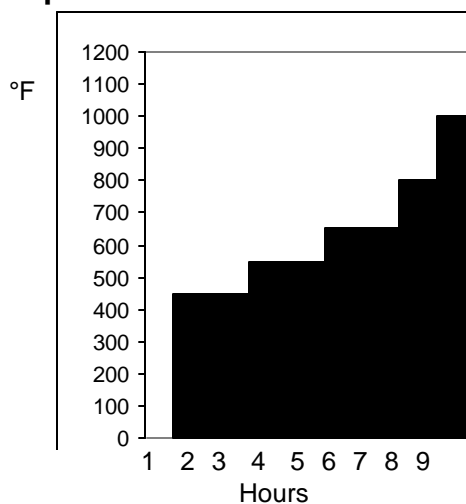
### Horizontal Pipes

NT: Nominal Thickness  
 HL: Heat Loss (Btu/ft/hr)  
 ST: Surface Temperature (°F)  
 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	13.5	86.3	1.5	34.4	98.8	2.5	52.3	102.0	3.0	82.4	113.0	3.0	126.6	133.0	4.5	160.0	134.0
0.8	1.0	16.2	88.6	1.5	39.9	102.0	2.5	58.3	105.0	3.0	91.2	117.0	3.0	140.1	139.0	4.5	179.2	139.0
1.0	1.0	16.7	87.6	1.5	43.1	103.0	3.0	61.1	104.0	3.0	102.3	122.0	3.5	147.5	137.0	5.0	176.4	132.0
1.3	1.0	21.4	91.0	1.5	47.9	104.0	3.0	70.1	108.0	3.0	117.5	129.0	4.0	157.9	137.0	5.5	199.4	140.0
1.5	1.0	21.6	90.0	2.0	43.0	97.2	3.0	70.8	106.0	3.0	118.6	126.0	4.0	160.1	134.0	6.0	203.6	138.0
2.0	1.0	25.1	91.3	2.5	46.3	97.0	3.0	82.9	111.0	3.0	138.9	134.0	4.5	174.3	136.0			
2.5	1.5	19.9	85.4	2.5	49.0	96.6	3.0	88.2	111.0	4.0	128.1	120.0	4.5	186.8	136.0			
3.0	1.5	25.6	88.3	2.5	59.1	101.0	3.0	104.6	117.0	4.0	147.9	127.0	5.0	200.3	137.0			
3.5	1.0	31.4	91.3	2.5	60.6	99.9	3.0	107.0	115.0	4.0	154.5	126.0	5.5	210.6	137.0			
4.0	1.5	30.6	89.6	3.0	61.3	98.5	4.0	102.2	110.0	4.0	171.3	132.0	5.5	219.3	137.0			
5.0	1.5	36.9	91.3	3.0	71.7	101.0	4.0	116.0	112.0	4.0	194.4	135.0	6.0	238.3	137.0			
6.0	1.5	42.7	92.7	3.0	81.5	103.0	4.0	130.4	115.0	4.0	218.6	139.0						
8.0	1.5	51.2	93.7	3.0	95.8	105.0	4.0	156.1	119.0	4.5	242.2	138.0						
10.0	1.5	59.5	94.5	3.0	115.0	108.0	4.0	185.2	123.0	5.0	266.2	138.0						
12.0	1.5	66.2	95.0	4.0	106.8	102.0	4.0	210.5	125.0	5.5	284.1	136.0						
14.0	2.0	62.7	92.6	4.0	114.3	102.0	4.0	225.2	127.0	5.5	308.1	139.0						
16.0	2.0	70.2	93.4	4.0	126.9	104.0	4.0	250.2	129.0	6.0	319.5	137.0						
18.0	2.0	77.6	94.1	4.0	139.5	105.0	4.0	275.0	131.0	6.0	345.4	140.0						
20.0	2.0	85.0	94.7	4.0	152.0	106.0	4.0	299.8	133.0	5.0	439.9	136.0						
22.0	2.0	90.9	94.9	4.0	167.1	107.0	4.0	325.6	136.0	5.0	471.2	136.0						
24.0	2.0	99.6	95.7	4.0	176.9	108.0	4.0	354.8	124.0	5.0	511.5	138.0						

## Heat-up Schedule



The binder used in mineral wool pipe sections is organic and the above Heat-up Schedule is recommended for services with operating temperatures from 450°F to 1200°F. Please contact ROXUL Technical Service, if you require a customized heat-up schedule.

## Installation

- Pipe sections are water repellent, but cartons are not designed for outside storage. ROXUL® 1200 can be used outdoors but will require the use of a suitable weatherproofing system.
- Cuts easily with a knife.
- Stagger half-sections and/or butt the one piece sections firmly together.
- ROXUL® 1200 is designed for operating temperatures from below ambient to 1200°F (650°C). During commissioning, the innerpart of the resin material will start a controlled decomposition, when the internal temperature of the insulation exceeds 450°F (232°C). Provide adequate ventilation to prevent smell and smoke.
- For satisfactory performance, properly installed protective vapour 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.
  - It is not possible to reinstall pipe insulation, if it has been exposed to temperatures above 450°F (232°C).
- 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.

# ROXUL® 1200

## Load Factors

When determining Load Factors, the Packaging Standards Chart below identifies linear feet per carton. All sections are cut in three-foot per carton. All sections are cut in three-foot lengths, and the letters represent the Carton Size. When calculating trailer capacity based upon Carton Size, the information from the Load Factors chart represents the percentage occupied by load, for two different length trailers.

For example, to fill a trailer with "A" cartons, use 100 divided by 0.347 to give you the required number of cartons in a 48 ft. trailer.

## Load Factors

Carton Size	Trailer	
	48'	53'
A	.347	.314
B	.418	.378
C	.472	.427

### Carton Size

A =	21" x 24" x 36.5"	= 10.65 ft <sup>3</sup>
B =	19" x 32" x 36.5"	= 12.84 ft <sup>3</sup>
C =	24.5" x 28" x 36.5"	= 14.49 ft <sup>3</sup>

## Packaging Standards

Insulation Wall Thickness									
Nominal Pipe Size	1.0" LF/Ctn.	1.5"	2"	2.5"	3"	3.5"	4"	4.5"	5"
0.5	159/A	84/A	54/A	30/A	24/A	MTO	MTO	MTO	MTO
0.75	159/A	84/A	54/A	30/A	24/A	MTO	MTO	MTO	MTO
1	120/A	69/A	45/A	30/A	24/A	MTO	MTO	MTO	MTO
1.25	120/A	54/A	45/A	30/A	24/A	MTO	MTO	MTO	MTO
1.5	84/A	54/A	30/A	24/A	18/A	MTO	MTO	MTO	MTO
2	69/A	45/A	30/A	24/A	18/A	12/A	12/A	MTO	MTO
2.5	54/A	30/A	24/A	18/A	12/A	12/A	12/A	MTO	MTO
3	45/A	30/A	24/A	18/A	12/A	12/A	12/A	MTO	MTO
3.5	30/A	24/A	18/A	12/A	12/A	12/A	9/A	MTO	MTO
4	30/A	24/A	18/A	12/A	12/A	12/A	9/A	9/B	6/A
4.5	24/A	18/A	12/A	12/A	12/A	9/A	9/B	6/A	6/A
5	24/A	18/A	12/A	12/A	12/A	9/A	9/B	6/A	6/A
6	18/A	12/A	12/A	12/A	9/A	9/B	6/A	6/A	6/B
7	12/A	12/A	12/C	9/A	9/B	6/A	6/A	6/B	6/A
8	12/A	12/A	9/A	9/B	6/A	6/A	6/B	6/B	4.5/B
9	12/A	9/A	9/B	6/A	6/A	6/B	6/B	4.5/B	3/A
10	9/A	9/B	6/A	6/A	6/B	6/B	4.5/B	3/A	3/A
11	9/B	6/A	6/A	6/B	6/B	4.5/B	3/A	3/A	3/A
12	6/A	6/A	6/B	6/B	4.5/B	3/A	3/A	3/A	3/A
14	6/A	6/B	6/B	4.5/B	3/A	3/A	3/A	3/A	3/C
15	6/B	6/B	4.5/B	3/A	3/A	3/A	3/A	3/C	3/C
16	6/B	4.5/B	3/A	3/A	3/A	3/A	3/C	3/C	3/C
17	MTO	3/A	3/A	3/A	3/A	3/C	3/C	3/C	3/C
18	MTO	3/A	3/A	3/A	3/C	3/C	3/C	3/C	1.5/B
19	MTO	3/A	3/A	3/A	3/C	3/C	3/C	3/C	1.5/B
20	MTO	3/C	3/C	3/C	3/C	3/C	1.5/B	1.5/B	1.5/B
21	MTO	3/C	3/C	3/C	3/C	3/C	1.5/B	1.5/B	1.5/B
22	MTO	3/C	3/C	3/C	3/C	3/C	1.5/B	1.5/B	1.5/B
23	MTO	3/C	3/C	3/C	3/C	1.5/B	1.5/B	1.5/B	
24	MTO	3/C	3/C	3/C	1.5/B	1.5/B	1.5/B	1.5/B	

Note: MTO - Made to Order

## ROXUL® 1200 Pipe Insulation RECOMMENDED DOUBLE-LAYER, NESTING COMBINATIONS

Nominal Pipe Size x	Insulation Thickness =	Inner Layer +	Outer Layer	Nominal Pipe Size x	Insulation Thickness =	Inner Layer +	Outer Layer	Nominal Pipe Size x	Insulation Thickness =	Inner Layer +	Outer Layer
0.50	2.5	.50x1.0	2.5x1.5	4.00	2.5	4.0x1.0	6.0x1.5	12.00	3.0	12.0x1.5	16.0x1.5
0.50	3.0	.50x2.0	4.5x1.0	4.00	3.0	4.0x1.5	7.0x1.5	12.00	3.5	12.0x1.5	16.0x2.0
0.50	3.5	.50x2.0	4.5x1.5	4.00	3.5	4.0x2.0	8.0x1.5	12.00	4.0	12.0x2.0	17.0x2.0
0.50	4.0	.50x2.0	4.5x2.0	4.00	4.0	4.0x2.5	8.0x2.0	12.00	4.5	12.0x2.5	18.0x2.0
				4.00	4.5	4.0x2.5	9.0x2.0	12.00	5.0	12.0x3.0	19.0x2.0
0.75	2.5	.75x1.0	2.5x1.5	4.00	5.0	4.0x2.5	9.0x2.5	12.00	5.5	12.0x3.0	19.0x2.5
0.75	3.0	.75x1.5	3.5x1.5	4.00	5.5	4.0x3.0	10.0x2.5	12.00	6.0	12.0x3.0	19.0x3.0
0.75	3.5	.75x1.5	3.5x2.0	4.00	6.0	4.0x3.0	10.0x3.0				
0.75	4.0	.75x2.0	4.5x2.0					14.00	3.0	14.0x1.5	17.0x1.5
				4.50	2.5	4.5x1.0	7.0x1.5	14.00	3.5	14.0x2.0	18.0x1.5
1.00	2.5	1.00x1.0	3.0x1.5	4.50	3.0	4.5x1.5	8.0x1.5	14.00	4.0	14.0x2.0	18.0x2.0
1.00	3.0	1.00x1.5	4.0x1.5	4.50	3.5	4.5x2.0	8.0x2.0	14.00	4.5	14.0x2.5	19.0x2.0
1.00	3.5	1.00x1.5	4.0x2.0	4.50	4.0	4.5x2.5	9.0x2.0	14.00	5.0	14.0x3.0	20.0x2.0
1.00	4.0	1.00x2.0	5.0x2.0	4.50	4.5	4.5x3.0	9.0x2.5	14.00	5.5	14.0x3.0	20.0x2.5
1.00	4.5	1.00x2.5	6.0x2.0	4.50	5.0	4.5x2.5	10.0x2.0	14.00	6.0	14.0x3.0	20.0x3.0
1.00	5.0	1.00x2.5	6.0x2.5	4.50	5.5	4.5x3.0	11.0x2.5				
				4.50	6.0	4.5x3.0	11.0x3.0	16.00	3.0	16.0x1.5	19.0x1.5
1.25	2.5	1.25x1.0	3.0x1.5					16.00	3.5	16.0x2.0	20.0x1.5
1.25	3.0	1.25x1.5	4.5x1.5	5.00	2.5	5.1x1.0	7.0x1.5	16.00	4.5	16.0x3.0	22.0x1.5
1.25	3.5	1.25x1.5	4.5x2.0	5.00	3.0	5.0x1.5	8.0x1.5	16.00	5.0	16.0x3.0	22.0x2.0
1.25	4.0	1.25x2.0	5.0x2.0	5.00	3.5	5.0x1.5	8.0x2.0	16.00	5.5	16.0x3.0	22.0x2.5
1.25	4.5	1.25x2.5	6.0x2.0	5.00	4.0	5.0x2.0	9.0x2.0	16.00	6.0	16.0x3.0	22.0x3.0
1.25	5.0	1.25x2.5	6.0x2.5	5.00	4.5	5.0x2.5	10.0x2.0				
				5.00	5.0	5.0x2.5	10.0x2.5	18.00	3.0	18.0x1.5	21.0x1.5
1.50	2.5	1.5x1.5	4.5x1.0	5.00	5.5	5.0x3.0	11.0x2.5	18.00	3.5	18.0x2.0	22.0x1.5
1.50	3.0	1.5x1.5	4.5x1.5	5.00	6.0	5.0x3.0	11.0x3.0	18.00	4.0	18.0x2.0	22.0x2.0
1.50	3.5	1.5x1.5	4.5x2.0					18.00	4.5	18.0x3.0	24.0x1.5
1.50	4.0	1.5x2.0	6.0x2.0	6.00	3.0	6.0x1.5	9.0x1.5	18.00	5.0	18.0x3.0	24.0x2.0
1.50	4.5	1.5x2.5	7.0x2.0	6.00	3.5	6.0x2.0	10.0x1.5	18.00	5.5	18.0x3.0	24.0x2.5
1.50	5.0	1.5x2.5	7.0x2.5	6.00	4.0	6.0x2.0	10.2x2.0	18.00	6.0	18.0x3.0	24.0x3.0
				6.00	4.5	6.0x2.5	11.0x2.0				
2.00	2.5	2.0x1.0	4.0x1.5	6.00	5.0	6.0x2.5	11.0x2.5	20.00	3.0	20.0x1.5	23.0x1.5
2.00	3.0	2.0x1.5	5.0x1.5	6.00	5.5	6.0x3.0	12.0x2.5	20.00	3.5	20.0x2.0	24.0x1.5
2.00	3.5	2.0x1.5	5.0x2.0	6.00	6.0	6.0x3.0	12.0x3.0	20.00	4.0	20.0x2.0	24.0x2.0
2.00	4.0	2.0x2.0	6.0x2.0					20.00	4.5	20.0x2.0	24.0x2.5
2.00	4.5	2.0x2.5	7.0x2.0	8.00	3.0	8.0x1.5	11.0x1.5	20.00	5.0	20.0x3.0	26.0x2.0
2.00	5.0	2.0x2.5	7.0x2.5	8.00	3.5	8.0x1.5	11.0x2.0	20.00	5.5	20.0x3.0	26.0x2.5*
				8.00	4.0	8.0x2.0	12.0x2.0	20.00	6.0	20.0x3.0	26.0x3.0*
2.50	2.5	2.5x1.0	4.5x1.5	8.00	4.5	8.0x2.5	14.0x2.0				
2.50	3.0	2.5x1.5	6.0x1.5	8.00	5.0	8.0x2.5	14.0x2.5	22.00	3.5	22.0x2.0	26.0x1.5*
2.50	3.5	2.5x1.5	6.0x2.0	8.00	5.5	8.0x3.0	15.0x2.5	22.00	4.0	22.0x2.0	26.0x2.0*
2.50	4.0	2.5x2.0	7.0x2.0	8.00	6.0	8.0x3.0	15.0x3.0	22.00	4.5	22.0x2.0	26.0x2.5*
2.50	4.5	2.5x2.5	8.0x2.0					22.00	5.0	22.0x3.0	28.0x2.0*
2.50	5.0	2.5x2.5	8.0x2.5	10.00	3.0	10.0x1.5	14.0x1.5	22.00	5.5	22.0x3.0	28.0x2.5*
				10.00	3.5	10.0x1.5	14.0x2.0	22.00	6.0	22.0x3.0	28.0x3.0*
3.00	2.5	3.0x1.0	5.0x1.5	10.00	4.0	10.0x2.0	15.0x2.0				
3.00	3	3.0x1.5	6.0x1.5	10.00	4.5	10.0x2.5	16.0x2.0	24.00	4.0	24.0x2.0	28.0x2.0*
3.00	3.5	3.0x1.5	6.0x2.0	10.00	5.0	10.0x2.5	16.0x2.5	24.00	4.5	24.0x2.0	28.0x2.5*
3.00	4	3.0x2.0	7.0x2.0	10.00	5.5	10.0x3.0	17.0x2.5	24.00	5.0	24.0x3.0	30.0x2.0*
3.00	4.5	3.0x2.5	8.0x2.0	10.00	6.0	10.0x3.0	17.0x3.0	24.00	5.5	24.0x3.0	30.0x2.5*
3.00	5	3.0x2.5	8.0x2.5					24.00	6.0	24.0x3.0	30.0x3.0*
3.00	5.5	3.0x3.0	9.0x2.5								
3.00	6	3.0x3.0	9.0x3.0								
3.50	2.5	3.5x1.0	6.0x1.5								
3.50	3	3.5x1.5	7.0x1.5								
3.50	3.5	3.5x1.5	7.0x2.0								
3.50	4	3.5x2.0	8.0x2.0								
3.50	4.5	3.5x2.5	9.0x2.0								
3.50	5	3.5x2.5	9.0x2.5								
3.50	5.5	3.5x3.0	10.0x2.5								
3.50	6	3.5x3.0	10.0x3.0								

\* Denotes MTO Product