

RUBEROID
MEDIUM
TEMPERATURE
INSULATION

For Terms & Conditions and F.O.B. Please see Notes on page MT-2.

DISTRIBUTOR DISCOUNTS
CONFIDENTIAL — LIMITED DISTRIBUTION

0—\$1,900 List	List Less 4%
\$1,900—\$4,999	List Less 20%
\$5,000 List & Over	List Less 30%
Direct factory shipment of \$1,900 list value or more to O.E.M. or retail building orders	List Less 20% & 7%

MIXED CARGOES

Mixed cargoes of Superfine blanket and Pipe Insulation will be allowed under the following conditions when shipped at the same time to one destination.

1. Total order must exceed \$5,000 list value.
2. At least \$1,000 list value of Superfine blanket must be included.

PLAINTIFF'S
EXHIBIT
GF-1872

230641

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RUBEROID MEDIUM TEMPERATURE INSULATION

Page No. MT-2
Page 2 of 2
Date: August 1, 1962
Replaces:

FIBER GLASS PIPE COVERING

FIBER GLASS PIPE COVERING - ZONE I									
	A				C				XS
	CL	LC	CL	LC	CL	LC	CL	LC	
1/2" thick	49	43	43	38	20	11			
3/4" thick	26	16	19	6	14	2			
1" thick and up	5	0+55	0+96	0+90	0+50	0+75			

FIBER GLASS PIPE COVERING - ZONE II									
	A				C				XS
	CL	LC	CL	LC	CL	LC	CL	LC	
1/2" thick	46	38	40	30	17	6			
3/4" thick	24	16	17	4	12	6			
1" thick and up	2	0+52	0+53	0+77	0+87	0+72			

DUAL TEMPERATURE VAPOR BARRIER JACKET (Black or White) - ZONE I									
	A				C				XS
	CL	LC	CL	LC	CL	LC	CL	LC	
1/2" thick	0+99	0+83	0+90	0+74	0+84	0+69			
3/4" thick	0+93	0+83	0+87	0+68	0+81	0+63			
1" thick and up									

DUAL TEMPERATURE VAPOR BARRIER JACKET (Black or White) - ZONE II									
	A				C				XS
	CL	LC	CL	LC	CL	LC	CL	LC	
1/2" thick	0+96	0+85	0+88	0+71	0+79	0+65			
3/4" thick	0+90	0+80	0+79	0+65	0+73	0+60			
1" thick and up									

230642

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RUBEROID MEDIUM TEMPERATURE INSULATION

Page No. MTC-3
Page 3 of 8
Date: August 1, 1963
Replaces

FIBER GLASS PIPE COVERING

THICKNESS & IPS		NET UNIT PRICES MANUAL TABLE NUMBER				ZONE 1		ZONE 2	
		JACKET	CL	LCL	CL				
1/2" Thick and 1/2" IPS thru 10" IPS		Plain Sd. Canvas (L.L. Duty)	49	43	46				
		Dual Temp. (Black or White)	43	37	40				
		Flame Retardant (FRJ)	43	37	40				
		4 oz. canvas	42	36	39				
		6 oz. canvas	40	34	37				
		35# Weatherproof	37	31	34				
		45# Weatherproof	34	28	31				
1/2" Thick and 1/2" IPS thru 6" IPS		55# Weatherproof	32	26	29				
		6 oz. canvas over ft. duty	26	20	23				
		8 oz. canvas over ft. duty	24	18	21				
		Plain Sd. Canvas (L.L. Duty)	26	16	24				
		Dual Temp. (Black or White)	20	10	18				
		Flame Retardant (FRJ)	20	14	16				
		4 oz. canvas	19	9	17				
1" Thick and over and 1/2" IPS thru 12" IPS		6 oz. canvas	17	7	15				
		35# Weatherproof	14	4	12				
		45# Weatherproof	11	1	9				
		55# Weatherproof	9	0	7				
		6 oz. canvas over ft. duty	3	0	3				
		8 oz. canvas over ft. duty	1	0	1				
		Plain Sd. Canvas	5	0	2				
1" Thick and over and 14" IPS thru 30" IPS		Dual Temp. (Black or White)	0 + 99	0 + 89	0 + 96				
		Flame Retardant (FRJ)	0 + 99	0 + 89	0 + 96				
		4 oz. canvas	3	0	0				
		6 oz. canvas	0 + 98	0 + 88	0 + 95				
		35# Weatherproof	0 + 93	0 + 83	0 + 90				
		45# Weatherproof	0 + 90	0 + 80	0 + 87				
		55# Weatherproof	0 + 88	0 + 78	0 + 85				
1" Thick and over and 14" IPS thru 30" IPS		6 oz. canvas over dual temp.	0 + 76	0 + 66	0 + 73				
		8 oz. canvas over dual temp.	0 + 74	0 + 64	0 + 71				
		Plain	5	0	2				
		Standard Canvas	0 + 99	0 + 89	0 + 96				
		Dual Temp. (Black or White)	0 + 93	0 + 83	0 + 90				
		Flame Retardant (FRJ)	0 + 93	0 + 83	0 + 90				
		4 oz. canvas	0 + 97	0 + 87	0 + 94				
1" Thick and over and 14" IPS thru 30" IPS		6 oz. canvas	0 + 93	0 + 83	0 + 90				
		35# Weatherproof	0 + 89	0 + 79	0 + 86				
		45# Weatherproof	0 + 86	0 + 76	0 + 83				
		55# Weatherproof	0 + 84	0 + 74	0 + 81				
		6 oz. canvas over ft. duty	0 + 84	0 + 74	0 + 81				
		8 oz. canvas over ft. duty	0 + 82	0 + 72	0 + 79				
		Plain	5	0	2				

Unit prices for 12" IPS and over not shown in Manual of Unit Prices.
Above prices do not include bands. Add 1 point if bands are to be included.
4" wide strips of jacking furnished to cover end joints on vapor barrier and weatherproof jackets are furnished at no charge.

230643

The RUBEROID Co. • INDUSTRIAL INSULATION DIVISION • 733 Third Avenue, New York 17, N. Y.

RUBEROID MEDIUM TEMPERATURE INSULATION

Page No. MT-4
Page 4 of 8
Date August 1, 1982
Replaces

FIBER GLASS PIPE COVERING

LIST PRICES PER LINEAL FOOT									
IRON PIPE SIZE									
Nominal I.P.S.	Actual O.D.	Nominal 1/2" Thick	Nominal 3/4" Thick	Nominal 1" Thick	Nominal 1 1/4" Thick	Nominal 1 1/2" Thick	Nominal 2" Thick	Nominal 2 1/2" Thick	Nominal 3" Thick
1/2"	0.84"	\$.22	\$.22	\$.22	\$.44				
3/4"	1.05"	.24	.24	.24	.48				
1"	1.32"	.27	.27	.27	.54				
1 1/4"	1.65"	.33	.33	.33	.66				
1 1/2"	1.80"	.33	.33	.33	.66				
2"	2.38"	.36	.36	.36	.72				\$1.00
2 1/2"	2.88"	.40	.40	.40	.80				
3"	3.50"	.45	.45	.45	.90				
3 1/2"	4.00"	.50	.50	.50	.82				
4"	4.50"	.50	.50	.50	.88				
5"	5.35"	.60	.60	.60	1.00				
6"	6.45"	.70	.70	.70	1.00				
8"	8.63"	.80	.80	.80	1.00				
10"	10.75"	1.10	1.10	1.10	1.35				
12"	12.75"	1.30	1.30	1.30	1.65				
14"	14.60"			1.70	2.10				
16"	16.00"			2.00	2.35				
18"	18.00"			2.20	2.60				
20"	20.00"			2.45	2.85				
22"	22.00"			2.70	3.10				
24"	24.00"			3.00	3.30				
26"	26.00"				3.55				
28"	28.00"				3.85				
30"	30.00"				4.10				
32"	32.00"				4.30				
34"	34.00"				4.50				
36"	36.00"				4.75				
38"	38.00"				5.05				
40"	40.00"				5.30				

* Not shown in Manual of Unit Prices — applicable discount to be applied to all.
Copper Tubing Sizes are shown but except use 1 1/4" IPS price for 1 1/2" O.D.

LIST PRICE PER LINEAL FOOT — COPPER WATER TUBING

Nominal Copper Tube Size	O.D. of Copper Tube	For Pricing Use Following Iron Pipe Size	Nominal Copper Tube Size	O.D. of Copper Tube	For Pricing Use Following Iron Pipe Size
1/2"	0.625"	1/2"	3/4"	0.875"	3/4"
3/4"	0.875"	3/4"	1"	1.125"	1"
1"	1.125"	1"	1 1/4"	1.375"	1 1/4"
1 1/4"	1.375"	1 1/4"	1 1/2"	1.625"	1 1/2"
1 1/2"	1.625"	1 1/2"	2"	2.125"	2"

When ordering pipe insulation for copper tubing, show the nominal tube size, and that the insulation is for copper tubing.

230641

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RUBEROID MEDIUM TEMPERATURE INSULATION

Page No. RT-3
Page 6 of 8
Date: August 1, 1962
Replaces:

NOTES

1. FREIGHT ALLOWANCE F.O.B. Shipping Point, Full Freight Allowed — Sellers Residing.
2. TERMS OF PAYMENT: 1% 10th Year, Net 30th Year.
3. CARLOAD DEFINITION: \$5,000 list value of pipe insulation products.
Note: Pipe insulation may be combined with other glass blanket insulation to obtain the carload discount providing the net invoice of both products is \$4,000 or more.
4. ZONE DESCRIPTION:
Zone 1: All states east of and including North Dakota, South Dakota, Nebraska, Colorado, and New Mexico.
Zone 2: All states west of and including Montana, Wyoming, Utah, and Arizona.
5. PRICING: List price as shown in the Manual of Unit Prices.
6. SPECIAL ACCESSORIES

ACCESSORY MATERIAL	EXTRA CHARGE — DEDUCT FROM BASE TABLE
CURING JACKETS	12" L.P.S. or smaller Over 12" L.P.S.
Standard Weight	No Charge 6
4 Oz.	2 6
6 Oz.	7 10
8 Oz.	9 12
VAPOR BARRIER JACKETS	
Dual Temperature (Black or White)	13
1/2" & 3/4" Thickness	
WEATHERPROOF RUBEROID JACKETS	
35 Lb.	12 16
45 Lb.	13 19
55 Lb.	17 21
LIGHT DUTY	
1/2" & 3/4" Thickness Only	No Charge

* 4" wide strips of jacking furnished to cover end joints on vapor barrier and weatherproof jackets.

The RUBEROID Co. • INDUSTRIAL INSULATION DIVISION • 733 Third Avenue, New York 17, N. Y.

230645

RUBEROID MEDIUM TEMPERATURE INSULATION

Page No. MT-6
Page 6 of 8
Date: August 1, 1962
Replaces:

7. PACKAGING DATA: Material is packaged in corrugated cartons. All pipe insulation products are furnished in 8-foot sections. No brads, adhesives, or staples furnished.

FIBER GLASS PIPE INSULATION FOR COPPER TUBING*

Nominal Copper Tube Size inches	O.D. of Copper Tube	1/4" Thickness	1/2" Thickness	1" Thickness	1 1/2" Thickness
1/2	0.625	108	147	108	75
3/4	0.875	108	147	108	75
1	1.125	147	108	108	75
1 1/4	1.375	147	108	108	75
1 1/2	1.625	108	75	108	75
2	2.125	75	75	75	48
2 1/2	2.625	75	75	75	48
3	3.125	75	75	48	27
3 1/2	3.625	75	48	27	27
4	4.125	48	27	27	12
5	5.125	27	27	12	12
6	6.125	27	12		

* 3' Sections Only

FIBER GLASS PIPE INSULATION FOR IRON PIPE*

Nominal Pipe Size Inches	1/4" Thickness	1/2" Thickness	1" Thickness	1 1/2" Thickness	2" Thickness
1/2	108	147	147	75	
3/4	147	147	147	75	
1	147	147	147	75	
1 1/4	147	147	147	75	
2	108	75	75	48	27
2 1/2	75	75	48	27	27
3	75	48	27	27	27
3 1/2	48	27	27	12	12
4	27	27	27	12	12
5	27	27	12	12	12
6	27	12	12	12	12
7	12	12	12	12	12
8	12	12	12	12	12
9	12	12	12	12	12
10	12	12	12	12	12
12	12	12	12	12	12
14	12	12	12	12	12
16	12	12	12	12	12
18	12	12	12	12	12
20	12	12	12	12	12
22	12	12	12	12	12
24	12	12	12	12	12

* 3' Sections Only. Other pipe sizes available on request.

The RUBEROID Co. • INDUSTRIAL INSULATION DIVISION • 733 Third Avenue, New York 17, N. Y.

230646

Page No. 47-7
Page 7 of 8
Date: August 1, 1962
Replaces:

B. EFFICIENCIES AND HEAT LOSSES: Heat losses are given in BTU's per sq. ft. of pipe surface per hour per degree of temperature difference pipe to air.

TEMPERATURE DIFFERENCE		° F											
		130°F		140°F		150°F		160°F		200°F		250°F	
PIPE SURFACE TEMP.		100°F		110°F		120°F		130°F		140°F		150°F	
PIPE SIZE	WALL THICKNESS	RTU LOSS	EFF. %	RTU LOSS	EFF. %	RTU LOSS	EFF. %	RTU LOSS	EFF. %	RTU LOSS	EFF. %	RTU LOSS	EFF. %
1/2	BARE	2,120	74.5	6,408	74.8	2,890	75.6	3,130	76.1	3,405	76.6	3,680	77.1
	1/8	472	77.7	461	80.4	590	82.2	527	83.1	716	84.1	841	84.6
	1/4	413	80.1	421	83.9	438	84.4	463	84.1	478	86.1	491	86.6
	1/2	338	84.5	343	85.1	357	87.2	377	87.9	397	88.6	416	89.1
3/4	BARE	2,08	74.7	2,43	75.7	2,74	76.8	3,04	77.8	3,35	78.8	3,65	79.8
	1/8	467	77.6	477	80.4	494	82.0	520	82.9	548	83.8	576	84.6
	1/4	401	80.0	410	83.8	426	84.3	452	84.8	468	86.3	484	86.8
	1/2	331	84.3	338	85.4	351	87.5	369	88.1	388	88.8	407	89.4
1	BARE	2,040	75.8	2,38	76.8	2,69	77.8	2,99	78.8	3,29	79.8	3,59	80.8
	1/8	462	80.4	466	82.1	471	83.4	474	84.2	478	85.0	482	85.2
	1/4	390	83.9	394	85.4	399	87.2	408	87.3	418	88.2	428	88.3
	1/2	321	86.7	326	88.4	336	89.4	344	89.8	354	90.8	364	91.5
1 1/2	BARE	2,00	75.8	2,34	76.8	2,64	77.8	2,94	78.8	3,24	79.8	3,54	80.8
	1/8	458	80.4	462	82.1	467	83.4	470	84.2	474	85.0	478	85.2
	1/4	386	83.9	390	85.4	395	87.2	404	87.3	414	88.2	424	88.3
	1/2	317	86.7	322	88.4	332	89.4	340	89.8	350	90.8	360	91.5
2	BARE	1,95	75.7	2,27	76.7	2,56	77.7	2,85	78.7	3,14	79.7	3,43	80.7
	1/8	436	80.4	440	82.0	446	83.6	451	84.3	457	85.0	462	85.3
	1/4	364	83.9	368	85.4	373	87.2	382	87.3	392	88.2	402	88.3
	1/2	295	86.7	300	88.4	310	89.4	318	89.8	328	90.8	338	91.5
2 1/2	BARE	1,92	75.7	2,21	76.7	2,49	77.7	2,78	78.7	3,06	79.7	3,35	80.7
	1/8	433	80.4	437	82.0	443	83.6	448	84.3	454	85.0	459	85.3
	1/4	361	83.9	365	85.4	370	87.2	379	87.3	389	88.2	399	88.3
	1/2	292	86.7	297	88.4	307	89.4	315	89.8	325	90.8	335	91.5
3	BARE	1,89	75.7	2,20	76.7	2,49	77.7	2,77	78.7	3,05	79.7	3,34	80.7
	1/8	430	80.4	434	82.0	440	83.6	445	84.3	451	85.0	456	85.3
	1/4	359	83.9	363	85.4	368	87.2	377	87.3	387	88.2	397	88.3
	1/2	290	86.7	295	88.4	305	89.4	313	89.8	323	90.8	333	91.5
3 1/2	BARE	1,87	75.7	2,18	76.7	2,46	77.7	2,74	78.7	3,02	79.7	3,31	80.7
	1/8	416	80.4	421	82.0	428	83.6	435	84.3	442	85.0	449	85.3
	1/4	343	83.9	348	85.4	355	87.2	363	87.3	372	88.2	382	88.3
	1/2	274	86.7	279	88.4	289	89.4	298	89.8	308	90.8	318	91.5
4	BARE	1,85	75.7	2,16	76.7	2,44	77.7	2,72	78.7	3,00	79.7	3,29	80.7
	1/8	414	80.4	419	82.0	426	83.6	433	84.3	440	85.0	447	85.3
	1/4	341	83.9	346	85.4	353	87.2	361	87.3	370	88.2	380	88.3
	1/2	272	86.7	277	88.4	287	89.4	296	89.8	306	90.8	316	91.5

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230647

RUBEROID MEDIUM TEMPERATURE INSULATION

Page No. MT-9
Page 8 of 8
Date: August 1, 1962
Replaces:

TEMPERATURE DIFFERENCE		80°F	100°F	120°F	140°F	160°F	180°F	200°F	220°F	240°F	260°F	280°F	300°F
Pipe Size	Wall Thickness	BTU Loss	BTU Loss	BTU Loss	BTU Loss	BTU Loss	BTU Loss	BTU Loss	BTU Loss	BTU Loss	BTU Loss	BTU Loss	BTU Loss
8	1/4"	1.85	2.15	2.45	2.75	3.05	3.35	3.65	3.95	4.25	4.55	4.85	5.15
	1/2"	3.65	4.30	4.95	5.60	6.25	6.90	7.55	8.20	8.85	9.50	10.15	10.80
	3/4"	5.45	6.45	7.45	8.45	9.45	10.45	11.45	12.45	13.45	14.45	15.45	16.45
	1"	7.25	8.55	9.85	11.15	12.45	13.75	15.05	16.35	17.65	18.95	20.25	21.55
6	1/4"	1.60	1.85	2.10	2.35	2.60	2.85	3.10	3.35	3.60	3.85	4.10	4.35
	1/2"	3.20	3.70	4.20	4.70	5.20	5.70	6.20	6.70	7.20	7.70	8.20	8.70
	3/4"	4.80	5.55	6.30	7.05	7.80	8.55	9.30	10.05	10.80	11.55	12.30	13.05
	1"	6.40	7.45	8.50	9.55	10.60	11.65	12.70	13.75	14.80	15.85	16.90	17.95
4	1/4"	1.35	1.55	1.75	1.95	2.15	2.35	2.55	2.75	2.95	3.15	3.35	3.55
	1/2"	2.70	3.10	3.50	3.90	4.30	4.70	5.10	5.50	5.90	6.30	6.70	7.10
	3/4"	4.05	4.65	5.25	5.85	6.45	7.05	7.65	8.25	8.85	9.45	10.05	10.65
	1"	5.40	6.20	7.00	7.80	8.60	9.40	10.20	11.00	11.80	12.60	13.40	14.20
2	1/4"	1.10	1.25	1.40	1.55	1.70	1.85	2.00	2.15	2.30	2.45	2.60	2.75
	1/2"	2.20	2.50	2.80	3.10	3.40	3.70	4.00	4.30	4.60	4.90	5.20	5.50
	3/4"	3.30	3.75	4.20	4.65	5.10	5.55	6.00	6.45	6.90	7.35	7.80	8.25
	1"	4.40	5.00	5.60	6.20	6.80	7.40	8.00	8.60	9.20	9.80	10.40	11.00

Note: For pipe sizes in excess of 12" I.D., use efficiency figure shown for 12" I.D.

EXAMPLES TO SHOW USE OF THIS CHART:

1. What is the heat loss from a 100 ft. line when the pipe surface temperature is 350°F, the pipe is 6" IPS, air is 80°F, and 1 1/2" of insulation is used?
From the table, select 6" IPS, 1 1/2" wall thickness, BTU loss of 0.201.
Since the value of 0.201 is expressed in BTU per square foot of pipe surface, per foot, per degree of temperature difference pipe to air, it must be corrected to total heat of pipe and multiplied by the temperature difference, and the length of the pipe.
The correction factor for 6" IPS is taken from the chart—1.754 sq. ft. of pipe surface per linear foot of pipe.
 $Q = 0.201 \times 1.754 \times (350-80) \times 100 = 8720 \text{ BTU/hr.}$
2. How much heat would have been lost if no insulation had been used in the example above?
BTU loss for bare pipe is shown at 254, all other values remain the same.
 $Q = 254 \times 1.754 \times (350-80) \times 100 = 127,500 \text{ BTU/hr.}$
Using the value of heat loss from example 2, determine value of example 1, using efficiency.
From the chart, efficiency is 93.1%.
Then for the insulation is: $127,500 \times .931 = 119,700 \text{ BTU/hr.}$
There for the insulation is saving 100,000.1 or 8.9% of the heat to escape.
 $Q = Q_1 \times (100-89.1)/100$
 $Q_1 = 127,500 \times .099 = 12,622.5 \text{ BTU/hr.}$
3. Using the value of heat loss from example 2, determine value of example 1, using efficiency.
From the chart, efficiency is 93.1%.
Then for the insulation is: $127,500 \times .931 = 119,700 \text{ BTU/hr.}$
There for the insulation is saving 100,000.1 or 8.9% of the heat to escape.
 $Q = Q_1 \times (100-89.1)/100$
 $Q_1 = 127,500 \times .099 = 12,622.5 \text{ BTU/hr.}$
4. At a value of \$0.50 per 1,000,000 BTU, how much money is saved by using 1 1/2" of insulation over 1" of insulation in 300 days? Use a 6" IPS, 200°F pipe outlet temperature, and 100 ft. of pipe.
FROM THE CHART:
BTU loss 1 1/2" wall = 204
BTU loss 1" wall = 246
Q saved in 300 days is $14,600 \times 24 \times 360 = 126,144,000 \text{ BTU}$
Conversion factor = 1.178
Money saved is $\$0.50 \times 126.144 = \63.07

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230618

