

**COLOMBIA SPRING / FALL**

Heat Loss without Calcium insulation , 1 1/2" thick up to 450°F and 3" thick above 450°F for an ambient temperature of 77° (Spring/fall), wind of 1 mph in Btu/ft/hr

Process Temperature (F°)

Pipe Size (inches)	150	250	350	450	550	650	750	850
2 w/insul.	17.34	43.36	72.16	111.6	64.66	120.5	148.6	179.1
Envirocage	122.8	331.8	597.5	103.9	1354	1879	2527	3322
3 w/insul.	22.78	57.01	94.92	136.7	119.8	152.6	188.2	226.8
Envirocage	163.9	452	825.2	1301	1904	2658	3594	4742
4 w/insul.	27.34	68.46	114	164.3	138.8	176.7	218	262.7
Envirocage	199.3	557.2	1026	1627	2391	3349	4540	6004
6 w/insul.	38.54	96.62	161.1	232.4	185	235.6	290.7	350.5
Envirocage	172.8	779	1450	2317	3422	4813	6544	8674
8 w/insul.	46.27	116.1	193.7	278.5	218.3	278.2	343.3	413.8
Envirocage	341.1	986.8	1848	2965	4389	6184	8420	11170
10 w/insul.	54.08	135.8	226.6	327.1	262.8	334.9	413.3	498.4
Envirocage	413.3	1207	2271	3651	5414	7637	10410	13810
12 w/insul.	62.77	157.7	263.5	380.4	301.8	384.6	474.7	571.5
Envirocage	481.2	1415	2669	4298	6381	9009	12290	16320
14 w/insul.	72.56	182.5	305.2	441	336.4	428.8	529.4	638.5
Envirocage	523.7	1545	2918	4702	6984	9866	13460	17880
16 w/insul.	81.13	204.2	341.6	493.7	376.2	479.5	592	714.1
Envirocage	591.6	1753	3315	5348	79950	11240	15340	20380

**COLOMBIA SPRING / FALL**

Heat Loss without Calcium insulation , 40mm thick up to 232.2°C and 80mm thick above 232.2°C for an ambient temperature of 25° (Spring/fall), wind of .4 m/s in

Process Temperature (C°)

Pipe Size (Millimeters)	65.6	121.1	176.7	232.2	287.8	343.3	398.9	454.4
50 w/insul.	16.64	41.59	69.25	99.66	90.94	115.8	142.8	172
Envirocage	114.8	312.1	564.8	884.5	1287	1789	2411	3172
80 w/insul.	21.87	54.67	91.09	131.2	115.1	146.6	180.8	217.9
Envirocage	153.9	427.1	783.6	1239	1816	2539	3437	4539
100 w/insul.	26.24	65.65	109.4	157.7	133.3	169.8	209.5	252.4
Envirocage	187.7	528.2	976.8	1553	2285	3204	4349	5753
150 w/insul.	36.98	92.66	154.7	223.1	177.7	226.3	279.3	336.7
Envirocage	258.2	741.6	1386	2217	3278	4613	6277	8321
200 w/insul	44.41	111.3	186	268.3	209.8	297.2	329.9	397.6
Envirocage	323.9	941.9	1769	2840	4209	5933	8083	10720
250 w/insul	51.91	130.2	217.6	314.1	252.5	321.7	397.2	478.9
Envirocage	393.5	1154	2176	3501	5196	7331	9995	13270
300 w/insul.	60.26	151.3	253	364.3	290	369.5	456.2	550.1
Envirocage	459	1354	2560	4123	6127	8650	11800	15670
350 w/insul.	69.65	175.2	293.1	423.5	323.3	412	508.8	613.6
Envirocage	499.9	1480	2799	4512	6707	9474	12930	17180
400 w/insul.	77.88	196	328.1	474.2	361.5	460.8	569	686.2
Envirocage	565.4	1680	3182	5134	7637	10790	14740	19580

**COLOMBIA SUMMER**

Heat Loss without Calcium insulation , 1 1/2" thick up to 450°F and 3" thick above 450° F for an ambient temperature of 100° (Summer), wind of 1 mph in Btu/ft/hr

Process Temperature (F°)

Pipe Size (inches)	150	250	350	450	550	650	750	850
2 w/insul.	12.05	38.12	66.96	98.72	91.12	117	145.1	175.6
Envirocage	85.28	292	55.8	889.7	1310	1833	2481	3276
3 w/insul.	15.84	50.14	88.12	130	115.4	148.2	183	222.4
Envirocage	113.6	397.4	767.3	1241	1842	2594	3529	4677
4 w/insul.	19.01	60.22	105.9	156.2	133.6	171.6	212.9	257.7
Envirocage	137.9	489.4	953.5	1552	2313	3269	4459	5922
6 w/insul.	26.81	85.03	149.7	221	178.1	228.8	284	343.7
Envirocage	187.9	683	1347	2209	3310	4698	6427	8555
8 w/insul.	32.2	102.2	179.9	265.8	210.3	270	335.3	405.9
Envirocage	234.1	864.3	1716	2825	4245	6037	8270	11020
10 w/insul.	37.64	119.5	210.5	311.1	253.1	325.2	403.7	488.9
Envirocage	282.8	1057	2108	3479	5236	7455	10220	13630
12 w/insul.	43.69	138.8	244.7	361.8	290.7	373.5	463.7	561.6
Envirocage	328.4	1238	2477	4096	6171	87.95	12070	16100
14 w/insul.	50.52	160.7	283.5	419.5	324.1	416.5	517.2	626.4
Envirocage	356.9	1351	2707	4481	6755	9631	13220	17640
16 w/insul.	56.48	179	317.3	469.7	362.3	465.8	578	700.5
Envirocage	402.5	1532	3076	5097	7690	10970	15060	20110

**COLOMBIA SUMMER**

Heat Loss without Calcium insulation , 40mm thick up to 232.2°C and 80mm thick above 232.2° for an ambient temperature of 37.8° (Summer), wind of .4 m/s in Heat

Process Temperature (C°)

Pipe Size (Millimeters)	65.6	121.1	176.7	232.2	287.8	343.3	398.9	454.4
50 w/insul.	11.62	36.72	64.54	95.13	87.74	112.6	139.7	169
Envirocage	79.63	274.4	525.2	843.3	1245	1746	177	3128
80 w/insul.	15.28	48.33	84.99	125.3	111.1	142.7	177	214.2
Envirocage	106.5	375.1	728.3	1181	1757	2478	3375	4476
100 w/insul.	18.36	58.08	102.2	150.7	128.7	165.3	205.1	248.2
Envirocage	129.6	463.4	907.4	1480	2210	3127	4270	5673
150 w/insul.	25.92	82.1	144.6	213.5	171.7	220.5	273.7	331.2
Envirocage	177.4	649.6	1286	2113	3170	4502	6164	8207
200 w/insul	31.14	98.7	173.9	256.9	202.7	260.4	323.2	391.2
Envirocage	221.7	824.1	1642	2706	4071	5790	7928	10580
250 w/insul	36.41	115.5	203.5	300.7	244.1	313.5	389.3	471.2
Envirocage	268.4	1009	2019	3335	5025	7155	9816	13090
300 w/insul.	42.3	134.2	236.7	349.8	280.3	360.2	447.2	541.4
Envirocage	312.4	1184	2375	3929	5925	8443	11590	15460
350 w/insul.	48.94	155.5	274.4	405.8	312.6	401.7	498.8	604
Envirocage	399.8	1293	2597	4299	6486	9247	12700	16940
400 w/insul.	54.74	174	307.2	454.5	349.6	449.3	557.9	675.6
Envirocage	383.7	1467	2952	4891	7386	10540	14470	19320

**COLOMBIA WINTER**

Heat Loss without Calcium insulation , 1 1/2" thick up to 450°F and 3" thick above 450°F for an ambient temperature of 30° (Winter), wind of 1 mph in Btu/ft/hr

Process Temperature (F°)

Pipe Size (Inches)	150	250	350	450	550	650	750	850
2 w/insul.	27.69	53.64	82.36	114	101.6	127.4	155.5	185.9
Envirocage	197.2	411	680.3	1018	1442	1968	2618	3414
3 w/insul.	36.36	70.43	108.3	150	126	161.3	196.9	235.5
Envirocage	264.4	561.1	940.5	1422	2027	2784	3722	4872
4 w/insul.	43.61	84.6	130.1	180.2	148.9	186.8	228.1	272.7
Envirocage	322.8	693.1	1170	1778	2546	3508	4702	6168
6 w/insul.	61.42	119.3	183.7	245.8	198.5	249	304.1	363
Envirocage	445.4	972	1657	2533	3645	5041	6776	8909
8 w/insul.	73.72	143.4	220.8	306.5	234.3	294	359	429.5
Envirocage	560.1	1234	2113	3242	4676	6478	8719	11470
10 w/insul.	86.16	167.7	258.4	358.7	281.9	353.9	432.3	517.2
Envirocage	681.9	1512	2598	3993	5768	7999	10780	14190
12 w/insul.	100	194.8	300.3	417	232.7	406.4	496.5	594
Envirocage	796.6	1773	3054	4701	6798	9436	12720	16760
14 w/insul.	115.6	226.4	347.9	483.4	360.9	453.2	553.6	662.6
Envirocage	868.3	1937	3339	5143	7441	10330	13930	18360
16 w/insul.	129.2	252.2	389.4	541.3	403.5	506.7	619.1	741
Envirocage	983	2198	3795	5851	8470	11770	15880	20930

**COLOMBIA WINTER**

Heat Loss without Calcium insulation , 40mm thick up to 232.2°C and 80mm thick above 232.2°C for an ambient temperature of -1.1° (Winter), wind of .4 m/s in Heat

Process Temperature (C°)

Pipe Size (Millimeters)	65.6	121.1	176.7	232.2	287.8	343.3	398.9	454.4
50 w/insul.	26.67	51.63	66.77	109.8	97.82	122.6	149.7	178.9
Envirocage	184.6	386.9	640.4	966.1	1371	1875	2498	3260
80 w/insul.	35.03	67.88	103.9	144.5	123.8	155.3	189.6	226.7
Envirocage	248.8	531	889.5	1354	1935	2660	3561	4663
100 w/insul.	42.04	81.51	124.9	173.7	143.4	179.9	219.6	262.6
Envirocage	304.8	658	1110	1697	2435	3357	4504	5910
150 w/insul.	59.27	115.1	176.6	245.9	191.2	239.9	292.9	350.3
Envirocage	422.9	926.7	1576	2425	3493	4833	6501	8548
200 w/insul.	71.81	138.4	212.4	295.8	225.7	283.2	345.9	413.8
Envirocage	533.5	1179	2014	3107	4485	6125	8370	11020
250 w/insul.	83.23	161.9	248.6	346.3	271.7	341	416.6	498.4
Envirocage	650.9	1447	2478	3830	5536	7679	10350	13620
300 w/insul.	96.65	188.1	289	402.9	312.1	391.7	416.6	572.5
Envirocage	761.5	1699	2915	4511	6527	9061	10350	16100
350 w/insul.	111.8	217.8	335	467.2	348	436	533.7	238.6
Envirocage	830.6	1856	3188	4937	7146	9923	13390	17640
400 w/insul.	125	243.8	375	523.2	389.1	488.5	396.9	714.3
Envirocage	941.2	2108	3624	5617	8136	11300	15250	20110