Reference Tables and Formulas (continued)

Table 2 – Weights and Specific Heats of Liquids at 60°F

Liquid	Weight lbs./Gal.	Specific Heat BTU per lb. per °F
Fuel Oil (No. 6)	7.909 to 8.448	0.4 to 0.5
Heat Transfer Oil (Light)	8.17	0.82
Mineral Oil	7.67	0.65
Olive Oil	7.67	0.47
Petroleum Oil	6.84	0.50
Water	8.337	1.00

Steam Flow Requirements for Heating Water

Table 3 – Lbs. of Steam Per Hr. to Heat Water

Temp.	Gallons of Water Heated Per Hour																			
Rise(°F)	25	50	75	100	150	200	300	400	500	750	1000	1500	2000	3000	4000	5000	7500	10000	15000	20000
	Lbs. of Steam Per Hour																			
10	2	4	6	9	13	17	25	33	42	63	83	125	170	250	330	420	630	830	1250	1700
20	4	8	12	17	25	34	50	68	83	125	166	250	340	500	700	830	1250	1700	2500	3400
30	6	12	19	25	37	50	70	100	120	190	250	370	500	700	1000	1200	1900	2500	3700	5000
40	9	17	25	34	50	68	100	135	165	250	335	500	700	1000	1350	1650	2500	3350	5000	7000
50	11	21	31	42	63	84	125	170	210	310	420	630	840	1250	1680	2100	3100	4200	6300	8400
60	13	25	37	50	75	100	150	200	250	375	500	750	1000	1500	2000	2500	3750	5000	7500	10000
80	17	33	50	67	100	135	200	270	330	500	670	1000	1400	2000	2700	3300	5000	6700	10000	14000
100	21	42	63	83	125	166	250	330	420	630	830	1300	1700	2500	3300	4200	6300	8300	13000	17000
120	25	50	75	100	150	200	300	400	500	750	1000	1500	2000	3000	4000	5000	7500	10000	15000	20000
140	29	58	88	116	175	235	350	470	580	880	1160	1800	2400	3500	4700	5800	8800	11600	18000	24000
160	33	68	100	135	200	270	400	540	660	1000	1350	2000	2800	4000	5400	6600	10000	13500	20000	28000

Table 3A – Kg of Steam Per Hr. to Heat Water

Temp.	Liters of Water Heated Per Hour																			
Rise(°C)	95	189	284	379	568	757	1136	1514	1893	2839	3785	5678	7570	11355	15140	18925	28388	37850	56775	75700
	Kg of Steam Per Hour																			
5.6	1	2	3	4	6	8	11	15	19	29	38	57	77	113	150	191	286	376	567	771
11.1	2	4	5	8	11	15	23	31	38	57	75	113	154	227	318	376	567	771	1134	1542
16.7	3	5	9	11	17	23	32	45	54	86	113	168	227	318	454	544	862	1134	1678	2268
22.2	4	8	11	15	23	31	45	61	75	113	152	227	318	454	612	748	1134	1520	2268	3175
27.8	5	10	14	19	29	38	57	77	95	141	191	286	381	567	762	953	1406	1905	2858	3810
33.3	6	11	17	23	34	45	68	91	113	170	227	340	454	680	907	1134	1701	2268	3402	4536
44.4	8	15	23	30	45	61	91	122	150	227	304	454	635	907	1225	1497	2268	3039	4536	6350
55.6	10	19	29	38	57	75	113	150	191	286	376	590	771	1134	1497	1905	2858	3765	5897	7711
66.6	11	23	34	45	68	91	136	181	227	340	454	680	907	1361	1814	2268	3402	4536	6804	9072
77.8	13	26	40	53	79	107	159	213	263	399	526	816	1089	1588	2132	2631	3992	5262	8165	10886
88.9	15	31	45	61	91	122	181	245	299	454	612	907	1270	1814	2449	2994	4536	6124	9072	12701

Table 4 – Physical Properties of Liquid and Gases

	sp gr	sp ht Btu/lb- F
Butanol	0.885	0.654
Dowtherm G	1.130	0.351
Dowtherm HT	1.020	0.320
Dowtherm J	0.891	0.410
Dowtherm LF	1.314	0.361
Dowtherm SR-1	1.151	0.536
Ethanol	0.813	0.547
Ethyl Glycol	1.125	0.602
Freon 11	1.576	0.206
Freon 113	1.659	0.200
Freon 114	1.582	0.211
Freon 12	1.450	0.212
Freon 21	1.464	0.253
Freon 22	1.352	0.271
I-Pentene	0.672	0.494
I-Propanol	0.858	0.446
Isobutanol	0.825	0.497
Methanol	0.844	0.558
n-Heptane	0.715	0.493
n-Hexane	0.682	0.507
No.1 Fuel Oil	0.921	0.404
No.2 Fuel Oil	0.842	0.423
No.3 Fuel Oil	0.874	0.415
No.5A Fuel Oil	0.932	0.402
No.5B Fuel Oil	0.958	0.396
No.6 Fuel Oil	0.980	0.392
n-Octane	0.731	0.495
n-Pentane	0.668	0.517
Propanol	0.852	0.651
Quench Oil	0.922	0.404
SAE 10	0.898	0.409
SAE 20	0.913	0.406
SAE 30	0.918	0.405
SAE 40	0.922	0.404
SAE 50	0.925	0.403
SAE 60	0.932	0.402
SAE 70	0.937	0.401
Sea Water	1.032	0.943
Steam	1.006	1.014
Therminal-44	0.952	0.443
Therminal-55	0.907	0.431
Therminal-60	1.027	0.367
Therminal-66	1.033	0.347
Therminal-75	1.138	0.348
Toluene	0.861	0.397
Trichlorethylene	1.646	0.222
Water	0.995	1.003