

TABLE 113. PROPERTIES OF SODIUM CHLORIDE BRINE

SALT REQUIRED		FREEZING POINT		AMMONIA SUC. PRES.		DEGREES SALOMETER at 60° F.	DEGREES BELOW 60° F.	SPECIFIC GRAVITY AT 60° F.	SPECIFIC HEAT	PER CENT OF SALT BY WEIGHT
Pounds per Gal.	Pounds per Cu. Ft.	Degrees Fahrenheit	Degrees Centigrade	At Freezing Point of Brine	At 5° Above Freezing Point of Brine					
0.084	0.63	+30.5	-0.8	45.0#	52.0#	4	1.0	1.007	0.992	1.0
0.169	1.26	+29.3	-1.5	43.5	50.0	8	2.0	1.016	0.994	2.0
0.212	1.58	+28.6	-1.9	43.0	49.0	10	3.0	1.023	0.990	3.0
0.266	1.92	+27.8	-2.3	42.0	47.5	14	4.0	1.028	0.979	4.0
0.300	2.24	+27.1	-2.7	41.5	46.5	16	4.5	1.030	0.968	5.0
0.344	2.57	+26.6	-3.0	40.5	45.5	20	5.5	1.037	0.960	6.0
0.433	3.24	+25.2	-3.8	38.5	44.5	24	6.5	1.045	0.932	7.0
0.523	3.92	+23.9	-4.6	37.5	43.5	28	7.5	1.053	0.919	8.0
0.617	4.63	+22.5	-4.7	36.0	41.5	32	8.5	1.063	0.905	9.0
0.708	5.30	+21.2	-5.3	34.0	40.0	36	9.7	1.073	0.892	10.0
0.802	6.00	+19.9	-6.7	31.5	37.0	40	10.7	1.081	0.874	12.0
0.897	6.70	+18.7	-7.4	29.0	34.0	48	12.6	1.091	0.855	15.0
1.092	8.20	+16.0	-8.9	25.0	30.0	60	15.7	1.116	0.832	20.0
0.389	10.40	+12.2	-11.0	20.0	24.0	80	20.4	1.137	0.795	24.0
1.928	14.40	+6.1	-14.7	16.0	20.0	96	25.0	1.156	0.753	28.0
2.376	17.78	+1.2	-16.5	13.5	18.0	100	25.8	1.166	0.771	29.0
2.488	18.68	+0.5	-17.3	12.5	17.0	.....	.....	1.204	.....	.....
2.610	19.50	-1.1	-18.2	12.0	15.5	.....	.....	.....	.....	.....
.....	.....	-4.7	-20.1	.....	.....	.....	.....	.....	.....	.....

PROPERTIES OF CALCIUM CHLORIDE BRINE

SALT REQUIRED		FREEZING POINT		AMMONIA SUC. PRES.		DEGREES SALOMETER at 60° F.	DEGREES BELOW 60° F.	SPECIFIC GRAVITY AT 60° F.	SPECIFIC HEAT	PER CENT OF SALT BY WEIGHT
Pounds per Gal.	Pounds per Cu. Ft.	Degrees Fahrenheit	Degrees Centigrade	At Freezing Point of Brine	At 5° Above Freezing Point of Brine					
1 1/2	3 3/4	+29.0	-1.6	43.5#	50.0#	12	3.0	1.024	0.980	3.0
1 1/4	7 1/2	+27.0	-3.8	41.0	47.0	27	6.0	1.041	0.964	7.0
1 1/4	8 1/2	+25.0	-3.9	38.5	44.5	36	9.0	1.058	0.956	9.0
1 1/4	11 1/4	+23.0	-5.0	36.5	42.0	40	10.0	1.076	0.91	10.0
1 1/4	13	+21.0	-7.1	34.0	40.0	44	11.0	1.085	0.896	12.0
2	15	+18.0	-7.8	31.0	38.5	54	13.0	1.103	0.884	14.0
2 1/4	17	+14.0	-10.0	27.0	32.0	62	15.0	1.121	0.868	16.0
2 1/4	19	+4.0	-15.5	18.5	22.5	80	20.0	1.159	0.834	20.0
3	22 1/4	+1.5	-18.2	16.5	20.0	88	22.0	1.179	0.834	20.0
3 1/4	26	-8.0	-22.2	10.0	13.0	95	24.0	1.199	0.817	22.0
4	30	-17.0	-27.2	5.0	2.0	102	26.0	1.219	0.799	24.0
4 1/4	34	-27.0	-32.3	0.0	2.0	112	28.0	1.240	0.778	26.0
5	37 1/4	-39.4	-39.4	9°	6.5°	120	34.0	1.305	.....	32.0
5 1/4	41	-47.7	-47.7	17°	14.5°	Max. D.	32.0	1.283	.....	30.0

TABLE 114. COLD STORAGE PIPING
Ratio of Cubic Feet of Room Space to One Lineal Foot of Various Size Ammonia and Brine Pipe

Cubic Feet of Space to Cool	TEMP. 20° F.			TEMP. 15° F.			TEMP. 10° F.			TEMP. 5° F.			TEMP. 0° F.		
	Cu. Ft. to 1 Ft. of Pipe			Cu. Ft. to 1 Ft. of Pipe			Cu. Ft. to 1 Ft. of Pipe			Cu. Ft. to 1 Ft. of Pipe			Cu. Ft. to 1 Ft. of Pipe		
	Cu. Ft. Per Ton			Cu. Ft. Per Ton			Cu. Ft. Per Ton			Cu. Ft. Per Ton			Cu. Ft. Per Ton		
	DI. Ex.	Brine	2°	DI. Ex.	Brine	2°	DI. Ex.	Brine	2°	DI. Ex.	Brine	2°	DI. Ex.	Brine	2°
12	110	1.6	2.2	103	1.3	1.7	95	1.1	1.2	83	0.8	0.9	70	0.5	0.6
20	140	1.7	2.3	125	1.4	1.8	110	1.1	1.2	100	0.8	0.9	90	0.5	0.6
50	200	1.8	2.4	180	1.5	1.9	160	1.1	1.2	130	0.8	0.9	100	0.5	0.6
100	350	2.0	2.6	325	1.6	2.1	300	1.2	1.3	215	0.9	1.0	180	0.6	0.7
250	650	2.8	3.4	575	2.1	2.9	500	1.4	1.5	385	1.2	1.3	215	0.9	1.0
500	1100	3.2	3.8	900	2.4	3.1	700	1.6	1.7	530	1.4	1.5	380	1.1	1.2
1000	2200	3.8	4.5	1800	3.0	3.7	1400	2.0	2.1	1060	1.8	1.9	760	1.3	1.4
3000	6600	4.5	5.3	5400	3.5	4.3	4200	2.5	2.6	3180	2.2	2.3	2280	1.5	1.6
5000	11000	6.0	7.0	9000	4.6	5.6	7000	3.2	3.3	5300	2.7	2.8	3800	2.0	2.1
10000	22000	7.0	8.0	18000	5.5	6.5	14000	3.8	3.9	10600	3.2	3.3	7600	2.2	2.3
20000	44000	8.0	9.0	36000	6.4	7.4	28000	4.4	4.5	21200	3.7	3.8	15200	2.6	2.7
40000	88000	9.0	10.0	72000	7.3	8.3	56000	5.0	5.1	42400	4.2	4.3	30400	3.0	3.1
70000	154000	11.0	12.0	126000	8.8	9.8	98000	6.0	6.1	75600	5.0	5.1	54000	3.5	3.6
100000	220000	14.0	15.0	168000	11.0	12.0	132000	7.0	7.1	100800	6.0	6.1	72000	4.0	4.1