Making Brines

Making brine to cure meat is required when smoking meat.

There isn't a universal brine and every book and recipe provides customized instructions. Salt of different density and weight (table salt, Morton Kosher, Diamond Kosher) is measured by different instruments such as spoons, cups, ounces, pounds, kilograms - water measured by cups, quarts, gallons, liters…a total mess and chaos. You can cure fish in 40 degrees brine for 4 hours or you can cure the same fish in 80 degrees brine for 2 hours and in both cases it will be a great product. We aim to explain the process in simpler terms using some common sense and logic. The main advantage of making your own brine is that you have total control over it and there is no guessing involved.

Be professional and use tables and brine testers to make brine.

Firstly, it makes no sense at all to talk about curing time if we don't specify the strength of a brine. We can mix ½ cup salt with one quart of water or we can add 5 cups salt into one gallon of water and it is obvious that curing times will be different though both brines will do the job. To prepare your own brine in a professional way and not to depend blindly on thousands of recipes you need two things:

1. Buy a brine tester. They are so cheap that there is no excuse for not having one. The salinometer or salometer (brinometer) consists of a float with a stem attached, marked in degrees. The instrument will float at its highest level in a saturated brine, and will read 100 degrees (26.4 % salt solution). This is known as a fully saturated brine at 60° F. In weaker brines the stem will float at lower levels and the reading will be lower. With no salt present the reading will be 0. To make brine put some water one into a suitable container, add some salt, insert a brine tester and read the scale. Want a stronger solution: add more salt. Need weaker brine: add more water, it is that simple.

Brine testers

2. Learn how to use tables. The advantages of using tables are many:

- you can calculate the strength of any recipe you come across
- you can find out how much salt to add to 1 gallon of water to create a particular brine strength
- you don’t have to worry whether you use table salt, Morton kosher salt or Diamond kosher salt, and you don't need to weigh it

Sodium Chloride (Salt) Brine Tables For Brine at 60° F (15° C) in US Gallons

Salometer Degrees	Percent of Sodium Chloride (Salt) by Weight	Pounds of Salt per Gallon of Water	Pounds of Salt per Gallon of Brine	Pounds of Water per Gallon of Brine
0	0.000	0.000	0.000	8.328
1	0.264	0.022	0.022	8.323
2	0.526	0.044	0.044	8.317
3	0.792	0.066	0.066	8.307
4	1.056	0.089	0.089	8.298
5	1.320	0.111	0.111	8.292
6	1.584	0.134	0.133	8.286
7	1.848	0.157	0.156	8.280
8	2.112	0.180	0.178	8.274
9	2.376	0.203	0.201	8.268
10	2.640	0.226	0.224	8.262
11	2.903	0.249	0.247	8.256
12	3.167	0.272	0.270	8.250
13	3.431	0.296	0.293	8.239
14	3.695	0.320	0.316	8.229
15	3.959	0.343	0.339	8.222
16	4.223	0.367	0.362	8.216
17	4.487	0.391	0.386	8.209
18	4.751	0.415	0.409	8.202
19	5.015	0.440	0.433	8.195
20	5.279	0.464	0.456	8.188
21	5.543	0.489	0.480	8.181
22	5.807	0.513	0.504	8.174
23	6.071	0.538	0.528	8.167
24	6.335	0.563	0.552	8.159
25	6.599	0.588	0.576	8.152
26	6.863	0.614	0.600	8.144
27	7.127	0.639	0.624	8.137
28	7.391	0.665	0.649	8.129
29	7.655	0.690	0.673	8.121
30	7.919	0.716	0.698	8.113
31	8.162	0.742	0.722	8.105
32	8.446	0.768	0.747	8.097
33	8.710	0.795	0.772	8.089
34	8.974	0.821	0.797	8.081

35	9.238	0.848	0.822	8.073
36	9.502	0.874	0.847	8.064
37	9.766	0.901	0.872	8.056
38	10.030	0.928	0.897	8.047
39	10.294	0.956	0.922	8.038
40	10.558	0.983	0.948	8.030
41	10.822	1.011	0.973	8.021
42	11.086	1.038	0.999	8.012
43	11.350	1.066	1.025	8.003
44	11.614	1.094	1.050	7.994
45	11.878	1.123	1.076	7.985
46	12.142	1.151	1.102	7.975
47	12.406	1.179	1.128	7.966
48	12.670	1.208	1.154	7.957
49	12.934	1.237	1.181	7.947
50	13.198	1.266	1.207	7.937
51	13.461	1.295	1.233	7.928
52	13.725	1.325	1.260	7.918
53	13.989	1.355	1.286	7.908
54	14.253	1.384	1.313	7.898
55	14.517	1.414	1.340	7.888
56	14.781	1.444	1.368	7.878
57	15.045	1.475	1.393	7.867
58	15.309	1.505	1.420	7.857
59	15.573	1.536	1.447	7.847
60	15.837	1.567	1.475	7.836
61	16.101	1.598	1.502	7.826
62	16.365	1.630	1.529	7.815
63	16.629	1.661	1.557	7.804
64	16.893	1.693	1.584	7.793
65	17.157	1.725	1.612	7.782
66	17.421	1.757	1.639	7.771
67	17.685	1.789	1.668	7.764
68	17.949	1.822	1.697	7.756
69	18.213	1.854	1.725	7.744
70	18.477	1.887	1.753	7.733
71	18.740	1.921	1.781	7.721
72	19.004	1.954	1.809	7.710
73	19.268	1.988	1.837	7.698
74	19.532	2.021	1.866	7.686
75	19.796	2.056	1.895	7.678
76	20.060	2.090	1.925	7.669
77	20.324	2.124	1.953	7.657
78	20.588	2.159	1.982	7.645
79	20.852	2.194	2.011	7.633

80	21.116	2.229	2.040	7.621
81	21.380	2.265	2.069	7.608
82	21.644	2.300	2.098	7.596
83	21.908	2.336	2.128	7.586
84	22.172	2.372	2.159	7.577
85	22.436	2.409	2.188	7.584
86	22.700	2.446	2.217	7.551
87	22.964	2.482	2.248	7.542
88	23.228	2.520	2.279	7.532
89	23.492	2.557	2.309	7.519
90	23.756	2.595	2.338	7.505
91	24.019	2.633	2.368	7.492
92	24.283	2.671	2.398	7.479
93	24.547	2.709	2.430	7.468
94	24.811	2.748	2.461	7.458
95	25.075	2.787	2.491	7.444
96	25.339	2.826	2.522	7.430
97	25.603	2.866	2.552	7.416
98	25.867	2.908	2.570	7.409
99	26.131	2.948	2.616	7.394
99.6	26.289	2.970	2.634	7.385
100	26.395	2.986	2.647	7.380

Seawater contains approximately 3.695 % of salt which corresponds to 14 degrees salometer.
At 100 degrees brine is fully saturated and contains 26.395 % of salt
1 US gallon of water weighs 8.33 lbs
1 US gallon = 3.8 liters = 3.8 kilograms