A.P.I. and Baumé Gravity Tables and Weight Factors

A.P.I. Gravity	Baumé Gravity	Specific Gravity	Lbs/U.S. Gallons	U.S. Gallons-/Lb	A.P.I. Gravity	Baumé Gravity	Specific Gravity	Lbs/U.S. Gallons	U.S. Gallons-/Lb	A.P.I. Gravity	Baumé Gravity	Specific Gravity	Lbs/U.S. Gallons	U.S. Gallons-/Lb	A.P.I. Gravity	Baumé Gravity	Specific Gravity	Lbs/U.S. Gallons	U.S. Gallons-/Lb
0	10.247	1.0760	8.962	0.1116															
1	9.223	1.0679	8.895	0.1124	31	30.78	0.9808	7.251	0.1379	61	60.46	0.7351	6.119	0.1634	81	80.25	0.6659	5.542	0.1804
2	8.198	1.0599	8.828	0.1133	32	31.77	0.8654	7.206	0.1388	62	61.45	0.7313	6.087	0.1643	82	81.24	0.6628	5.516	0.1813
3	7.173	1.0520	8.762	0.1141	33	332.76	0.8602	7.163	0.1396	63	62.44	0.7275	6.056	0.1651	83	82.23	0.6597	5.491	0.1821
4	6.148	1.0443	8.698	0.1150	34	33.75	0.8550	7.119	0.1405	64	63.43	0.7238	6.025	0.1660	84	83.22	0.6566	5.465	0.1830
5	5.124	1.0366	8.634	0.1158	35	34.73	0.8498	7.075	0.1413	65	64.42	0.7201	6.994	0.1668	85	84.20	0.6536	5.440	0.1838
6	4.099	1.0291	8.571	0.1167	36	35.72	0.8448	7.034	0.1422	66	65.41	0.7165	5.964	0.1677	86	85.19	0.6506	5.415	0.1847
7	3.074	1.0217	8.509	0.1175	37	36.71	0.8398	6.993	0.1430	67	66.40	0.7128	5.934	0.1685	87	86.18	0.6476	5.390	0.1855
8	2.049	1.0143	8.448	0.1184	38	37.70	0.8348	6.951	0.1439	68	67.39	0.7093	5.904	0.1694	88	87.17	0.6446	5.365	0.1864
9	1.025	1.0071	8.388	0.1192	39	38.69	0.8299	6.910	0.1447	69	68.37	0.7057	5.874	0.1702	89	88.16	0.6417	5.341	0.1872
10	10.00	1.0000	8.328	0.1201	40	39.68	0.8251	6.870	0.1456	70	69.36	0.7022	5.845	0.1711	90	89.15	0.6388	5.316	0.1881
11	10.99	0.9930	8.270	0.1209	41	40.67	0.8203	6.830	0.1464	71	70.35	0.6988	5.817	0.1719	91	90.14	0.6360	5.293	0.1889
12	11.98	0.9861	8.212	0.1218	42	41.66	0.8155	6.790	0.1473	72	71.34	0.6953	5.788	0.1728	92	91.13	0.6331	5.269	0.1898
13	12.97	0.9792	8.155	0.1226	43	42.65	0.8109	6.752	0.1481	73	72.33	0.6919	5.759	0.1736	93	92.12	0.6303	5.246	0.1906
14	13.96	0.9725	8.099	0.1235	44	43.64	0.8063	6.713	0.1490	74	73.32	0.6886	5.731	0.1745	94	93.11	0.6275	5.222	0.1915
15	14.95	0.9659	8.044	0.1243	45	44.63	0.8017	6.675	0.1498	75	74.31	0.6852	5.703	0.1753	95	94.10	0.6247	5.199	0.1924
16	15.94	0.9593	7.989	0.1252	46	45.62	0.7972	6.637	0.1507	76	75.30	0.6819	5.676	0.1762	96	95.09	0.6220	5.176	0.1932
17	16.93	0.9529	7.935	0.1260	47	50.61	0.7927	6.600	0.1515	77	76.29	0.6787	5.649	0.1770	97	96.08	0.6193	5.154	0.1940
18	17.92	0.9465	7.882	0.1269	48	50.60	0.7883	6.563	0.1524	78	77.28	0.6754	5.622	0.1779	98	97.07	0.6166	5.131	0.1949
19	18.90	0.9402	7.930	0.1277	49	50.59	0.7839	6.526	0.1532	79	78.27	0.6722	5.595	0.1787	99	98.06	0.6139	5.109	0.1957
20	19.89	0.9340	7.778	0.1286	50	50.58	0.7796	6.490	0.1541	80	79.26	0.6690	5.568	0.1796	100	99.05	0.6112	5.086	0.1966
21	20.88	0.9279	7.727	0.1294	51	50.57	0.7753	6.455	0.1549										
22	21.87	0.9218	7.676	0.1303	52	51.55	0.7711	6.420	0.1558										
23	22.86	0.9159	7.627	0.1311	53	52.54	0.7669	6.385	0.1566										
24	23.85	0.9100	7.578	0.1320	54	53.53	0.7628	6.350	0.1575										
25	24.84	0.9042	7.529	0.1328	55	54.52	0.7587	6.136	0.1583										
26	25.83	0.8984	7.481	0.1337	56	55.51	0.7547	6.283	0.1592										
27	26.82	0.8927	7.434	0.1345	57	56.50	0.7507	6.249	0.1600										
28	27.81	0.8871	7.387	0.1354	58	57.49	0.7467	6.216	0.1609										
29	28.80	0.8816	7.341	0.1362	59	58.48	0.7428	6.184	0.1617										
30	29.79	0.8762	7.296	0.1371	60	59.47	0.7389	6.151	0.1626										

The relation of Degrees Baume or A.P.I. to Specific Gravity is expressed by these formulas:

For liquids lighter than water:

Degrees Baume = $\frac{140}{G} - 130$ $G = \frac{140}{130 + \text{Degrees Baume}}$

For liquids heavier than water:

Degrees Baume = $145 - \frac{145}{G}$ $G = \frac{145}{145 - \text{Degrees Baume}}$

Degrees A.P.I. = $\frac{141}{5} - 1315$ $G = \frac{141.5}{1315 + \text{Degrees A.P.I.}}$

G = Specific Gravity = ratio of weight of a given volume of oil at 60°F to the weight of the same volume of water at 60°F.

The above tables are based on the weight of 1 gallon (U.S.) of oil with a volume of 231 cubic inches at 60°F in air at 760 mm pressure and 50% relative humidity. Assumed weight of 1 gallon of water at 60°F in air is 8.32828 pounds.

To determine the resulting gravity by mixing oils of different gravities:

$$D = \frac{md_1 + nd_2}{m + n}$$

D = Density or Specific Gravity of mixture
m = Proportion of oil of d_1 density
n = Proportion of oil of d_2 density
d_1 = Specific gravity of m oil
d_2 = Specific Gravity of n oil