



ALCOHOL DILUTION TABLE

REDUCTION TABLE [DILUTION OF ALCOHOL TO LOWER STRENGTHS]

Desired strength	Strengths to be Reduced (% v/v)																
0% v/v	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%
Volume Units of Pure Water to Add to Each 100 Volume Units of Alcohol																	
90%	6.41																
85%	13.33	6.58															
80%	20.9	13.8	6.83														
75%	29.5	21.9	14.5	7.2													
70%	39.1	31.0	23.1	15.3	7.64												
65%	50.2	41.5	33.0	24.6	16.4	8.15											
60%	63.0	53.6	44.2	35.4	26.5	17.6	8.76										
55%	78.0	67.8	57.9	48.0	38.3	28.6	19.0	9.5									
50%	95.9	84.8	73.9	63.1	52.4	41.7	31.3	20.5	10.4								
45%	118	105	93.3	81.3	69.5	57.8	46.0	34.5	22.9	11.4							
40%	144	131	117	104	90.8	77.6	64.5	51.4	38.5	25.6	12.7						
35%	179	163	148	133	118	103	88.0	73.0	58.3	43.6	29.0	14.4					
30%	224	206	189	171	154	136	119	102	85.0	67.5	50.5	33.5	16.7				
25%	287	266	245	224	204	183	162	142	121	101	80.4	60.2	40.0	20.0			
20%	382	356	330	304	278	253	227	201	176	150.6	125.2	100	75.0	49.9	24.9		
15%	540	505	471	437	403	369	335	301	267	234	200	166.4	133	96.7	66.4	33.2	
10%	855.6	804	753	703	652.2	602	551	500.6	450.2	400	350	300	249.4	199.4	150	100	50

Alcohol:water mixtures are non-volume additive mixtures. This table may be used to determine the volume of water needed to reduce known volume strengths of alcohol solutions (such as distilled spirits for sensory evaluation or the cutting of spirits to desired final strengths) to desired volume/volume strengths.

EXAMPLE CALCULATION OF DATA: [Requires table 6 - or its equivalent - from the US Gov. Gauging Manual: "Respective Volumes of Alcohol and Water".

In reducing 95% (vol.) to 85% (vol) first convert to Proof (US), i.e. x Vol. by 2. Then see US Gauging Manual - Table 6.

190 Proof is 95% (vol.) Ethanol and 6.18% (vol.) H₂O. 170 Proof is 85% (vol.) Ethanol and 17.46% (vol.) H₂O.

Ratio: 95/85 = 1.1176471*--then-- 17.46% (vol. water in 85% vol/vol alcohol water mixture) x 1.1176471* = 19.514118*

Next: 19.514118* - 6.18 = 13.33; Dilution is now 100 Units [e.g., gallons, mL. etc.] of the initial alcohol solution to 13.33 Units of water. *[Significant figures not accounted for.] **Prepared by Gary Spedding - Brewing and Distilling Analytical Services, LLC. gspedding@alcbvtesting.com**