TABLE 3-4. EFFECT OF EVAPORATION ON DROPLET SIZE

Original droplet size, µm (mils)	Particle size at dryness, µm (mils)[a]	Droplet size, µm (mils)[b] 80 percent relative humidity	Droplet size, µm (mils)[b] 90 percent relative humidity	Solids concentration, ppm[a] 80 percent relative humidity
500 (19.69)	36.0 (1.4)	499.3 (19.66)	499.7 (19.67)	1,004
300 (11.81)	21.6 (0.85)	298.9 (11.77)	299.5 (11.79)	1,007
100 (3.94)	7.2 (0.28)	96.6 (3.80)	98.4 (3.87)	1,109
50 (1.97)	3.6 (0.14)	42.7 (1.68)	46.7 (1.84)	1,605
30 (1.2)	2.2 (0.09)	15.0 (0.59)	24.2 (0.95)	8,000

[a]Assumes total dissolved solids content of droplets is 1,000 µg/ml ($0.0624\ lb/ft^3$) and that the dissolved solids are primarily calcium carbonate (35 percent), magnesium carbonate (48 percent), and sodium carbonate (17 percent). Also assumes that the specific gravity of resulting dry particulate is the same as the weighted average of the specific gravity of the three major components.

[b]Assumes an evaporation time of 3 seconds and 26.7°C (80°F) dry bulb temperature. See Reference 29 for the equation used to calculate the droplet size.

29. Chemical Engineers' Handbook. 3rd Edition. John H. Perry, ed. New York, McGraw-Hill. 1950. p. 806.

Source: USEPA, 1998. Chromium Estimate from Comfort Cooling Towers- Background Information for Proposed Standards – Emission Standards Division. EPA-450/3-87-010a.