

 **EXAMPLE**

Analysis of the makeup water for a cooling tower or evaporative condenser at an office building reveals the following concentrations:

TABLE 3. Analysis of makeup water		
Parameter	Maximum allowable concentrations	Makeup water concentrations
Calcium (as CaCO_3)	1,000 ppm	100 ppm
Alkalinity	1,000 ppm	200 ppm
SiO_2	100 ppm	20 ppm
Chloride	250 ppm	50 ppm
Conductivity	2,000 $\mu\text{S}/\text{cm}$	300 $\mu\text{S}/\text{cm}$

The cycles of concentration based on each of these parameters are as follows:

TABLE 4. Cycles of concentration
CaCO_3 : $1,000 / 100 = 10$ cycles
Alkalinity: $1,000 / 200 = 5$ cycles
SiO_2 : $100 / 20 = 5$ cycles
Chloride: $250 / 50 = 5$ cycles
Conductivity: $2,000 / 300 = 6.7$ cycles

The lowest number—five cycles—is therefore the maximum cycles of concentration for this makeup water.