



Certification Boulevard

Test Your Knowledge of Disinfection • Answer Key

Multiple Choice

1. What is the expansion ratio of one volume of chlorine liquid when it evaporates to a gas?
 - A. 750
 - B. 8.34
 - C. 7.48
 - D. 460

2. Calculate the chlorine demand, given the following data:
 - Total daily pounds used is 1,400 lbs/day
 - The plant flow is 13.5 mgd
 - The effluent chlorine residual is 2.5 mg/l
 - A. 6,305 lbs/day
 - B. 1,118 lbs/day
 - C. 1,681 lbs/day
 - D. 281 lbs/day

Supply – Demand = Residual

- Supply is given at 1,400 lbs/day
 - Residual = 13.5 mgd x 2.5 mg/l x 8.34 lbs/gal = 281.47 lbs/day
 - 1,400 lbs/day – 281.47 lbs/day = 1,118.5 lbs/day
3. What chemical is used to identify a chlorine leak?
 - A. Sulfur Dioxide
 - B. Sodium Hydroxide
 - C. Ammonia
 - D. Sulfuric Acid

 4. What is the term most associated with free chlorine residual?
 - A. Breakpoint
 - B. Chloramine
 - C. Fecal
 - D. Alkalinity

 5. Calculate the required capacity of a chlorine contact chamber, given the following data:
 - Plant average daily flow is 5.7 mgd
 - Plant peak flow is 9.9 mgd
 - Required detention time at ADF is 30 minutes
 - Required detention time at peak flow is 15 minutes
 - A. 13,721 cubic feet
 - B. 102,636 gallons
 - C. 12,367 cubic feet
 - D. 118,187 gallons
 - D.T. @ ADF = 5.7 mgd x 92.4 cfm/mgd x 30 minutes = 15,800 cu.ft. x 7.48 gal/cu.ft. = 118,187 gals
 - D.T. @ Peak = 9.9 mgd x 92.4 cfm/mgd x 15 minutes = 13,721 cu.ft. x 7.48 gal/cu.ft. = 102,636 gals
 - ADF using 102,636 gals would only be 26 minutes D.T.
 - Answer is 118,187 gals capacity to meet both flow/time requirements

6. What does this formula best represent?

$$\frac{\text{Tank Volume, ft}^3}{\text{Flow, mgd} \times 92.4 \text{ cfm/mgd}}$$

- A. Chlorine residual
 - B. Contact chamber detention time
 - C. Fecal coliform
 - D. Tank volume in gallons
7. Sulfur dioxide and sodium bisulfite can be used as dechlorination chemicals? *True*
8. Never trap liquid chlorine between two closed valves. *True*
9. Leaking chlorine gas will tend to collect near the ceiling of a closed room. *False*

Matching

10. Match the following emergency repair kits to their respective containers:

