



Certification Boulevard

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Test Your Knowledge of Water Resources Management & Other Treatment Topics

1. What does the term "aliquot" mean?
 - A. Composite sample
 - B. Grab sample
 - C. The total volume of sample
 - D. A portion of a sample
2. In today's environmentally conscious business/industrial community, stormwater management is a primary concern. Name four primary components of a facility stormwater management program.
 - (1)
 - (2)
 - (3)
 - (4)
3. What is the closest loading equivalent in domestic wastewater?
 - A. About 1.0 lb TSS per capita per day
 - B. About 0.17 lbs CBOD₅ per capita per day
 - C. About 500 to 750 gals per capita per day
 - D. About 5.0 to 7.5 lbs NH₃ per capita per day
4. Given the following data, how much alkalinity is required to accomplish nitrification?
 - Influent Flow is 0.59 mgd.
 - Influent TKN is 35 mg/L.
 - Effluent NH₃ value is 0.75 mg/L.
 - 90 percent of TKN will become NH₃ to be nitrified.
 - SCBOD₅ removal is 98 percent.
 - 7.14 lbs of alkalinity consumed per lb of ammonia converted.
 - A. 1,300 lbs
 - B. 1,107 lbs
 - C. 1,080 lbs
 - D. 1,356 lbs
5. Which types of bacteria are responsible for conversion of ammonia in wastewater?
 - A. Facultative
 - B. Heterotrophic

- C. Anaerobic
- D. Autotrophic

6. Which types of bacteria are responsible for converting NO₃ to N₂?
 - A. Heterotrophic
 - B. Nitrosomonas
 - C. Nitrobacter
 - D. Anaerobic

7. What is the term when ammonia-N and organic-N are added together?
 - A. TKN
 - B. SON
 - C. TN
 - D. NO_x

8. What is the standard temperature in the drying oven for the TSS test?
 - A. 20 to 25°C
 - B. 110 to 115°C
 - C. 103 to 105°C
 - D. 545 to 555°C

9. Which type of solid is typically the highest percentage in the total solids profile of raw wastewater?
 - A. Suspended
 - B. Dissolved
 - C. Colloidal
 - D. Settleable

10. What is another term for inorganic solids?
 - A. Volatile
 - B. Nonvolatile
 - C. Dissolved
 - D. Soluble

ANSWERS ON PAGE 62

SEND US YOUR QUESTIONS FOR CERTIFICATION BOULEVARD

Do you have a question or an exercise you would like to feature in "Certification Boulevard?" We'll be glad to publish it. Just send your question (with the answer) or your exercise (with the solution) to:

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There is no limit to the number of questions or exercises you may submit. Please include your name, city, and organization or company so we can give you credit.

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1. **D. A portion of a sample**
2. (1) **Pollution Prevention Plan**
(2) **Sampling program**
(3) **Periodic inspections**
(4) **Employee training**
3. **B. About 0.17 lbs CBOD₅ per capita per day.**
4. **C. 1,080 lbs**
Lbs/day of ammonia converted:
 $= 0.59 \text{ mgd} \times (35 \times 0.90 - 0.75) \times 8.34$
 $= 151.3 \text{ lbs/day}$
Alkalinity required:
 $= 151.3 \text{ lbs/day ammonia converted} \times 7.14 \text{ lbs alkalinity per lb ammonia}$
 $= 1,080 \text{ lbs/day alkalinity required}$
5. **D. Autotrophic**
6. **A. Heterotrophic**
7. **A. TKN**
TKN—Total Kjeldahl Nitrogen—is the combination of ammonia-nitrogen and organic-nitrogen. Typically, the majority of TKN of domestic raw wastewater is in the ammonia form.
8. **C. 103 to 105°C**
The standard temperature for a drying oven to conduct TSS analyses should be no less than about 103°C and no more than about 105°C.
9. **B. Dissolved**
Typically, the dissolved solids fraction is about 80 percent of the overall total solids concentration.
10. **B. Nonvolatile**