

***** EXAMINATION *****

**TREATABILITY STUDIES FOR SOLIDIFICATION
STABILIZATION OF CONTAMINATED MATERIAL**

1. **Solidification is applicable for the treatment of contaminated:**
 - a) liquids
 - b) soils
 - c) sludge
 - d) All of the above

2. **To encapsulate waste in a monolithic solid of high structural**
 - a) integrity is solidification
 - b) integrity is stabilization
 - c) integrity is relocation
 - d) None of the above

3. **Stabilization will always change:**
 - a) the physical nature of the waste
 - b) the handling characteristics of the waste
 - c) Both a and b
 - d) None of the above

4. **Organics:**
 - a) rarely react with treatment reagents
 - b) often volatilize during the solidification process
 - c) often interfere with the reagent setting process
 - d) All of the above

5. **Reagents are the materials which:**
 - a) increase the mobility of the contaminants by chemical reaction
 - b) increase the mobility of the contaminants by physical reaction
 - c) are mixed with the contaminated soils, sludge, and liquids
 - d) All of the above

6. **Portland cement, fly ash, and lime are examples of:**
 - a) converted soils
 - b) inorganic reagents
 - c) organic reagents
 - d) nitrates

7. **The optimum reagent to waste mix ratio for contaminated soil is:**
- a) 0.25
 - b) 4
 - c) 7
 - d) 9
8. **Samples are typically homogenized by:**
- a) a mechanical mixer
 - b) by a grinder
 - c) by adding air
 - d) All of the above
9. **Chemical testing typically includes chemical analysis and:**
- a) pollution tests
 - b) biodegrading tests
 - c) leaching tests for the contaminants of concern
 - d) environmental effects
10. **The mix ratio is defined as:**
- a) the weight of reagent times the weight of the waste
 - b) the weight of reagent divided by the weight of waste
 - c) the weight of waste divided by the weight of reagent
 - d) None of the above
11. **Unconfined compressive strength is meaningful only for:**
- a) non-cohesive material
 - b) cohesive material
 - c) saturated material
 - d) non-saturated material
12. **A moisture-density test is also known as a:**
- a) compression test
 - b) wetness test
 - c) compaction test
 - d) None of the above
13. **The Atterberg Limits are used as a classification tool for:**
- a) the fine grained fraction of untreated material
 - b) the fine grained fraction of treated material
 - c) the coarse grained fraction of untreated material
 - d) the coarse grained fraction of treated material
14. **PARCC Parameters include:**
- a) precision
 - b) acidity
 - c) combustibility
 - d) All of the above

15. **Amphoteric metals are:**
- a) more volatile at both low and high pH values
 - b) more soluble at both low and high pH values
 - c) more caustic at both low and high pH values
 - d) more acidic at both low and high pH values
16. **The additive ratio is:**
- a) the weight of the additive divided by the weight of the waste
 - b) the weight of the additive divided by the weight of the reagent
 - c) the weight of the waste divided by the weight of the additive
 - d) the weight of the reagent divided by the weight of the additive
17. **The increase in volume as a result of addition of treatment**
- a) reagents is the additive ratio
 - b) reagents is the inverse of the percent reduction
 - c) reagents is the bulking factor
 - d) None of the above
18. **Selection of reagents and mix ratios should be based on:**
- a) treatability study results
 - b) economics
 - c) chemical and physical treatment criteria
 - d) All of the above
19. **Objectives of a treatability study may:**
- a) determine the most economical mix design
 - b) identify if volatile emissions are a concern
 - c) assess physical and chemical uniformity of the waste
 - d) All of the above
20. **The cone penetrometer is:**
- a) a faster test than the pocket penetrometer
 - b) a more accurate test than the pocket penetrometer
 - c) a less accurate test than the pocket penetrometer
 - d) a slower test than the pocket penetrometer

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