

15.3

HETEROGENEOUS AQUEOUS SYSTEMS**Section Review****Objectives**

- Distinguish between a suspension and a solution
- Identify the distinguishing characteristic of a colloid

Vocabulary

- suspension
- colloid
- Tyndall effect
- Brownian motion
- emulsion

Part A Completion

Use this completion exercise to check your understanding of the concepts and terms that are introduced in this section. Each blank can be completed with a term, short phrase, or number.

The component particles of a suspension are much 1 **1.** _____
 than those of a solution. Gravity or 2 will separate the **2.** _____
 suspended particles from a suspension. The particles in a colloid **3.** _____
 generally do not settle out under gravity, and they pass through **4.** _____
 ordinary filter paper unchanged. 3 are good at scattering **5.** _____
 light, as are suspensions, as evidenced by the 4. Colloidal **6.** _____
 dispersions also exhibit 5 motion. The particles in solutions **7.** _____
 are small 6 or 7. They cannot be trapped by filter **8.** _____
 paper, nor do they exhibit the Tyndall effect. **9.** _____
8 are colloidal dispersions of liquids in liquids. **10.** _____
 Emulsifying agents maintain the 9 of an emulsion and allow
 the formation of 10 between liquids that do not ordinarily mix.

Part B True-False

Classify each of these statements as always true, AT; sometimes true, ST; or never true, NT.

- _____ **11.** The scattering of light by colloidal particles is called Brownian motion.
 _____ **12.** Heterogeneous aqueous systems can be separated by filtration.

- _____ 13. Emulsifying agents are essential to forming and maintaining emulsions.
- _____ 14. Colloids are dispersions of liquids in liquids.
- _____ 15. The random motion of particles is known as the Tyndall effect.

Part C Matching

Match each description in Column B to the correct term in Column A.

Column A	Column B
_____ 16. suspensions	a. chaotic movement of colloidal particles
_____ 17. colloids	b. heterogeneous mixtures containing particles intermediate in size between those of suspensions and solutions
_____ 18. Tyndall effect	c. substance necessary to the formation and stability of an emulsion
_____ 19. Brownian motion	d. scattering of visible light by colloidal particles
_____ 20. emulsions	e. mixtures from which particles settle on standing
_____ 21. emulsifying agent	f. dispersions of liquids in liquids

Part D Questions and Problems

Answer the following questions in the space provided.

22. What is the typical particle size in a colloidal dispersion?
- greater than 1000 nm
 - 1 nm to 1000 nm
 - less than 1 nm
 - There are no particles in a colloidal dispersion.
23. What is the typical particle size in a suspension?
- greater than 1000 nm
 - 1 nm to 1000 nm
 - less than 1 nm
 - There are no particles in a suspension.