Chapter 1 Exercise: CLASSIFICATION OF MATTER (Element, Compound, Solution, Mixture)

A substance is pure matter – made up of only one kind of particle, for which a chemical symbol (element) or formula (compound) may be written. A mixture is impure matter – made up of more than one substance, meaning more than one kind of particle. The components of a mixture, whether homogeneous or heterogeneous, can be in any proportion. The different kinds of particles are not chemically bonded, so the components can be separated by physical processes.

Classify each of the following as an <E>lement, <C>ompound, <S>olution, or <M>ixture:

matter	E,C,S,M	matter	E,C,S,M
1. sodium		15. eggs	
2. water		16. blood	
3. soil		17. table salt	
4. cup of coffee		18. nail polish	
5. oxygen		19. milk	
6. alcohol		20. cola (any pop)	
7. carbon dioxide		21. bronze	
8. cake batter		22. lead	
9. air		23. tap water	
10. vegetable soup		24. ice-cream	
11. iron		25. table sugar	
12. salt water		26. gasoline	
13. steel		27. propane	
14. nitrogen		28. ice	

Sometimes, a heterogeneous mixture is temporarily "homogenized", usually by shaking or stirring, such as paint or shaving cream. However, it is still classified as heterogeneous. A true homogeneous mixture (solution) will not return to its separate components, even if left to sit.

Classify each of the following as an <E>lement, <C>ompound, <S>olution, or <M>ixture:

matter	E,C,S,M	matter	E,C,S,M
1. punch drink		13. exhaled air	
2. chocolate ice-cream		14. salt and pepper on potatoes	
3. glucose		15. clear glass	
4. gravel		16. stained glass	
5. aluminum foil		17. spaghetti sauce	
6. cup of black coffee with sugar		18. nail polish remover CH_3COCH_3	
7. salt and sugar in water		19. gas-line antifreeze CH_3OH	
8. industrial air that leaves residue on cars		20. *Pine-Sol, Lestoil, Mr. Clean*	
9. paint		21. vinegar	
10. vinyl siding		22. maple syrup	
11. iodine		23. acetylene and oxygen	
12. beach sand		24. skim milk	