

Apply Concepts

35. **Everyday Chemistry** Is the overall processing of food in your body an exothermic or an endothermic process?
36. An ice cube floats in your glass of water, just as an iceberg floats in the ocean. What conclusion can you draw about the density of liquid water and the density of solid water?
37. **Chemistry and Society** A drug with a well-known brand name may also be made by another company and sold at a lower price. Both drugs are specified to have the same chemical formula and are approved by the Food and Drug Administration. Would it be safer to use the well-known brand? Explain.
38. A doorknob is coated with the alloy brass. What is an alloy? Give an example of another alloy.
39. A recipe for salad dressing tells you to mix together vinegar, oil, herbs, salt, pepper, and chopped garlic. Describe the completed salad dressing in terms of substances and mixtures. Is it both heterogeneous and homogeneous. What solutes or solvents are in the salad dressing?
40. Oxygen makes up more than 46 percent of Earth's crust and 61 percent of the human body. It also constitutes 21 percent of Earth's gaseous atmosphere. Explain the difference between the oxygen in the atmosphere and the oxygen in Earth's crust and the human body.
41. Some iron filings are mixed with table salt. Describe two ways you could separate the filings from the salt.
42. Ethanol melts at -114.1°C and boils at 78.5°C . What is the physical state of ethanol at room temperature?
43. Using the information in question 42, what are the freezing points and the condensation points of ethanol?
44. Is the melting of candle wax an exothermic or endothermic change?

Think Critically

Observe and Infer

45. **ChemLab 1** From macroscopic observations of a burning candle, what conclusions can you draw about events occurring on the submicroscopic level?

Observe and Infer

46. **ChemLab 2** Why is starch not used in baking for the purpose of making cakes fluffy?

Measure in SI

47. **ChemLab 3** Suppose you have a sample of an unknown mineral with a mass of 86 g. You place the sample in a graduated cylinder filled with water to the 55-mL mark. The sample sinks to the bottom of the cylinder and the water level rises to the 71-mL mark. What is the density of the sample?

Compare and Contrast

48. **MiniLab 1** Is the mixing of ethanol and water an exothermic or an endothermic process? Is it a chemical or a physical change?

Design an Experiment

49. **MiniLab 2** Marker inks of different colors, when separated by chromatography, might be found to contain some pigments of the same color. For example, a black marker and a blue marker might both contain a blue pigment. Design an experiment to show whether or not two pigments of the same color, found in different markers, are likely to be the same pigment.

Apply Concepts

50. **MiniLab 3** The appearance of a penny made of zinc and copper is different after heating the penny in zinc chloride solution. Is the new coating an element, a compound, or a mixture? Explain.