

1.3.3.1: Practice Classifying Change

Exercise 1.3.3.1.1

Classify each of the following as a chemical or physical change.

- a) You let salt water evaporate to leave salt behind.
- b) You dilute juice with water because it is too sweet.
- c) Starch gets broken down by saliva enzymes into simpler sugars.

Answer a

physical change (liquid water and salt becomes gaseous water and salt, no change in substance identity)

Answer b

physical change (water and juice components becomes more water with juice components, no change in substance identity)

Answer c

chemical change (starch becomes glucose. Try leaving some bread or cracker in your mouth for a while and see if you taste the sweetness!)

Classify each of the following as a chemical or physical change.

- d) A solid piece of dry ice becomes gas.
- e) You stir some table sugar into water to dissolve it.
- f) A piece of lead melts at 327.5 °C.

Answer d

physical change (sublimation)

Answer e

physical change (you still have sugar and water, just mixed)

Answer f

physical change (melting)

Classify each of the following as a chemical or physical change.

- g) You drop a piece of zinc metal into acid and it bubbles, tarnishes, and starts to disappear.
- h) Apple juice ferments to become hard cider.
- i) You add more water to a 15% glucose solution until you have a 10% glucose solution.

Answer g

chemical change (zinc metal is becoming zinc ion and hydrogen gas: zinc ion is soluble in water and hydrogen bubbles away)

Answer h

chemical change (the sugars are being digested, ethanol is being produced: change in substance identity)

Answer i

physical change (still is water and glucose, no change in substance identity)

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