

Separation Techniques

Name - _____

- 1.) A red-brown solution of bromine in water (density = 1.01 g/mL) is poured into a separatory funnel. Trichloroethane (density = 1.34 g/mL) is added and the mixture is shaken thoroughly. Afterwards, two liquid layers are seen in the funnel: a clear layer of water and a reddish-orange layer of bromine in trichloroethane. Which layer will be on the top? Why?

- 2.) If you wished to completely remove and save the liquid from the solid/liquid solution, which separation method(s) could be used? If you did want to save the liquid, which method(s) could be used?

- 3.) Why shouldn't the solvent completely evaporate in the recrystallization method of purification?

- 4.) How can you separate all the components in a mixture containing sand, iron filings, water and gasoline?

5.) How can you separate a mixture of white sand (density = 2.2 g/mL), black sand (density = 5.2 g/mL), liquid methanol (m.p. -94°C , b.p. 65°C) and liquid hexanol (m.p. -47°C , b.p. 158°C)? Methanol and hexanol are miscible.

6.) How can you separate a mixture of three solids: potassium sulphate (m.p. 1069°C , soluble in water, insoluble in alcohol), calcium carbonate (m.p. greater than 1000°C , insoluble in water, insoluble in alcohol) and naphthalene (m.p. 81°C , insoluble in water, soluble in alcohol)?