# Polar–Non Polar

## Purpose

To demonstrate the change in solubility of alcohols in water as the chain length increases.

## Materials

ethanol

n-butanol

t-butanol

heptanol

non-polar dye (Sudan)

4 Petri dishes

wash bottle (water)

4 disposable pipets

octanol/water bottle (in prep room, prepared and colored)

## Procedure

1. Place 4 Petri dishes on the overhead.
2. Cover the bottom of all the Petri dishes with water.
3. Add a few drops of each alcohol separately to a Petri dish.
4. Observe the solubility.
5. Ask students to predict octanol and water solubility. Show them the prepared bottle of octanol/water from the prep room.

## Additional Information

1. As alcohols become more nonpolar, solubility decreases in water.
2. Sudan dye works well on skin – handle it carefully. If you "dye" yourself a little acetone will reduce the intensity.

## Disposal

Solutions containing octanol, n-butanol, t-butanol and heptanol should be placed in a properly labeled waste container.