More on Solubility

What determines if a substance can dissolve in a solvent or not?

Background Information.

Some molecules have opposite charges(+ or –) on each end . These molecules are called **Polar** molecules. Water is an example.

Molecules without opposite charges on each end are called **Nonpolar** molecules. Vegetable oil is an example.

Like dissolves Like means that polar solutes can dissolve in polar solvents and nonpolar solutes can dissolve in nonpolar solvents.

This is why oil and water don't mix or dissolve.

Some molecules like ethanol, have a polar end and a nonpolar end. This means they can dissolve both polar and nonpolar molecules.

When an atom gains or loses electrons they become electrically charged and are called ions. Substances whose molecules consist of ions are called ionic solids. Table salt , sodium chloride is an example.

When placed into water, the charged ends of the water molecules pull the salt apart into separate ions. This pulling apart of ions is called **dissociation.**

When a polar substance is dissolves in water, the water pulls their molecules apart in a process called **ionization**.

Why is this important ? When ions are present in a water solution they are called **electrolytes** and are capable of conducting electricity. Pure water is a **nonelectrolyte** and doesn't conduct electricity.

This is why it's dangerous to be holding an electrical device while in the water or standing on a wet surface. The ions that are present will conduct electricity and you could be electrocuted.

Your body contains a number of substances that are electrolytes and are vital to your body's health.

Gatorade® is an example of an **electrolyte** replacement drink.