

The Mystery of the Layering Liquids

Something happens to water when you add salt to it. To see what we mean, try this.

Measure $\frac{1}{4}$ cup of water into a measuring cup. Add $\frac{1}{4}$ teaspoon of salt. Stir until the salt is dissolved. Stir drops of green food coloring into the salty water until it is dark green. Fill a clear glass about one-fourth full with plain water. Tilt the glass to the side, and slowly pour the

green salt water down the side of the glass. If you did this carefully enough, you should have a layer of the green salty water on the bottom of the glass and the clear water floating on the top. What happened here?





The green salty water settles to the bottom of the glass and the clear water floats on top with a definite division between the two layers. The reason has to do with density. The molecules in the salt water are crowded together, making the green salt water denser than the clear water.

What do you think would happen if you placed the glass in a place where it wouldn't be disturbed for a couple of days?

After about an hour, a pale green layer will appear just above the darker green layer of

salty water. This band continues to get wider as time passes.

After 48 hours, all of the liquid in the glass is one color, green.

Why did this happen? After a while, the liquids mix together. This mixing is caused by the constant motion of the water molecules in the liquids. Some of the clear water moves into the green salty water, and some of the salty water moves into the clear water. When the glass stands undisturbed long enough, the two liquids become completely mixed.