

# Conductivity Lab- Ions

Name: \_\_\_\_\_

The ability to conduct electricity in liquid form (molten or dissolved in water) is one physical property of ionic compounds. Today you will use this property to determine if solutions presented to your group are ionic or non ionic compounds.

## Part A. Establishing a Control

1. Obtain a conductivity tester from Ms. Neiman.
2. Briefly (< 1 sec.) touch the tester leads to metal, the LED should light up. This is as bright as the LED will get. If it does not light bring the tester back to Ms. Neiman.
3. Using the conductivity tester provided, test the sample of distilled water provided.
4. Testing is done by touching the ends of the leads to the surface of the liquid.
5. DO NOT submerge a large portion of the tester. The ruler should not be getting wet!
6. This is your control. Distilled water does not contain ions. Record the result you get with your tester for the distilled water as your non ionic control.
7. Your group is now ready to begin evaluating the samples present.

## Part B. Making Solutions of Your Solid Samples

1. ALL SAMPLES MUST BE CREATED USING DISTILLED WATER!!
2. BE CAREFUL TO NOT CROSS CONTAMINATE YOUR SAMPLES!!
3. Measure 25 ml of distilled water in a graduated cylinder.
4. Place the 25 ml of water into a plastic cup, labeled A.
5. Use a pencil eraser or pea size amount of solid A.
6. Add solid A to the water in the plastic cup and stir with a glass stir rod.
7. REPEAT steps 3-6 for all solids.

## Part C. Obtain Liquid Samples

1. Using ONLY the graduated cylinder present at each sample, measure 25 ml of each solution and place each in its own plastic cup.
2. Be sure your cups are labeled.

## Part D. Testing the Solutions (Test all solutions from part B and C)

1. Rinse your conductivity tester with distilled water by swirling in your initial distilled water sample.
2. Carefully dry the tester with a paper towel.
3. Dip just the tips of the wires into the first sample to be tested.
4. Record the result.
5. Rinse with tap water and dry.
6. Rinse with distilled water and dry.
7. Repeat steps 1-6 with all samples.
8. Create a Chart to include in your report with all data from this section.

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## Part E. Try to Dilute Me!

1. Select one sample from Part B that was shown to have ions when tested in Part D.
2. Measure 100 ml of distilled water with a graduated cylinder and place into a new plastic cup.
3. Using a new clean pipette, place one drop of your original solution into the 100 ml of water.
4. Stir with the clean pipette.
5. Test this new solution and record your results.

## Part F. Questions Involving Properties Ionic Compounds/Conductivity

1. Why was it so important to not cross contaminate?
2. What precautions did your group take to help prevent contamination of the samples being tested?
3. Explain what causes some solutions to light the LED and others to not light the LED.
4. Explain the reason for what you observed in Part E.
5. Explain why ionic compound do not conduct electricity when solid, but do conduct electricity once they are dissolved in water.
6. If a solid ionic compound did not dissolve in water, what is another way you could make physical changes to the compound so that it would conduct electricity.