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Fundamentals of the Physical Universe

Objective: To confirm specific ions are or are not in the water samples

Background Information: A confirming test is a laboratory test that can confirm the presence of a particular chemical species. The results are qualitative because it doesn't matter how much of the testing you do, it just matters the quality of the samples. We are testing for what different chemicals are in the different water samples. The control of the experiment was the distilled water because it didn't have any minerals in it to affect the tests.

Procedures:

1. the first thing we did was put the chemicals in with the other chemicals
2. then we mixed the chemicals in with pond water, distilled water, and tap water
3. we looked at the different water samples to determine which chemicals were in the water

Test	Ca ²⁺ Test		Fe ³⁺		Cl ⁻		SO ₄ ²⁻	
	Color	Precipitate	Color	ppt	Color	ppt	Color	ppt
Ca ²⁺ Reference CaCl ₂	no	yes	x	x	x	x	x	x
Fe ³⁺ Reference Fe(NO ₃) ₃	x	x	Dark red	no	x	x	x	x

Cl ⁻ Reference CaCl ₂	x	x	x	x	no	yes	x	x
SO ₄ ²⁻ Reference Na ₂ SO ₄	x	x	x	x	x	x	no	yes
Pond Water	x	x	x	x	x	x	x	yes
Distilled Water	x	x	x	x	x	x	x	x
Tap Water	x	x	x	x	x	yes	x	x

Conclusion:

1. a. There was a control in each test to see what the effect of the chemicals was

b. Distilled water was the control because there are no added minerals in it so it is the most pure.

2. Some difficulties with qualitative tests are that there isn't as much information to be tested

3. The test can't confirm the absence of an ion because

4. The chemicals would mix and the results wouldn't be accurate.

According to my results, distilled water is the only sample that didn't have ions because it was pure and didn't have minerals. Tap water isn't pure because it has chlorine in it to clean it.