DATA ANALYSIS:

What overall changes in mass or volume can cause density to decrease?

Mass

Volume

Mass

Volume

↓D

↓D

OR

Complete the table below for changes of mass in the solution.

|  |  |  |
| --- | --- | --- |
| **How could mass decrease in the solution?** | **Effect on density.** | **Possible? Yes or No. Explain why.** |
| **1. Removal of salts?** |  |  |
| **2. Removal of water?** |  |  |
| **How could volume increase in the solution?** |  |  |
| **3. Liquid added to solution?** |  |  |
| **4. Solution just got bigger?** |  |  |

**DATA ANALYSIS: Why does the density of salt water change with temperature?**

**MATERIALS**

Milk tester Colored water 2 - 250 ml beakers

Hot water Cold water Mass Balance

**PROCEDURE:**

1. **Record starting mass and volume before heat is added** to the milk tester. The 0 line is on the bottom and the numbered scale is in 1 ml. Each tiny line is 0.1 ml.
2. Add the hot water to the beaker with the milk tester until it covers the large bulb.
3. After about 5 minutes, **record the ending volume after heat was added**.
4. Remove milk tester from the hot beaker, dry off the outside and **record the ending mass**.

|  |  |  |
| --- | --- | --- |
| **BEFORE HEAT ADDED** | **AFTER HEAT ADDED** | **TOTAL CHANGE** |
| Starting Mass:\_\_\_\_\_\_\_\_\_\_\_\_\_ | Ending Mass:\_\_\_\_\_\_\_\_\_\_\_\_\_ |  |
| Starting Volume:\_\_\_\_\_\_\_\_\_\_\_\_\_ | Ending Volume:\_\_\_\_\_\_\_\_\_\_\_ |  |

**ANALYSIS**:

1. Describe what happens to the liquid’s mass and volume when it is heated.

**Heating up**:

1. Would that have caused the change in density we observed during the Temperature vs. Density data collection?

Mass

Volume

1. Complete the equation with arrows and the  
   statement showing the M/V reason why   
   density changed in the lab as the salt water   
   was heated.

Density

***Increasing temperature caused the density change in the salt water by…***