Activity: Ice to Water

Purpose To investigate whether the same amount of ice and water have the same mass

## Materials Electronic Balance 100 ml Beaker

Ice Cubes Glass Stirring Rod

### Hot Plate Beaker Tongs

Procedures

1. Use an electronic balance and determine the mass of a **DRY** 100 ml beaker.
2. Add 2 ice cubes to the beaker and determine the mass of the ice *cubes (subtract out the mass of the beaker in step 1*).
3. Place the beaker and ice on a hot plate.
4. Turn the hot plate to the highest HEAT setting.
5. Stir the ice cubes with a glass stirring rod until they are completely melted.
6. Turn Off the Hot Plate.
7. Use the BEAKER TONGS to carry the hot beaker to the electronic balance.
8. Find the mass of the beaker of water.

<https://screencast-o-matic.com/watch/cYfv3eBO4H> Mass of Ice Before and After Melting (0:41)

### Calculations and Data

1. Mass of ice

|  |  |  |
| --- | --- | --- |
| Mass of Dry Beaker | Mass of Ice plus Beaker | Mass of Ice |
|  |  |  |

1. Mass of water

|  |  |  |
| --- | --- | --- |
| Mass of Dry Beaker | Mass of Water plus Beaker | Mass of Water |
|  |  |  |

## Conclusions and Questions

1. Make a conclusion about the mass of the same amount of ice and water.
2. Does changing phase (solid 🡪 liquid 🡪 gas) effect a substance’s mass?

### Calculations and Data

1. Mass of ice

|  |  |  |
| --- | --- | --- |
| Mass of Dry Beaker | Mass of Ice plus Beaker | Mass of Ice |
| 49.6 g | 56.7 g | 7.1 g |

1. Mass of water

|  |  |  |
| --- | --- | --- |
| Mass of Dry Beaker | Mass of Water plus Beaker | Mass of Water |
| 49.6 g | 56.6 g | 7.0 g |

## Conclusions and Questions

1. Make a conclusion about the mass of the same amount of ice and water.

*The mass of ice and water should be equal. It is possible that 0.1 g of water was lost on the stirring rod.*

2. Does changing phase (solid 🡪 liquid 🡪 gas) effect a substance’s mass?

*Based on our experiment, we can say that a substance’s mass does NOT change when the phase changes. We began with 7.1 grams of ice and after heating, we had 7.0 g of water. It is possible that 0.1 g of water was lost on the stirring rod.*