Boiling Point Online Lab Submission

Name: Kevin Zhang

Class: Chem 1212

Section: Mondays, 10:30 AM - 1:25 PM

Report Sheet

I. Thermometer Calibration

- Barometric Pressure: `769 mmHg`
- Correct boiling point of water: `100.3°C`
- Thermometer reading in ice water bath: `1.2°C`
- Thermometer reading in boiling water bath: `95.8°C`
- Thermometer errors
  - at 0°C: `1.2°C`
  - at 100°C: `-4.5°C`
- Thermometer corrections
  - at 0°C: `-1.2°C`
  - at 100°C: `+4.5°C`

II. Unknown Determination

- Code number of unknown: `727`
- Observed boiling point:
  - `76.8°C`
  - `76.4°C`
- Corrected boiling point
  - `76.8°C` + `3.4°C` = `80.2°C`
  - `76.4°C` + `3.3°C` = `79.7°C`

Post-Lab Questions

1. It is important to calibrate the thermometer to ensure the most accurate results as possible. There are several different factors that might affect the temperature the thermometer is recording: it might be old, or the temperature of the room might be affect it, amongst other things. By calibrating it, we can remove most of the external factors, and focus on the measurements in front of us.
2. The atmospheric pressure affects the boiling point of water, which is what we are calibrating against. We cannot be sure that our calibration is correct if we don't have the correct expected boiling point.

3. You cannot stick a thermometer into ice. Also, ice is usually stored at temperatures below 0°C, so we need to mix it with room-temperature water so that the two balances out.
4. It is used to determine when the pressure of the vapor (from the boiling substance) has reached the the atomospheric pressure of the room.
5. Error is `-2.0°C`
6. Higher. Increasing the barometric pressure increases the boiling point.
7. Using a paper towel to protect your hands and glycerine as lubricant, insert the top of thermometer into rubber stopper until about halfway, around 50° C, so that you can still read from 50°C to 100°C.
8. Safety Googles -- wear any time in the lab. Lab coats -- also wear any time in the lab. Eye-wash station -- use to wash anything that has reached eyes, especially any chemicals. Chemical Hood -- use to properly dispose of chemicals, particularly ones with fumes
9. True
10. True
11. True
12. True
13. False
14. True
15. True
16. True
17. True