Student’s Name:

Instructor’s Name:

Class Name:

Date when Due:

Works Cited

Lab Report

Llesson10 lab determine absolute zero value

|  |  |
| --- | --- |
| Pressure mm Hg | Temperature C |
| 948 | 100 |
| 838 | 51.5 |
| 770 | 24 |
| 715 | 0 |
| 230 | -197 |

Question 1

The two sources of error include instrument resolution and failure to check the instrument to zero.

Instrument resolution-Every instrument has infinite precision which limits the capability in resolving the differences in the small measurements.

Failure to zero check instrument- failing to calibrate a device will provide wrong data during an experiment

Question 2

Ways to improve

Solving instrument resolution: One of the best methods of obtaining the precise measurement is utilizing null difference procedure rather than measuring the quantity directly. Balance and invalid process involved in the usage of instrumentation in measuring the difference between two much similar amounts one that is adjustable and known accurately (Radojevic & Bashkin, 2007). The amount that is adjustable is varied until the gap is lowered to zero. The two quantities are balanced, and the unknown quantity magnitude is found through the comparison of the sample for reference. Using these procedure issues of source instability is eliminated and the instrument for measurement could be very sensitive and will not even need scale.

Solving the calibration of the instrument- If possible, the instrument calibration needs to be checked before the collection of data. When the calibration standard is not present, the instrument accuracy needs to be corrected through comparison with a different instrument which is the least précis or through consulting the technical information given by the manufacturer (Skoog *et al.,* 2013). During taking of measures with any device be it pressure or temperature, the instrument should be zero checked firsts. Recalibration needs to be done before making any measurements.

Lab Titration

The unknown value of the volume of 0.1m NAOH used is 25.4cm3

Question1

Sources of errors

The causes of errors in titration includes the endpoint error and misreading the value of the volume

Endpoint error: The titration end point is when the chemical reaction of the two solutions stops. Indicators that convert their color to show that the reaction process is complete do not convert straightaway. In the titration of an acid-base reaction, the indicator might lighten first its color then convert finally wholly (Skoog *et al.,* 2013). Additionally, every person previewed the color differently, that influence the experiment outcome. When the color turns slightly because of using too much titrant that comes from the burette and presented into the solution will exaggerate the results.

Misreading Volume: The titration accurateness needs a precise measurement of the volume of the solutions used. However, the markings on the burette could be misread easily. One method of misinterpreting the volume is through looking at the angle of measurement (Radojevic & Bashkin, 2007). From above the amount will appear to be lower whereas from below the value could be greater. The other source of reading error is through looking at the wrong point. The solution produces a concave curve, and the curves bottom is read when measuring the volume. When the reading is taken from the more high areas of the meniscus curve, the measurement of the amount will have an error.

Question 2

Ways to improve

. Endpoint error: Endpoint error could be eliminated by stopping the flow of the solution on the burette immediately a change in the solution on the conical flask is detected. When the flow is not stopped immediately, an error will occur.

Misreading Volume- misreading of the volume of solution could be eliminated by reading the value of the solution on the lower meniscus on the surface level. When reading the value, the eye should be maintained straight and parallel to the level of the volume on the burette.

Work Cited

Radojevic, Miroslav, and Vladimir Bashkin. *Practical environmental analysis*. Royal society of chemistry, 2007.

Skoog, Douglas A., et al. *Fundamentals of analytical chemistry*. Nelson Education, 2013.