# Enthalpy of solution lab report assessed essay sample essay

Since the heat content value is negative. it means that energy is lost. likely due to heat to the surrounding. which in this instance was the H2O. Since it gives off energy.

it is an exothermal reaction. The value of -40 kJ ± 7 kJ can be supported by the literary values. The literary values of the heat content in a NaOH and H2O is -44. 4 kJ/mol. ? The experimental value was -40 kJ ± 7 kJ.

It seems as the experimental value is really good since the literary values is within the scope of the experimental values uncertainness. MistakeEntire per centum mistake = Entire per centum error= ( ( -44. 4 – -40 ) / -44. 4 ) * 100 % = 9. 9 % .

Systematic mistake = Total Percentage mistake – Random Error. Systematic mistake = 9. 9 – 17. 2 = -7.

3 % . The systematic mistakes are smaller than the random mistakes in this experiment. This is likely because the setup were really simple and there were many transitions of units in the computations and besides because three different measured measures were used to cipher the ? Q. And when you add and multiply and divide the values the uncertainnesss stack on top of each other and grow.

And there were many computations and measurings in this experiment which is why the random mistakes were so large. The systematic mistakes are in most instances non really large since after some lab experience one does non do simple errors. EVALUATING PROCEDURE AND APPARATUSThe process had a batch of failings and restrictions. To be able to see the

restrictions and failings easier a list would be necessary. We used a Styrofoam cup with a hole in the palpebra.

This has a batch of heat loss to the milieus since heat is easy radiated to the environing air. So the temperature was likely greatly affected because of this. ( really important since A LOT heat is lost to the milieus. We had to stir the salt in the H2O. This generates heat. This affects the consequences.

( non really important since it should non bring forth really much heat. )The NaOH was in crystal signifier and non a all right salt. This leads to that it has less surface country and so the reaction goes slower. When the reaction goes slower it takes more clip to transport out the experiment and more heat can radiate to the environing air and the solution has to be stirred for a longer clip. ( rather important since the reaction clip is of import to minimise the heat loss to the milieus )The specific heat capacity of the H2O might change when the salt is added to it. Then the c-value in the expression will alter ( non really important since it will merely change it really small ) .

When stirring the solution and seeking to maintain the palpebra on most people failed. The lid moved and at some points fell away. This lead to an even greater heat loss to the milieus. Trying to add the salt into the H2O while keeping the thermometer and stirring at the same clip was hard.

This lead to a batch of intermissions and in some instances salt was dropped on the tabular array every bit good impacting the consequences. Although there are some failings and one is a really important 1. the experimental value compared to the literature value was non really different. Besides. the

failings might call off out a small since stirring the solution generates heat and the hapless setup makes the solution free heat to the environing air.

So the process could give a consequence with good quality. like in this instance. And the weigh showed up to 3 denary Numberss. which lead to that the per centum uncertainness was about negligible.

So the setup were precise and accurate up to some degree. The thermometer on the other manus showed no denary Numberss ( it was non a digital electronic 1 ) . This was the chief ground to the really high random mistakes. This besides lead to that the experiment consequences were non really precise since the random mistakes were 17. 2 % ! This is non really accurate.

But since the consequences were accurate at that place can non hold been really many systematic mistakes or other mistakes since the experimental value agreed a batch with the literary value. ImprovementsSince it had failings which were chiefly due to the hapless setup. there is room for easy betterments in most instances. A list will be easier to read.

If we had used a caleriometer the heat loss would non hold been near the heat loss that was present in this experiment. Taping the palpebra on top of the cup before stirring and so possibly even taping the thermometer ( which we stirred the solution with ) through the hole and cover the hole with tape would hold helped a batch. One would still be able to stir the solution. If we had started with an initial temperature higher than 19 Celsius degrees the salt crystals would hold dissolved by itself and bring forthing heat by stirring would non hold been a job.

But in that instance a box that would hold a temperature the same as the solutions initial temperature would hold been needed since otherwise a batch of heat from the hot H2O would hold been lost to the surrounding. If the persons that carried out the experiment had worked two and two the job with making many things at the same clip would non hold been a job. The systematic mistake was non really high at all but could hold been reduced if we had done many more tests. If we had been given more clip so at that place would hold been clip for more tests and the average value ought to hold less systematic mistakes so. If we had been in a proper and better lab room so we would hold had a greater entree to precise and accurate setup which would hold lead to less random mistakes.

If we had used another method. such as utilizing hydrochloric acid ( HCl ) alternatively of H2O or possibly H2O with higher initial temperature so the reaction clip job would hold been reduced. Mentions: Cited from Chemistry press release " ENTHALPY OF SOLUTION" received from the instructor 19/01 2009The Lanly Company. Updated 06/19 2007. The Physics Of Heat Processing.

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