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Chem Discussions

Part 1

Thermodynamics is a science of the relationship between heat, work, temperatures, and energy. the concept of thermodynamics extends to cover the transfer of energy from one place to another and at times from one form to a different form. Whenever thermodynamics is involved, there are basic concepts that can never be eliminated and this includes specific capacity. According to Selvam et al., (2017), the specific heat capacity is the total heat required to increase the temperatures in 1 kilogram of an element by one kelvin. The SI unit of specific heat capacity is J kg-1 K-1. Since specific heat capacity is the temperatures essential to change the one-unit mass of a substance of a constant volume by 1 °C, the formula for its computation is $Cv = Q / (\Delta T \times m)$. Cv signifies the molar heat capacity when the volume is persistent. The volume of a substance does not vary, so the variation in volume is zero. As the term is related to the interior temperatures in a system, which attained by adding the potential energy with the kinetic energy of that system. Q is the reaction proportion that identifies the comparative measures of products and reactants present throughout a reaction at a specific point in time. ΔT is the change in heat and M is the mass of the substance subjected to heat.

In our daily lives, specific heat capacity is present. For our bodies to get the needed energy, it is a must for us to eat. Cooking has activities that involve specific heat capacity. For example, the utensils used in making coffee are made of material of low specific heat capacity. They are insulators used in the cooking pans and they have a high specific heat capacity to prevent them from heating too fast beyond being touched (Selvam et al., 2017). I selected these examples to make it clear that we cannot evade thermodynamics and the concepts of specific heat capacity have made our lives easier.

Reference

Selvam, C., Lal, D. M., & Harish, S. (2017). Thermal conductivity and specific heat capacity of water–ethylene glycol mixture-based nanofluids with graphene nanoplatelets. *Journal of Thermal Analysis and Calorimetry*, *129*(2), 947-955.

PART 2

The history and development of chemistry are interesting and it was agreed that the best way to present the chemical elements is by writing them using chemical symbols. In addition, the chemical compounds are represented by combining the chemical symbols of the elements to make the chemical formulas. Everything in chemistry is all about chemical formulas and thus it is essential for learners to gather much information on the same. In the clinical sector, chemistry is of great significance in that it helps the nurses to gather much knowledge about the nature of compounds used in making medicines. Every drug used in curbing infection has certain contents of chemical compounds. Medicinal chemistry is an exciting sector as it links many technical castigations and allows for interrelation with other scientists in researching and developing original drugs (Eugenia, 2019). The chart below offers more information on the chemical properties of certain compounds.

Name	**Ionic**	**Molecular Prefix Required**	**Polyatomic Cation**	**Polyatomic Anion**	**Acid/ Base**	**Binary/ oxyacid**	**Roman Num**	**Name**
$CuSO_4$	Ionic	No	Cu^{2+}	SO_4^{2-}	N/A	N/A	II	Copper II Sulfate

HCl	molecular	No	H+	Cl-	Acid	binary	N/A	Hydrogen Chloride
NaOH	Ionic	No	Na+	OH-	Base	N/A	N/A	Sodium Hydroxide
$SnCl_2$	Ionic	No	Sn+	Cl-	N/A	N/A	II	Tin (II) Chloride
HNO_3	molecular	No	H+	NO_3-	Acid	oxyacid	N/A	Nitric Acid
H_2SO_4	molecular	No	H+	SO_4^{2-}	Acid	oxyacid	N/A	Sulfuric Acid

References

Eugenia, N. (2019). Using LaTeX for chemical formulas. *International Journal of Open Information Technologies*, *7*(8).

PART 3

The knowledge of balancing chemical equations is much essential in chemistry. It is essential to balance chemical equations since there much be an equivalent amount of atoms on each side of the equation to adhere to the law of conversion of mass. Balancing the chemical equations well helps in ensuring the chemical compounds and correctly preserved. Equation E is the only balanced chemical equation of all the equations provided in the test; 2Na(s) + F2(g) → 2NaF(s). The concept of balancing chemical equations be realized without one having a deeper knowledge of the valance of different elements. In the case equation, sodium is a group I element and thus its valency is 1. Fluorine is group IV and has valency 1,

and as a halogen, it exhibits diatomic properties hence written as F2. Balancing this chemical equation needs a person to remember the chemical nature of all the elements involved.

The equation is much essential and applicable in some industrial processes. A major use of Florine is in the dental sector. Sodium is used in our daily lives and a critical food additive. The preparation of compound sodium fluoride needs the people involved to have gathered knowledge on the properties of each constituent of the mixture as well as the compound as a whole. If this is incorrect, it can result in the production of faulty products (Ekere, 2017). In chemistry, all the chemical equations are expected to be balanced, which helps in mixing the correct proportion of the chemicals to avoid errors. The proportion is each element to be used in making the compound needs should be well maintained to ensure the products are made and effective and of the best quality. The industries need to employ competent workers to make the works run effectively.

Reference

Ekere, M. U. (2017). *Analysis and Classification of Student's Learning Difficulties in the Writing and Balancing of Chemical Equations* (Doctoral dissertation).

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