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Gason: A new state of water

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Abstract
Until the advent of this work, water has been taken to exist in three (3) major states as solid (ice), liquid and gas (vapor) by the scientific community. This work has clearly proved and discovered another state of water which is named gason. This work also identified new changes of state as ejibomisation and perrychristisation. The law of ejibomisation and it's corresponding mathematical relationship is also presented. This work focuses on ice, more generalized version of this study will soon be published to accommodate all forms of matter beyond water. Full understanding and application of these new developments have huge benefits.

1. Introduction

About ten (10) years ago, an important observation was made. The ordered motion of what seems like vapor emanating from frozen fishes in the market was observed with a very great impression. That was not the first time of observing such but it was the first time to be struck by the hunch that such emanations could be another state of water. This led into years of studies on this subject matter; finally, this work has proven beyond reasonable doubt that those emanations are new state of water and indeed a new state of matter.

2. States of Matter and Change of States

Matter can change their states especially by increasing or decreasing their temperature. As heat is gained, most matter tends to form more loosely bound molecules and vice versa. Using water as an example, its change in state is summarized as follows. Liquid water at room temperature can be heated to form vapor; this process is called vaporization or evaporation. Vapor can also be cooled to form liquid water; this process is called condensation. Liquid water at room temperature can also be cooled to form ice; this process is called freezing. Ice can also be heated to form liquid water; this is called melting. Water vapor can also be cooled under certain conditions to form frost, ice, as claimed by many literatures; this is called deposition.

The main interest of this work is the changing of solid water (ice) into gaseous state. This paper presents the studies done on this subject matter and has strong reasons to say that such process is different from sublimation as currently claimed by scientific literatures[1].

2.1. States of Water

Until now, water has been taken to exist in three states as solid (ice), liquid (at room temperature) and gas (as water vapor). After serious and careful investigations, this work has proven the existence of the fourth (4^{th}) state of water, which is formed by a process coined as ejibomisation which is formed when ice changes to a gaseous state. This gaseous state of water formed from ice is named gason.

Although some Scientists have made attempts to identify other states of water at various conditions. G. F. Reiter et al (2011) found that water confined on scales of 2A corresponds to a strongly anharmonic local potential, different from that of water at room temperature[2]. G. H. Pollack (2013) and his colleagues claim that when touching most surfaces, water transfers itself into Exclusion Zone (EZ) water also known as structural water whose formula is H_3O_2 [3]. Though in this paper's opinion, EZ water is no longer water due to its difference in molecular formula. L. Cammorata (2001) and colleagues used ATR and IR spectroscopy to investigate the state of water in room temperature ionic liquids based on 1-alkyl-3-methylimidazolium cation with various anions.

They concluded that most of the water molecules at this condition exist in symmetric 1,2 type hydrogen bonded complexes[4].

Therefore, gason is the gaseous state of water which is formed from ice. Ejibomisation is the process of forming gason from ice.

3. Experimental

In two (2) separate simple experiments, 1litre of water each were subjected to different physical conditions in an attempt to produce water vapor and gason respectively. In the first experiment, 1litre of water at room temperature (28°C) was transferred into a round-bottomed flask and heated with a Bunsen burner till water vapor started forming. The temperature at which water vapor were formed was also recorded.

In the second experiment, 1litre of water was introduced into a 2litres capacity plastic bowl at room temperature (28°C) and placed inside a freezer for seven (7) days. The final temperature of the frozen water was recorded. The second experiment was repeated using 5litres of water in 10litres capacity plastic bowl.

The liberated vapor and gason were later channeled by means of a delivery tube to a piece of litmus paper to ascertain the strength of movement to be produced.

Part of the liberated vapor and gason were also brought into contact with a cold surface.

The liquid water, ice, vapor and gason were finally tested for the presence of water with white anhydrous Copper II tetraoxosulphate VI and litmus paper. Their respective taste and smell were also analyzed.

3.1. Discussions

In the first experiment the water was brought to boil at 100°C followed by continual decline in the quantity of the water as more vapor is lost. In the second experiment, the water was completely frozen after seven (7) days and the temperature was recorded as -10°C. On careful observation, gason were seen to emanate from the ice at this frozen condition. It was observed that vapor causes most significant motion to the paper placed in its path, unlike in gason that its impact produced less significant movement of the paper. Both vapor and gason are respectively absorbed by the paper making it increasingly wet. As the ice is removed from the freezer and brought into a room at 28°C it was observed that the ice started melting (as a result of the higher temperature) as well as releasing gason. But release of gason declines steadily as melting process increases until no release of gason was observed. At this point, this work opines that the melting process has caused most empty spaces in the ice to be lost and laden with liquid water formed from the melting process.

The frozen 5litres of water shows more emanation of gason by causing more motion and soaking of paper placed in its path. The water vapor and gason that formed from the experiment condensed on a cold surface to yield liquid water.

All the states of water; liquid water, vapor, ice and gason turned white anhydrous Copper II tetraoxosulphate VI blue and have no action on litmus papers. They are colorless and odorless. These show that liquid water, vapor, ice and gason are water in different states.

Table below shows the differences between water vapor and gason.

Water Vapor	Gason
1. Produced from evaporation/boiling of water	Produced from frozen water, ice
2. Produced at elevated temperature, at least above room temperature for evaporation	Produced at low temperature; at below room temperature, zero and subzero degrees Centigrade
3. Moves faster, thus has higher kinetic energy compared to gason	Moves slower, thus has lower kinetic energy compared to water vapor
4. Is hot	Is cold
5. Its loss causes net cooling	Its loss causes net heating
6. It's a byproduct of many reactions[5]	Not produced from chemical reactions (from my best of knowledge)
7. Causes heat gain to objects in contact with	Causes heat loss to objects in contact with

The obvious differences shown above are enough to convince the entire scientific community that water vapor and gason are completely different states of water.

Gason exhibits the same chemical and physical

properties of water. It turns white anhydrous copper II tetraoxosulphate IV ($CuSO_4$) blue. It is colorless, odorless, neutral to litmus and tasteless.

4. Sublimation Revisited

Sublimation is a change of state from solid state to gaseous state without passing through intermediate liquid state. Until now, scientific literatures call those emanations from frozen fish (and ice) as water vapor and call the process sublimation. That's wrong!

Table below shows the differences between sublimation and ejibomisation.

Sublimation	Ejibomisation
1. Involves change from solid state to gaseous state and back to solid state in most cases.	Involves change from solid state to gaseous state and back to liquid state
2. Sublimate converts to solid in most cases	Gason does not change to solid immediately, rather, it changes to liquid
3. Is achieved at room temperature or higher	Is achieved at below room temperature and at much lower temperatures
4. Motion of the sublimate is as a result of the heat applied	Motion of gason cannot be accounted for by the very low temperature and pressure at which it occurs.

Many researches have been carried out corroborating the fact that sublimation is enhanced at high temperature. A. Marcu et al (2011) reported that Carbon and Tungsten materials must be heated to high temperatures (3600K & 3695K for C & W respectively) to sublimate them[6]. Also the research results of R.. Daoussi (2009) and his colleagues show that shelf temperature rise increases sublimation rate of certain pharmaceuticals that sublime[7].

5. Postulates

Two (2) postulates were introduced to explain this behavior of water.

i. All vacancy (empty space) must be occupied by gaseous particles in earth's frame of reference, except in a vacuum.
ii. All motions are propelled by either heat, force or both.

Let's apply this postulate to ice.

Like water vapor, gason has significant kinetic energy that is responsible for its mobility. Unlike water vapor that emanates from water at elevated temperature (about 100°C), gason emanates from ice at about 0°C or lesser. This discrepancy shows that water vapor and gason have different sources/precursors of their kinetic energies.

Elevated temperature (100°C) is enough to set water vapor into reasonable motion, but 0°C of ice cannot be accountable for motions and kinetic energy of gason and ejibomisation. Motion and kinetic energy of gason is so obvious and very significant. Also, mobility of matter is expected to decline at reduced temperature. Gason defies this! After series of theoretical and experimental observations explained above, this work concludes that the motion of gason is as a result of a force, not as a result of heat.

Heat and force is necessary for objects to set into reasonable amount of motion. Planetary bodies are propelled by force of gravity; some levitating objects, by Casimir Force[8]; water vapor, by heat; vehicles, by heat (conversion of heat generated in the internal combustion engines into mechanical energy); football in motion, by force of the shooter's leg (footballer), and so on. Careful investigation of motion of gason shows that only a force is the actual precursor of its motion (since at 0°C motion of water is expected to decline).

Ice forms to leave good amount of empty spaces within the ice. According to this theory, the empty spaces (vacancies) must be filled by gaseous particles. But the low temperature of ice does not favor gaseous particles to fill it, they would prefer to condense. Thus a force emanates from the ice to cause formation and eventual motion of gason. This is how gason is formed, and how it gets its motion. In a nutshell, the motion of gason is as a result of force, not heat. This force is termed ejibo. Therefore ejibo is the force responsible for the formation and motion of gason.

Using 1kg of ice at constant temperature of -10°C as a standard and assigning it an arbitrary value of 1unit. This study shows that more gasons are produced from an ice of larger mass and is formed due to the empty spaces of the ice. Also, more gasons are produced at lower pressure.

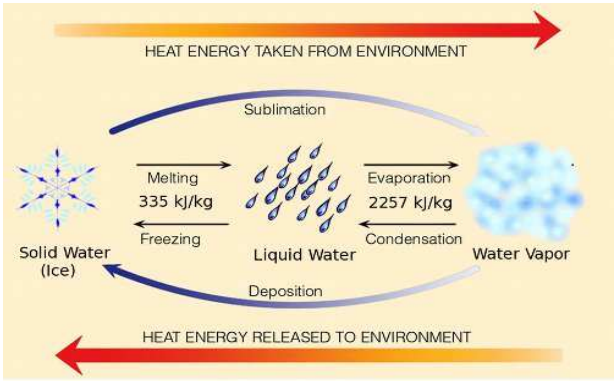

Figure above shows change of states of water as conventionally believed and applied prior to this work[9]

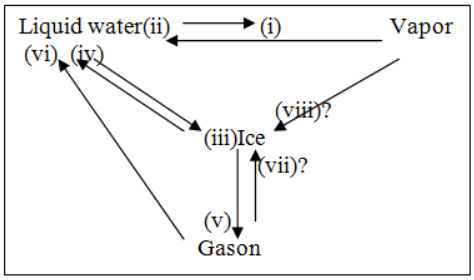

Figure above shows change of state as perceived by this work

{The above is a representation of change of states of water. There are different changes of state represented by i-viii, with vii and viii having a question mark. I, ii, iii and iv represents evaporation/boiling, condensation/liquefaction, freezing and melting respectively. V is ejibomisation; change of ice into gason. Vi is perrychristisation; change of gason into liquid water. Viii, the change of gaseous water (vapor or gason) into solid water is still yet to be resolved. Most literatures assume that vapor (hot gaseous water) is what changes to solid water by a process, deposition/desublimation. But this work opines that it's gason rather that changes to solid water. More on this comes up in a follow up paper to this}.

6. Law of Ejibomisation

After series of investigations and careful analysis the law of ejibomisation was developed which explains the behavior of ice that produces gason at constant temperature. It was observed that the larger the mass of the ice, the more gason it would generate. Also, since ice has substantial volume (empty spaces), the magnitude of the volume is directly proportional to the size/mass of the ice. According to this work, the empty spaces/volume of the ice is very significant in ensuring gason formation; all these are favored greatly at low pressures. The law states that at constant temperature the force of formation of gason (ejibo) from ice is directly proportional to the mass and volume of the ice and inversely proportional to the pressure.

Let the mass of the ice be M, its volume V and its pressure denoted as P. Mathematically, the law can be expressed as;

$$F_E \propto MV/P$$

That is $F_E = \tilde{N}MV/P$.

F_E is ejibo while $\tilde{N}$ is a constant.

Assigning 1kg of ice at -10°C the arbitraly F_E of 1 unit, and taking the density of ice to be $917Kg/M^3$ and volume of $1.09M^3$.

At -10C ice has the pressure of approximately 2.599 milibars[10]. Therefore using the above conditions as standard and using 1milibar=0.0009869atm, F_E=1.

Then $\tilde{N}=F_EP/MV$

Substituting the standard values gives $\tilde{N}=1\times 0.0009869\times 2.599atm/1Kg\times 1.093M^3$

$\tilde{N}=2.345\times10^{-3}$ atm Kg^{-1} M^{-3} units. This is the value of ejibomisation constant.

6. Conclusion

Comparing sublimation and ejibomisation (also water vapor and gason) shows that they are different change of states and different states of water respectively. In fact, there is no sublimation of ice, because ice cannot change from ice to water vapor, rather, ice changes to gason. In a nutshell, ice does not sublime. Therefore, ice changes to gaseous state of water (gason) at reduced temperature and pressure by a process coined as ejibomisation. Also gason can change to liquid water by a process coined as perrychristisation. Detail of perrychristisation comes up in a follow up paper to this.

This work has clearly shown the differences between water vapor and gason, also it shows the differences between sublimation and ejibomisation. In the light of this work, certain previous researches in this area need further interpretations. E. L. Andreas (2007) reported that the sublimation rate for an ice sample collected at the lunar poles, where temperatures is predicted to be 40-70K, is so slow that only careless heating or handling would make the sample lose a significant fraction of its ice[11]. This work opines that such heating could only cause melting in this case, not ejibomisation. Also in his work, the equation below was used to calculate "sublimation" of ice as; $So=e_{sat};(T)(Mw/2\pi rRT)^{1/2}$. This expression shows that "sublimation" of ice is inversely proportional to T (the temperature). But in actual sublimation, sublimation is directly proportional to T; thus what might have taken place in the reported water is ejibomisation.

Next and more advanced version of this work to include dry ice (CO_2) and other substances is on the way. Science is dynamic and we have to flow with the latest trend for better innovations and discoveries. This theory/work is still at infancy but proper understanding and its application will have a lot of useful applications.

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