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Oxidation and/or Reduction of a Substance Using an Atomic-Reticular Filter in the Vaccum, from Glucose Reducing to Cellulose, from Benzene to Plastic, from Organic Substance in the Soil to Bitumen, in Alternative Ways

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Abstract

Starting from the first principle of thermodynamics which states that nothing is created, nothing is destroyed but everything is transformed, we can try to transform substances into other substances by exposing them to the flow of hydrogen ions and electrons with a reticular-atomic filter in a vacuum. Obviously the first law of thermodynamics concerns isolated systems. I therefore thought that from a great substance that incorporates at least two substances, one substance can be transformed into the other. For example, a tree consists of both cellulose in its trunk and chlorophyll which can be extracted from green leaves. I hypothesized techniques to transform the glucose reducing into cellulose in an alternative way. Another example could be soil and subsoil which contain both oil and organic matter in the soil, both of which are composed mainly of carbon, hydrogen, oxygen and sulfur in different percentages. I hypothesized techniques to transform the organic substance in the soil into bitumen in an alternative way. Finally, I hypothesized alternative techniques for transforming benzene into cyclohexane.

Keywords: Thermodynamics • Cellulose • Cyclohexane

Introduction

The first technique hypothesized by me originates from chlorophyll photosynthesis [1,2]. In fact, with the mediation of chlorophyll [3] and thanks to sunlight and atmospheric carbon dioxide and water, green plants produce glucose with the molecular formula $C_6H_{12}O_6$ [4]. So it can be said that glucose is a product of the action of chlorophyll. The molecular formula of cellulose [5] which is found mainly in tree trunks is $(C_6H_{10}O_5)_n$. Therefore, exposing a glucose reducing to a flow of hydrogen ions and electrons [1] could cause each molecule of glucose reducing to lose a molecule of water. At this point these molecules thus produced could bind into chains and form cellulose with molecular formula $(C_6H_{10}O_5)_n$. The second and third techniques I hypothesized concern the ground, the soil and the subsoil [6]. In fact, from the distillation of petroleum [7], propane and butane or bitumen is obtained, for example. Bitumen is mainly composed of carbon, hydrogen, oxygen, sulfur as well as nitrogen and some metals such as iron. The "organic substance in the soil" [8] is also composed of similar elements. Therefore, I hypothesize that with successive exposures of the organic substance in the soil to flows of hydrogen ions and electrons [1].

Something similar to bitumen can be obtained. The third hypothesis concerns benzene [9] C_6H_6 which is mainly obtained from the distillation of petroleum. C_6H_{12} cyclohexane [10] is already obtained also by catalytic hydrogenation of benzene [11]. Therefore, the third hypothesis is an alternative method to produce cyclohexane C_6H and hope that with subsequent exposures of the product itself to the flows of hydrogen ions and electrons [1] alkanes [12] (polymers) can be formed, useful for the realization of plastic in an alternative way [13]. Therefore, a flow of hydrogen ions and electrons [1] could be able to oxidize and/or reduce [14] a substance according to the various cases.

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From glucose reducing to cellulose

The first law of thermodynamics [15] states that "The internal energy of an isolated thermodynamic system is constant", that is, that energy is neither created nor destroyed, but is transformed, passing from one form to another. Take for example a tree, an isolated system, from the trunk we can extract cellulose $(C_6H_{10}O_5)_n$, from the leaves we can extract chlorophyll $C_{55}H_{72}O_5N_4Mg$. During photosynthesis, with the mediation of chlorophyll, sunlight or artificial light makes it possible to convert six molecules of CO_2 and six molecules of H_2O into one molecule of glucose $(C_6H_{12}O_6)$ [16]. The glucose reducing [17] has the molecular formula $C_6H_{12}O_6$. Cellulose has molecular formula $(C_6H_{10}O_5)_n$. A glucose reducing if exposed in vacuum to a flow of hydrogen ions and electrons [1] could lose a water molecule and become $C_6H_{10}O_5$. Finally, the molecules thus obtained could bind together forming a chain and $(C_6H_{10}O_5)_n$, that is cellulose, would be formed.

The instrumentation to experience this is similar to the instrumentation described in my first scientific article [1] with the addition of LED light also in the steel container under the filter, which collects the flow of hydrogen ions and electrons [1]. The LED light in the second container prevents the hydrogen ions and electrons from recombining to form molecular hydrogen. The ions and electrons cause a water molecule to lose the glucose reducing. Furthermore, to collect the water it would be enough to insert a graphene plate [18] and a metal support grid inside the second container on which the glucose reducing is placed. This is because graphene is permeable to water [19] and therefore would collect the water that forms below the graphene plate and leave above the graphene plate itself $(C_6H_{10}O_5)$, i.e. cellulose. Furthermore, the instrumentation needs a steel rod positioned on the sides of the second container above the graphene plate that moves the glucose reducing during exposure of the latter to the flow of hydrogen ions and electrons [1] in such a way that all the glucose reducing molecules are effective exposed to the flow and lose a water molecule. The instrumentation is similar to that shown in the (Figure 1)

From benzene to cyclohexane

Another possible application with this instrumentation described in the

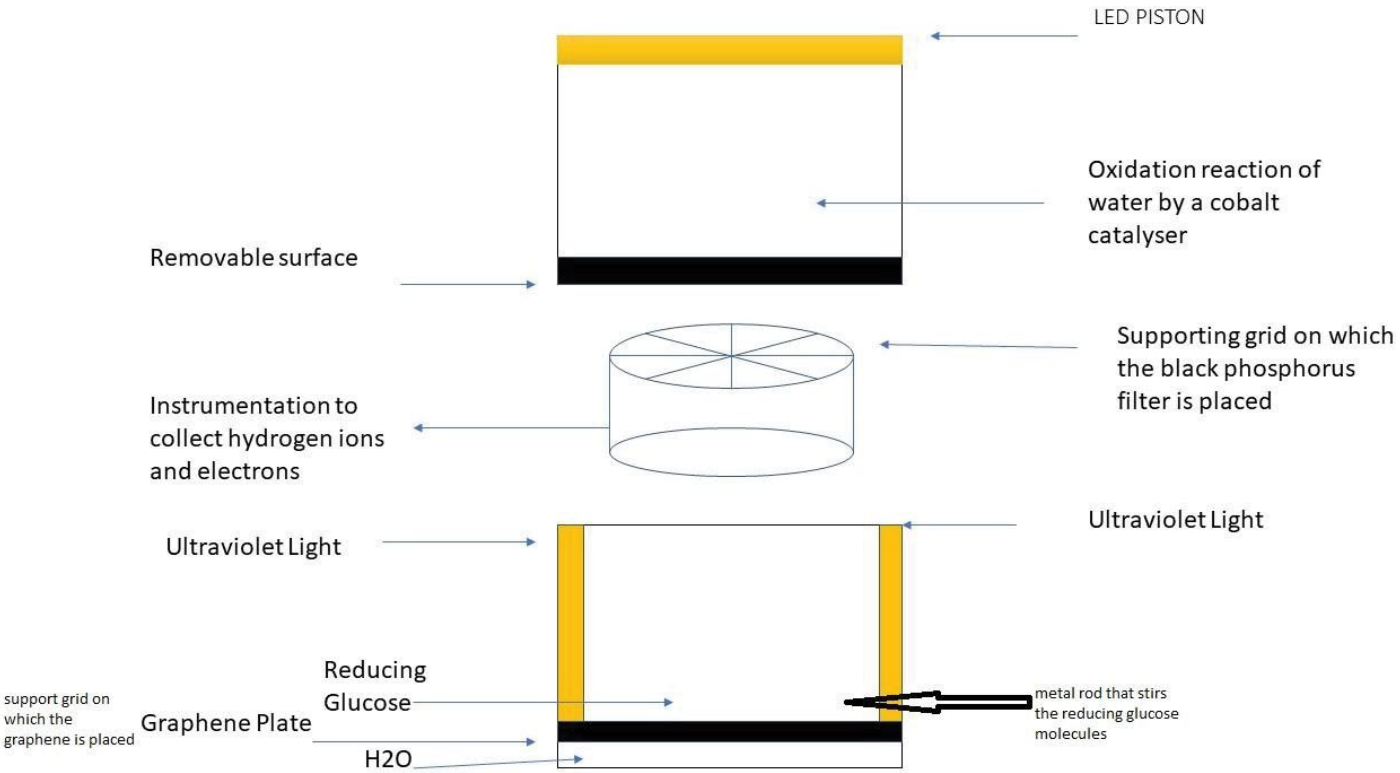

Figure 1. Glucose reducing to cellulose.

figure could be to insert benzene instead of glucose reducing in order to obtain cyclohexane. In fact, cyclohexane is also obtained by catalytic hydrogenation of benzene. Therefore, the instrumentation described in the figure could be an alternative method to produce cyclohexane. The cyclohexane that would be obtained can be further exposed to the flow of hydrogen ions and electrons [1] in steps subsequent to the first and it can be hoped that an alkane (polymer) suitable for the production of plastic is formed in an alternative way, for example isohexane with molecular formula C_6H_{14} and many others with successive steps of exposure to the flow of hydrogen ions and electrons [1].

From organic matter in the soil to bitumen

Another application could be to deposit the organic substance in the soil in the second metal container in place of the glucose reducing. In fact, the organic substance in the soil is mainly made up of carbon, hydrogen, oxygen and sulfur as the bitumen that is obtained from the refining of petroleum obviously they are composed of these elements in different percentages. It can be hypothesized that with one or more exposures of the organic substance in the soil to a flow of hydrogen ions and electrons [1] the organic substance in the soil can become similar to bitumen.

Discussion

This research article is based on the study of alternative techniques for transforming a substance into another substance that are both found in an isolated system, such as a tree that contains both cellulose and chlorophyll. This hypothesis originates from the first law of thermodynamics which states that nothing is created, nothing is destroyed and everything is transformed. This concept combined with my first scientific article [1] and my preprint [1] hypothesizes substance exposed to repeated flows of hydrogen ions and electrons [1] in a vacuum can transform into another substance and both substances are part of an isolated system.

Conclusion

Paper [20] is currently produced with cellulose mainly contained in trees and this leads to cutting more and more trees, which are a precious asset for humanity. On the other hand, cellulose from reducing sugar would lead to cultivating the land with sugar cane for example and not cutting the trees further. Furthermore, being able to synthesize alkanes (polymers) useful for the production of plastics in an alternative way would lead to a decrease in pollution in plastics. Finally, synthesizing bitumen by means of the organic substance in the soil would lead to more ecological asphalts for the environment, for example.

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