



## DOES LIFE CAN SUSTAIN WITHOUT CHEMISTRY ?

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### HOW CHEMISTRY DEVELOPED??

The word chemistry comes from alchemy, which give us information to an earlier set of practices<sup>1</sup> that covers elements of chemistry, metallurgy, philosophy, astronomy, mysticism and medicine. modern chemistry defined as the composition of waters , movement , growth , embodying , disembodiment, drawing the spirit from the body etc. concerning the invention of world chemistry relates to an alchemist who was called a chemist and later the suffix “ ry” was added to describe as word “ chemistry “ .

### DEFINITION OF CHEMISTRY

In Wikipedia defined<sup>2</sup> chemistry is a branch of physical science which studies the composition, structure, properties and change of matter, chemistry includes various topics such as forms of chemical bonds, atoms, creation of chemical compounds and relates to intermolecular forces.

A noted scientist Robert Boyle in 1661 said chemistry means the subject of materials principles of mixed body and in modern era of 1998 professor Raymond chang broadened the definition of chemistry means the study of matter and changes it undergoes.

### SIGNIFICANCE OF CHEMISTRY

Chemistry is a key branch of science which deals with identification of substances where matter is composed, investigation of their components and the use of these processes to form new substances. Chemistry is significant because it explore the future behaviour of flora and fauna and of course we use chemicals directly and indirectly in our daily lives. For example, we use chemistry when we cook, when we wash, when we eat etc. as a matter of fact.

Chemistry is also significant to understand the environment like how harmful gases like carbon dioxide and methane gas effect on environment?? It gives knowledge of chemistry in a large context. In our country all the medical students, physicists, geologists, nutritionists, engineers study chemistry. Chemistry is everywhere in the world around us. It is in the centre of science.

In the modern times, in part of industrialization it needs in laboratories, in medical clinics, in workshops, in farming and in various manufacturing process. An extensive theories of chemistry allows addiction about how any substance in the universe will behave the presence of any other substance. It also help to pharmaceutical industry, petroleum industry and material fabrication economy.

The use of chemistry in widely spread in engineering and its start with the application of chemistry in different engineering like chemical engineering , electrical engineering , mechanical engineering , petroleum engineering etc. the elements of chemistries implementation in new technologies even help those students who are work hold computer applications for virtual experimentation , process modelling etc. .

<sup>1</sup><https://en.wikipedia.org/wiki/Chemistry>

<sup>2</sup>[https://en.wikipedia.org/wiki/Outline\\_of\\_physical\\_science](https://en.wikipedia.org/wiki/Outline_of_physical_science)

In a new edge chemistry is used in various areas of astronomy, even its particularly important in studies of our solar system. Foreexample, when we have to calculate the temperature and kelvin of sun's surface. There is one <sup>3</sup>astrochemistry subject which study the abundance and reactions of molecules in the universe and their interaction with radiation, it is discipline overlap of astronomy and chemistry. for example , ultraviolet rays and cosmic rays they throw the radiant effect on the earth surface because they cannot enter due to the earth's atmosphere even universe is also formed due to chemistry only . Universe form due to big bang theory .during these process many radioactive materials are comes out due to that only planets are able to form.

To see the above discussion regarding significance of chemistry loudly present that our lives are becoming more dependent on the "chemistry ". It is incredibly fascinating field which touching to all science branches and its prove chemistry is a fundamental to the world. It joins mathematics,biology,medicine, and environmental science, it is also essential to understand the biology and medicines in the context of chemistry. It explaining the structures and function of all cellular process at the molecular level and this chemical concept allows to construct greater biological principles. because in modern cell biology all living cells are made up of chemicals and its chemical process occur in various living organisms and of course organisms are alive because of only " chemistry "

### SCIENTIFIC APPROACH OF CHEMISTRY

Scientific approach contain scientific method it consists observations, behaviour implying hypothesis experiments etc.For example of law, the law of constant proportion was discovered by the French scientist JosephProust(1754 – 1826) observed sample of cupric carbonate obtain naturally and prepared synthetically in laboratory had the same percentage composition of elements. He observed in natural sample 51.35% of Cu, 9.74% of C and 38.91 % of O and at synthetic sample same figure and percentage observed by him. That means observation and experiment core scientific method to use in chemistry which gives a scientific knowledge and result about any law of chemistry.

Secondly the law of conservation of mass discussed by Antoine Lavoisier in 1789 said "matter can neither be created nor be destroyed ". He carefully experimentally studied foe combustion reaction for reaching to the above conclusions. This law formed the basis for several later development in chemistry in fact this was the result of planned experiments performed by Lavoisier...

### ELEMENTS OF CHEMISTRY

As per Wikipedia, a chemical element is species of atoms having the same numbers of protons in their atomic nuclei. Thereare 80 elements that have at least one stable isotope and 38 that have exclusively radioactive isotopes which decay overtime into the other elements. total there are 118 elements are formed in chemistry and some important elements are like Hydrogen ,Barium, Carbon , Oxygen , Nitrogen , Copper , Bromine , Helium, Silicon , Iron , Calcium , Potassium are the elements which we used in daily life like eating salt , in making medals by using copper elements etc.

The most important element is oxygen because of this element only human life biological life exist on the earth.

### If there is no existence of chemistry than how life would be??

Why chemistry important if you answer it is easy to say everything is made from chemicals and that is why chemistry is part of our life without chemicals of the existing no one subject could complete like biology, physics, physiology, anatomy, geology,farming, and non-farmingactivity, astronomy etc. We found everywhere chemistry and its element in our routine life like what we eat, when we breathe and of course in our emotion.

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<sup>3</sup><http://www.justscience.in/articles/what-do-you-mean-by-astrochemistry/2017/07/25>

If there is no chemistry in our routine life our all aspects of life can be stopped. We know that by science elements our body is also made up of chemical compounds most probably by water which is mixture of hydrogen and oxygen. Hydrogen, oxygen, carbon, calcium, nitrogen, phosphorus these six elements of our body are most significant components. Just imagine if there is absence of above elements in our body how can we live?? Of course our body is natural cycle can cause many problems every time we feels chemistry in anaction, likecooking, cleaning, even in breathing. There is lots of reactions in everyday life by chemicals. For example plants chemical reaction called photosynthesis which means



And other example is combustion combines energetic molecules with oxygen to produce carbon dioxide and water and its reaction of propane found in gas grills and some fire places which means



If there is absence of chemistry it seems there is no life in biology flora and fauna needs large number of a chemistry elements. Therefore varieties of substance are essential for animals like protein, carbohydrates, vitamins, minerals and fats. If there is absence of calcium, vitamins, irons then very difficult to live for humans and animals. If the chemical reactions are stopped on plants so the animals could not get vitamins, carbohydrates, protein etc. so automatically there growth will stop and slowly animals would be counted as endangered species.

Without catalyst there would be no life at all from microbes to humans. chemical reactions always occur when one or more substance are changed into other substance and it happen when two or more elements combine with each other that means formation of compounds . <sup>4</sup>An enzymes is essential component for both plant and human life on the planets of cosmos. Enzyme reaction is allows to biologist to appreciate their evolution as a prolific catalyst. Without enzymes the probability of reactions happening would be negligible and there is no possibility of emergence and evolution of living things without the enzymes to catalyse the biochemical reactions.

Next, moving to the other part, if there is no contribution chemistry in physics what would be happen?? . A father of nuclear physics Ernst Rutherford said that "all science is either physics or stamp collecting ". All the chemical elements are organized itself which is based on the principals of physics. almost of all the chemistry can be explained in terms of the periodic table and if there is no periodic table we can't able to know the individual property of each elements and there actual positions in environment . Chemistry is based on atomistic theory and physics support atomistic theory entirely. <sup>5</sup>Experimentally chemical physicist use a variety of spectroscopic techniques to better understand the hydrogen bonding , electron transfer , the formation and evolution of chemical bonds , chemical reactions and formation of nanoparticles . the objective of chemical physics research includes understanding chemical structures and reactions at the quantum mechanical level , elucidating the structure and reactivity of gas phase ions and radicals , and discovering accurate approximations to make the physics of chemical phenomena computationally accessible.

If there is no chemistry in physics of universe that what happen?? . the universe physics include the big bang theory , formations of stars , formation of planets , formation of galaxies , spinning of planets , formation of black holes , all this phenomenon are possible due to the contribution and its presence of chemistry and its elements . If chemistry is not found then our universe became stationary. It believe that planets are formed due to big bang theory actually it is process which occurs crores year ago in our cosmos. when this process take place lots of particles came out like quark , antiquark , x-boson , higgsboson , photon

<sup>4</sup><https://phys.org/news/2008-11-enzyme-biological-reaction-essential-life.html>

<sup>5</sup>[https://en.wikipedia.org/wiki/Chemical\\_physics](https://en.wikipedia.org/wiki/Chemical_physics)

, antineutrino ,gluon , graviton etc. and all this particles are made out from proton and neutron and electron and simply atom which is one of the important part of chemistry .. Even in sun also nuclear reactions are taking place continuously. Hydrogen and helium are the main elements of nuclear reactions .when this reactions stopped at that time our sun will die and it blocked out from our solar system. Sun is only star in our solar system which supports life so when it will die our system is going to die .so somehow universe and all the theories conclude that our life is impossible without chemistry and its elements.

planets and stars are spinning due to the rotational motion which decides the speed spinning of stars .when the elements and its reactions are going to increase stars can turn over into supernova and then black holes . Even birth of stars are possible due to elements only. According to scientists it believe that universe is formed due to the black holes .if chemistry and its elements are not present in this phenomenon then this process will not going to take place in the cosmos.

Nowadays universe is expanding when the chemistry and its elements does not exist that is when universe stop expanding.

If there is an absence of chemistry in engineering than what happens?The one have basic understanding and knowledge of some topics of chemistry like stoichiometry and some physical chemistry concept to study chemical engineering. In the world of engineering everything is crested by engineers is composed of chemicals and of course chemistry is the study of chemicals and engineering would be weaker about it. in civil engineering water treatment plant , metallurgy and glass science , asphalt , in mechanical engineering electroplating ,composites , polymer , rubber technology , fuels , flames , in aeronautical engineering adhesives , paint technology , fuels , metallurgy , in electrical engineering , physical electronics , doping are the chemistry related topics which are teaching in different universities and institutes . Even though environmental engineering also part of chemistry.

Chemistry plays an important role in engineering. Even in computer engineering many software packages are developed for designing for a new molecules.Simulation software helps to know getting the possibilities of final results which reduces the time taken for the chemical process and reduces the waste of chemicals which also reduces the pollution. Without chemistry material science is not possible because it associated with chemical terminology. Chemical engineering includes distillation design,fluid mechanics, heat transfer, equilibrium stages, process design etc.

If there is no elements of chemistry in engineering than what happen??

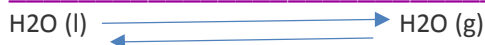
Distillation design is related to <sup>6</sup>chemical engineering which gives us information about distillation columns of petroleum refining, petrochemicals plants, natural gas processing,pharmaceutical, food and alcohol distilling industries etc. if the elements of chemistry is not present than the process of petroleum refining will not occur and we also don't get petrol , kerosene , gas oil , diesel oil , fuel oils , etc. which are essential in our daily life and other example is formation of toxic harmful drink famous by its common name ethyl alcohol .which means



From its formation it conclude that it's made up of elements like carbon, hydrogen and oxygen. Therefore, without chemistry distillation design is impossible. In formation of food like dhosa,idli, chemistry supports in the fermentation process

What happen if chemistry is not includes in equilibrium stages?? It said that equilibrium means number of molecules moving from liquid state to vapour state and number of molecules moving from vapour state to liquid state. For example evaporation of water, in these liquid is transformed into the vapour it's also called part of sublimation reaction. Which means

<sup>6</sup><https://www.accessengineeringlibrary.com/browse/distillation-design>



In above reaction also chemistry is involved. Because due to chemistry only stages and different types of equilibrium points came into existence. If chemistry is not there sublimation reaction never came into the existence. Due to the chemistry only people come to know that if the temperature of reactions changes then the values of equilibrium constant change. Its change with respect to the temperature so we can say that equilibrium constant is proportional to temperature and it always depend on this.

What happen if chemistry is not involved in heat transfer??Whenever we ask what is heat transfer easily we get answer that transferring of heat from one end to the other end. But when we learned deeply than only we come to know that heat transfer is based on kinetic theory of gases and Avogadro's hypothesis. Many laws are based on kinetic theory of gases as for instance Boyle's law; in this it said that "at constant temperature the pressure of a fixed amount of gas varies inversely proportional with its volume ". From this law we come to know about the relation between pressure and volume of elements. if chemistry element are absence in the kinetic theory of gases , we will never came to know about the transferring of heats .so at last we can say that whole engineering world is empty without the elements of chemistry .

If there is absence of chemistry in farming than what happens?? Farming is obviously related with crops. But for preventing the crop fertilizers, pesticides and antibiotics are added and all this are made up from the elements of chemistry. In the formation of fertilizers nitrogen, phosphorus, phosphorus compounds are included. The chemical reaction of ammonium nitrate fertilizer is



Ammonium nitrate fertilizers are used by farmers in farming because this fertilizers give nutrition's to the damaged crops so they can grow properly. In farming pesticides are also used to kill the crops insects because these insects will damage the crops therefore pesticides and fertilizers are used in farming .both include elements like hydrogen, nitrogen, phosphorus. If chemistry and its elements are absence in farming sector than fertilizers and pesticides does not get by farmers and all the crops are going to damage. If the crops are damages than people will not get the food so it's also became the biggest lost in economic sector. So chemistry is also give its contribution to farming sector and by somehow economic sector also.

If there is Absence of chemistry in medicines than what happen?? Chemistry is more important in medical sector. Because nowadays many disease are spreading like malaria, dengue, swine flu, cancer, cholera, high and low blood pressure etc. . Vaccines of some disease are available like vaccine of swine flu is Tami flues, medicines used to control cancer like 'cisplatin,' and 'taxol' are used. Dengue is acute febrile disease, in this disease to control the fever and stomach pain doctors are giving 'dolo' and 'zifi'. All this medicines are made up of elements of chemistry. If there is no involvement of chemistry, then all this medicines and all vaccines are never discovered and all diseases can never be cured and slowly people start dying. So it show that how chemistry is important in medical field.

What happen if there is no chemistry on earth??Whole earth is made up of elements. Only earth is the planet in the solar system where we get all the types of elements so simply we can say that "whole chemistry is found on earth ". Many phenomenon are occurring on the earth like raining, season change etc. it's all possible due to chemistry. for instance in monsoon season , rain drops are coming on the earth which are made up of hydrogen and oxygen , evaporation of water due to the sunlight we can say that as a sublimation cycle . Even core of the earth and its crust is also made up of different elements.

The most important contribution of chemistry on the earth is protection of atmosphere which is due to presence of ozone layer. Ozone layer protect us from the cosmic rays and ultraviolet rays that are coming from the space. Ozone layer is made up of three oxygen molecules

If there is no chemistry found in protection of ozone layer than lives on earth is risky .without the elements of chemistry ozone layer never formed so it will not protect from dangerous rays and atmosphere is also going to destroy if atmosphere destroy than season will never change than our planet also seems like planet mercury. It shows that chemistry is most important part on earth.

If there is absence of chemistry in minerals and industries than what happen?? . As we know that minerals are found under the crust of the earth. As per the definition of Wikipedia, minerals are formed from lava which is on the earth's crust so its cools quickly compared to the magma in earth. As a result, rocks form quickly and mineral crystals are very small. Rhyolite is one of type of rock that is formed when lava cools. the most important minerals are calcium made from hydroxyapatite , iron , potassium , and sodium , copper , zinc , magnesium , phosphorus and all this above shown minerals are used by humans in day to day life in formation of bronze medals . Nowadays people are using this minerals maximum and one day time will come when all the minerals are going to finish. If chemistry is not there in minerals these minerals never be formed. It can be said that chemistry and its element are found under the earth also.

What happen if there is no chemistry in industrialization sector?? Chemistry and its element has done contribution in each and every industry whether its iron industry or cement industry. On asking meaning of industry we get answer that industry means processing or using of raw materials and construction or fabrication of goods in factories. But when we concentrate on word industry. it gives the different meaning that in word last three letters 'try' same like chemistry last three letters and in dust means contribution of chemistry in making new things with help of dust or using rocks .

If there is no chemistry in cement industry than what happens??

Cement was first introduced by Joseph Aspidian. In chemistry cement is obtained by reaction of quick lime rich in CaO with silica (SiO<sub>2</sub>). It's reacted with oxides of aluminium, magnesium and iron.

If chemistry is absence in cement industry then cement would never formed and construction of roads and buildings , slabs , bridges , dams are never being constructed . Even if there is no chemistry, industries are also never constructed because industry itself is made up of cement only.

If there is no contribution of chemistry in automobile industry then what happen?? . Automobile industry is related with vehicle in which knocking is possible due to chemistry. If there is absence of chemistry in these industry vehicles couldn't formed because mostly based on hydrocarbons which is formed by hydrogen and carbon and it's the most important part of chemistry. Without chemistry there is no industry found on the globe.

### IMAGINE GLOBE WITHOUT CHEMISTRY

Chemistry is called "central science" because of its significance and key role in the science. Without chemistry knowledge other science such as physics and biology would not have been particularly successful without chemistry will be not able to understand compositions of food and how this chemicals would protect us from illness. If there is no chemistry than there is no plastics, no gasoline's, no refrigerator, no electricity and more important we wouldn't be. No oxygen no life, chemistry doesn't make life easier it makes possible. We found chemistry in vegetables also, vegetables are coloured and it's consist of chemical compound called carotenoids, there is no other explanation of the existence of earth and its component other than chemistry. Even DNA is able to code for life because of interactions (H-bonds) which stems from chemical nature of the basis (A, T, G and C). If there is no chemistry then there is no phones, no laptops, and no computers and there is no social network in the world.

Chemistry is such a powerful thing in life where everything is made up of chemicals so, we can say that whole world is made up of atoms so simply chemistry made the world, so