

Your chemical world essay



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By: BillYour Chemical World In today's world we rely on many different facets to achieve what we normally don't even give a second thought. As I am sitting here typing this paper I am simultaneously using the culmination of numerous chemical breakthroughs. The American Chemical Society (ACS) is a group of over 150,000 chemists, both academic and industrial. Your Chemical World, a book that the ACS has published, is a biography of sorts, where in the uses and need for a chemical world are shown in an easy-to-understand way. Although chemistry would seem to be just a recently invented and used scientific field, chemistry has been an integral part of our lives for a long time. Our early ancestors, unable to even write, figured out that certain substances could be used for painting, hence the archaic cave paintings found in Southern Europe. Today we use chemistry to build our houses, to drive to work everyday, even toasting your toast in the morning. Because chemistry is our link to the hidden world of the earth's terrestrial fruits like Silicon or Iron our hands will be forever bound to chemistry. The book starts off with our beginning and the unlikely usage of chemistry in pre-historic times. Our ancestors were more than likely concerned primarily with staying alive. Certain things are needed to do that, like food, shelter, energy, and drink. Once those needs were met our Neanderthal brethren made some archaically beautiful cave paintings. In doing so they applied chemistry in a whole new way, to benefit their lives. In time chemistry became an integral part of society, today we have used it to stretch our lives out by more than forty percent of what it would have been in the start of the century by the use of medicine. Later on in recordable history chemistry was implemented through rusty trial and error methods which allowed many things to be created such as Bronze in 3600 BC or glass in 2500 BC. But it

wasn't until the age of Greek philosophers that the question of these materials components, or made them exist. After many theories by many different people a man named Leucippus came up with the idea that all things were made up of indivisible, small particles. Although we now know that that was the correct theory the age of alchemy started and didn't slow down until after medieval times. The next remarkable step was taken by Robert Boyle a British chemist who defined and coined the term elements as pure substance, which resists all ordinary attempts at decomposition. His assistant Robert Hooke also made some profound movements; he invented the first compound microscope. Using it he also was able to look at and theorize the idea of cells. Although Boyle did define elements the credit of being the father of chemistry is given to Dmitri Mendeleev, who not only formulated the periodic law but also created the periodic table of elements. Sir Joseph John Thomson then proposed the idea of protons in atoms, followed by Sir Ernest Rutherford's Nuclear theory with an atom proton. Eventually all the elements that we have today were discovered and put into place on the periodic table giving us today's modern chemistry. In the beginning of this century a very small enterprising community had begun commercial chemical operations. The chemical world slowly picked up speed and eventually blossomed into what it is today. The book then begins to relate all this documented history to our own world. By showing the uses of the chemistry industry in products we rely on every day it clearly showed the importance of it. In every aspect of your house we can find evidence of chemistry. In the Vinyl siding to the roof shingles to the power that runs the very computer that I am writing this on. If peel back the skin further we can see that in every room there is also blatant hints toward chemistry's uses in

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our house. In the kitchen we keep we see it in our refrigerator, in the family room the TV we religiously watch. In the Bathroom we can see it by staring in to the toilet, yes the toilet, just picture the miles and miles of sewers winding deep underneath the ground you walk on. In our garage we can see it by looking under the hood of your car, chemistry is everywhere. So Your Chemical World has now demonstrated the inviolability of its products, the next logical question one may ask is where did the raw materials that were used to make things like my car or refrigerator? Well the answer to that is you are standing on it. Earth. The terrestrial bosom that we sprouted from also kicked out some things to help us. Through the combination of earth, water, air, and plant and animal matter many new things were created far beneath the reaches of man. We dig petroleum out of the earth and turn it into rubber, gas for or car. We get coal from compressed animal and plant matter and then use it for energy. We dig up numerous others too like silicon or sulfur. The point is though that everything we have we fashioned from the raw earth. Because this book was written on the foundations of scientific research it brings about its points in a very logical and systematicall order. After conducting the history of chemistry, then how we use it, then where we get it from, a next step would probably lead us to who does it. The chemical industry is one of the largest, most complex array of products and people. From paper production to iron ore strip mining the chemical world encompasses it all. But the primary purpose of the chemistry is what it has always been, the pursuit of knowledge. The consumer products that come as a result are just beneficial and lucky offspring of one giant academic birth mother known as chemistry. Approximately two-thirds of this mammoth industry are those that refine produce or manufacture petrochemicals in

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some way. Petrochemicals are used to produce eight different hydrocarbons, which are then used to create an amazing amount of organic compounds from plastics to pharmaceuticals. There are also a lot of production plants that use inorganic chemicals to produce an equally large amount of materials. After these production plant a much larger network of plants know as chemical process industries. They use the products made by the chemical industry to manufacture the goods we use everyday. These two industries are combined to account for a third of the national domestic gross product. Two of the largest producers of these chemicals and products are E. I. du Pont de Nemours & Co. or du Pont and Dow chemical Co. In just on year these two chemical beamoths made thirty-seven billion and eighteen billion dollars respectively. Over the course of about 150 years the chemical industry grew to quite remarkable proportions. When World War One hit the chemical industry had become very important to the opposing sides. With out it we would have seen little or no advance in the way we do battle. Rifles slowly became more accurate and deadly. Bombs did the same. But it was not until after the war that the consumers got to truly enjoy the benefits of wartime research. New synthetic copies of original products hit the market taking over the previous by being more reliable and cost effective. All these new products and the ones that are currently being developed right now are a result of R&D or research and development. With out it companies would have nearly no new products to market making the success in todays global economy seem very dismal. R&D is the driving force behind the chemical industry. It is the reason America exported sixteen billion dollars more then it imported. These are the companies that make the goods you use and are the reason for our success in living. Now that we know who is making these

fascinating gadgets that can intrigue and perplex simultaneously, it is time to know what they are really made of. As previously mentioned in Your chemical World, the finding of what we now call the periodic table took quite some time. Starting with the one proposed theory of things being made up of indivisible small particles, we are led down a very rocky path. This path was severely distorted by medieval times alchemy. But eventually we found our way into what is now called Periodic Law, which states that, The Physical and chemical properties of the elements are periodic functions of their atomic weights, which in turn led to the Periodic Table. And although the periodic table was drawn up with only sixty of the eighty-three naturally occurring elements, it served as a way of predicting what those element properties would be like. The interesting thing about this is that because we have discovered nearly all elements and defiantly all the naturally occurring ones it gives us an insight to the universe because theoretically these elements that we have discovered are the ones that compose all of the universe. Nearly seven million different compounds have been made and more being synthesized every day. That number might be increased nearly six fold by the twenty first century that would be around forty million different compounds. It is crazy to imagine what will be invented in years to come if all that we have has been done with only seven million compounds. Chemistry is an integral part of our lives; it is an intellectually challenging climb up the mountain of imagination. It the processes of making something do the same job better, for that fact making the whole world better. Chemistry is the root science from which nearly all other sciences have sprouted. Just like the chemical industry spawns out into almost every business out there forming a giant web codependent existence striving a

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slice of the same pie. To accurately describe the propensity of chemical world a timeline is now given in Your Chemical World and sense this Timeline does span some eight pages a brief list of the major events that really effected the chemical practice will no be given: -2, 400, 000 Humanoids manufacture metal tools -440 Leucippus decerns that matter is composed of indivisible particles -360 Aristotle rejects atom theories with such power that it I not until the Seventeenth century that it is truly revived 400 In Egypt the word chemistry is used to describe the change of matter. 1620 Sir Roger Bacon introduces Inductive thinking to pave the way for scientific theory 1661 Robert Boyle defines an element 1709 Daniel Fahrenheit devises an alcohol thermometer 1803 John Dalton puts atomic theory to paper 1870 Dmitri Mendeleev creates periodic law and table 1911 Ernest Rutherford purposes the nuclear model 1945 the first atomic bomb is tested 1994 The first glimpse of the top quark There are many more notable discoveries but in my opinion these are the ones that are remarkable and truly furthered the science of chemistry. Not want this book to come off as completely one-sided your Chemical World then takes you on a tour of the deadly results that can happen. Almost any chemical in unknowing or just wrong hands can be dangerous to body, mind, and earth. As a result massive preventive education has taken place in the workplace to school to the home. Because chemicals do bring down an air of risk, we must decide whether the benefits of the chemicals are worth the risk. Personally I think not, but as the technological advances continue to march on it seems as though that voice has been forgotten or ignored, or there are just to many pro-chemistry activists out there. Anyway, we conduct many risk-benefit decisions everyday it is just those decisions more often then not produce little benefit

or risk so are deemed inconsequential. But when chemicals are in the picture a more accurate analysis if the situation is needed because of their potential power. Because of that there needs to be an accurate portrayal of these potential risks before decisions are made. Once the decision is made, one must decide how to handle the risk side of risk-benefit situations. Hence, many conservation and toxic emission laws that protect not only our lives but our nature as well. Brining back the power behind chemistry, R&D, we are able to develop new ways at cutting these risks and improving the benefits. New products not only cut down on pollution control, but pollution prevention to cut it off at the source. Now that the who, what, when, where and even how have been covered Your Chemical World, tries its hand at divination. A precise picture of what is to come will never happen so we look at the past and present and try to formalize an idea from that. Starting with shelter or our home we might see some startling changes. Houses will be built to custom needs and specifications. There will be no construction sight because the building will take place in a factory and then shipped whole or in pieces to the sight where it can easily be put together much like a puzzle. Biogenetics will sweep the agriculture industry transforming the way we eat. We will be able to engineer larger crops larger cows larger pigs larger and better tasting eliminating not only hunger but also that quest for the perfect taco. Health will became a constant thing eliminating sickness. Death is unstoppable but confortablity while declining can change, theoretically we can still be crazy little sparks until the day we die. Clothes will become smart, (no that does mean they will always look good on you) changing and adapting with temperature changes in the atmosphere. Communication will be done almost solely on the computer. Access to information will be easy to

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get and very fast. Biomechanics could take over silicon for even fast transmission of data. Everything in the house from security to cooking utensils will be done on the computer. Transportation would idealistically be done in an unplugging manner, but at least for some time a hybrid between gas electric seems to be the most reasonable goal. Energy will at least for a while maintain with gas, coal, and nuclear, hopefully we will see the entrance of controlled fusion power by the twenty-first century. With electronic tags on all pollutionable chemicals dumping will become too risky and expensive. In the end Chemistry is an immovable part of our lives and will be for as long as we tap the large resources of mother earth. Your Chemical World is a book talking about the magnificent bonuses that chemistry has brought to our lives. Without it we would have gained nothing and still is in the Stone Age. Although critics sight the byproducts of chemical industries as the evil that keeps our world from healing its terrestrial wounds I must disagree. Chemistry has benefited our lives far too much to be considered an evil just because of the enterprising few that cut corners and dodge laws just to make another buck. Even those critics that stand out and preach against mining and deforestation actively use the products they so hate. Wood is used to make paper, desks, tables, and countless other things. If those critics were suddenly removed of their possessions that contained the materials they are preaching against my bet would be that their opinion would change. I was also interested by the history of Chemistry. Chemistry sounds like a very modern thing. I thought that the most recent it was truly employed was just in the past five or six hundred years but to find out that from the beginning of our time man has been using one form of chemistry or another is quite remarkable. The time it took to discover these things we now use is

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amazing. Any pursuit that is so strong that it can last thousands of years has to be a very powerful goal. Although that pursuit could be accurately described as not only the pursuit of improving the standards of lives but the pursuit of happiness. With all that said I am actually glad that I read this book. Where as usually I am just upset at my professor for assigning the thing, I actually enjoyed reading this book. Because what we are made up is all we are, not having an understanding of that would be completely ignorant. Who goes into battle with out extensive knowledge about not only his enemy but also the battlegrounds it is going to happen in. And because of that, as long as we die of natural causes, our enemy is ourselves and the battleground is the world we live in. Chemistry Kind of makes all that make sense and I am glad that I now have a much better understanding of that.

Your Chemical World A Book Report by Ian love Gary VanGenderen Cem-057, Section 02 April 5, 2000 Your Chemical World In todays world we rely on many different facets to achieve what we normally dont even give a second thought. As I am sitting here typing this paper I am simultaneously using the culmination of numerous chemical breakthroughs. The American Chemical Society (ACS) is a group of over 150, 000 chemists, both academic and industrial. Your Chemical World, a book that the ACS has published, is a biography of sorts, where in the uses and need for a chemical world are shown in an easy-to-understand way. Although chemistry would seem to be just a recently invented and used scientific field, chemistry has been an integral part of our lives for a long time. Our early ancestors, unable to even write, figured out that certain substances could be used for painting, hence the archaic cave paintings found in Southern Europe. Today we use chemistry to build our houses, to drive to work everyday, even toasting your

toast in the morning. Because chemistry is our link to the hidden world of the earth's terrestrial fruits like Silicon or Iron our hands will be forever bound to chemistry. The book starts off with our beginning and the unlikely usage of chemistry in pre-historic times. Our ancestors were more than likely concerned primarily with staying alive. Certain things are needed to do that, like food, shelter, energy, and drink. Once those needs were met our Neanderthal brethren made some archaically beautiful cave paintings. In doing so they applied chemistry in a whole new way, to benefit their lives. In time chemistry became an integral part of society, today we have used it to stretch our lives out by more than forty percent of what it would have been in the start of the century by the use of medicine. Later on in recordable history chemistry was implemented through rusty trial and error methods which allowed many things to be created such as Bronze in 3600 BC or glass in 2500 BC. But it wasn't until the age of Greek philosophers that the question of these materials' components, or made them exist. After many theories by many different people a man named Leucippus came up with the idea that all things were made up of indivisible, small particles. Although we now know that that was the correct theory the age of alchemy started and didn't slow down until after medieval times. The next remarkable step was taken by Robert Boyle a British chemist who defined and coined the term elements as pure substance, which resists all ordinary attempts at decomposition. His assistant Robert Hooke also made some profound movements; he invented the first compound microscope. Using it he also was able to look at and theorize the idea of cells. Although Boyle did define elements the credit of being the father of chemistry is given to Dmitri Mendeleev, who not only formulated the periodic law but also created the

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Approximately two-thirds of this mammoth industry are those that refine produce or manufacture petrochemicals in some way. Petrochemicals are used to produce eight different hydrocarbons, which are then used to create an amazing amount of organic compounds from plastics to pharmaceuticals. There are also a lot of production plants that use inorganic chemicals to produce an equally large amount of materials. After these production plant a much larger network of plants know as chemical process industries. They use the products made by the chemical industry to manufacture the goods we use everyday. These two industries are combined to account for a third of the national domestic gross product. Two of the largest producers of these chemicals and products are E. I. du Pont de Nemours & Co. or du Pont and Dow chemical Co. In just one year these two chemical behemoths made thirty-seven billion and eighteen billion dollars respectively. Over the course of about 150 years the chemical industry grew to quite remarkable proportions.

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