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The role of chemistry in improving the environment around us

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DESCRIPTION

The Earth is made up of many tiny substances and particles that participate in reactions that lead to the formation of new particles. Therefore, the earth is thought to be a closed system and the energy to and from the planet, most of its mass remains here. This means that all the elements on this planet are continuously recycled in the environment. The field of chemistry concerned with the study of the reactions, origin, transport, influence, and fate of all chemical species present in the soil, water, and air environments, as well as their effects of technology for these things.

The environmental chemistry is a scientific research on biochemical and chemical phenomena that occurs in natural locations. The environment chemistry of the environment is a more research than air, water, soil and chemicals. This field uses biological, math, genetic, technical, hydrology, toxicology will help find an answer to all environmental issues. Environmental chemistry also contains aspects of chemistry analysis, physical chemistry, organic chemistry and inorganic chemistry as well as more diverse areas, such as epidemiology, public health, biochemistry, biology and toxicity. Environmental chemists are tasked with discovering how unpolluted environments work and finding sustainable development methods that don't harm the environment.

Air is a mixture of gases and particles, some of which react and undergo complex chemical reactions in the atmosphere to form air pollutants such as ozone. Other air pollutants are emitted directly, such as sulfur dioxide. Air pollutants can be solid, liquid or gaseous and come from natural and man-made sources; the main contributors to air pollution today are power plants, road traffic, industry and civil fuel burning.

Risk of Hazard Assessment of Environmental Effect

The danger of chemical substances is decided *via* way of means of protection of surroundings. Therefore, A device for the evaluation of substance in surroundings consists of

- Exposure modelling
- Risk evaluation base on substance associated homes
- Comparative effect evaluation
- QSAR (exceptional device evaluation reorganization) device for the estimation of substance, homes and effect
- Expert opinion/ recommendation/ trying out for environmentally pleasant product design

Environmental chemistry thoroughly studies the risk factors of all chemicals to get solutions for the sake of environmental safety. It is applied to study new products and their effects on the environment. Environmental chemistry is used in the method of protecting groundwater from contamination by soil, dust, and waste particles. It is useful for the protection of surface water against sedimentation, microbial and radioactive contaminants. Soil quality is protected by environmental chemical methods such as the use of chemical indicators and Eco toxicants. Impermeable surfaces inside cities such as parking lots, roofs and roads are susceptible to the accumulation of undesirable pollutants such as engine oil, gasoline, nutrients and sediments (soil), carbon compounds, hydrocarbons, metals. Environmental chemistry is applied in waste management and cleaner production.

Sustainability is becoming increasingly important in almost every industry, and chemistry is no exception. Green chemistry aims to reduce the environmental impact of the chemical industry. This includes switching from petroleum to renewable sources whenever possible. Green chemistry also prioritizes safety, improves energy efficiency, and most importantly, reduces (and ideally) eliminates hazardous waste in the first place. Important examples of green chemistry include: phasing out the use of chlorofluorocarbons (CFCs) in refrigerants, which play a role in creating the ozone hole; develop more efficient

ways to manufacture drugs, including ibuprofen, a well-known painkiller, and the chemotherapy drug Taxol; and develop cheaper and more efficient solar cells.

This is different from pollution clean-up (also called remediation), which involves treating waste streams (end of pipeline treatment) or cleaning up environmental spills and other wastes. Contamination disposal may include separating hazardous chemicals from other materials and then disposing of them so that they are no longer hazardous, or concentrating them for safe disposal. Most of the treatment operations do not use green chemicals. Sanitation removes hazardous materials from the environment; on the other hand, green chemistry prevents harmful materials from leaving the environment in the first place.

If a technology that reduces or eliminates hazardous chemicals is used to clean up the environmental contaminants, that technology will be considered as green chemistry. An example replaces a dangerous absorbent [chemistry] used to capture airmanship to removes safely with an effective absorber, but without attractive substances. The use of non-smoking absorbers means dangerous absorbers that are never produced and remedy technology meet green chemistry definitions.

Addressing air pollution requires a combination of approaches, including regulation, land-use planning, technological solutions (such as vehicle engine design), and consumer behaviour use. Chemistry plays a role in the development of technological solutions. Chemists help reduce transportation emissions in a variety of ways, from developing cleaner fuels (such as low-sulfur fuels) to increasing engine efficiency. Chemists are also working to enable new transport technologies – for example, batteries for electric vehicles and fuel cells for cars that run on hydrogen, as well as systems for producing fuel from renewable energy sources generated rather than from fossil fuels.