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Студ. С. И. Гарченко

Науч. рук. преп. А. В. Шавель (кафедра межкультурных коммуникаций
и технического перевода, БГТУ)

CHEMISTRY IN EVERY DAY LIFE

Chemistry is a big part of our everyday life. We find chemistry in the food we eat, the air we breathe, in different cleaning chemicals, in literally everything we can see, touch or just feel. Some common chemical processes may be obvious, but there are aspects that may be quite surprising.

1. Our body. Six chemical elements make up 99% of the human body: oxygen, carbon, hydrogen, nitrogen, calcium and phosphorus. These elements form the key types of molecules in the body: carbohydrates, lipids, nucleic acids and proteins. These molecules form all cells and carry out most of the chemical processes needed for our life.

2. Health Care and Beauty. The diagnostic tests carried out in laboratories, the prognostic estimations, pills, the antibiotics play a vital role in health monitoring. From birth control to an increase in life expectancy – all have been made possible using chemistry. Aging is also a change that can only be checked chemically. Most beauty products are produced through chemical synthesis to clean, nurture and protect skins. However, certain ingredients may be hazardous to our health in the long run.

3. The chemistry of love. Chemistry is at the bottom of every step in a relationship, and this field is under continuous research. When you fall in love, your brain suffers some changes, and also certain chemical compounds are released. Researches usually consider three stages of love: lust, attraction and attachment.

1) Lust. Lust is driven by initial physical attraction and flirting. Two main chemicals that surface during this stage are hormones (testosterone and estrogen) and pheromones. Pheromones are individual scent "prints" found in urine or sweat that dictate sexual behavior and attract the opposite sex.

2) Falling in love – Attraction. When a person falls in love he or she may have many physical symptoms: a loss of appetite, sleep and concentration, palms tend to sweat, there is a feel of so called butterflies in the stomach. Such changes happen due to surging brain chemicals called monoamines: dopamine, phenylethylamine, serotonin, norepinephrine.

3) Attachment – Staying together. This kind of love is driven by these hormones: oxytocin, vasopressin, endorphins. High levels of oxyto-

cin and vasopressin may interfere with dopamine and norepinephrine pathways, which may explain why with the time attachment grows while mad passionate love fades.

4) Medicine. It is necessary to understand basic chemistry so that we can understand how vitamins, supplements and drugs can help or harm us. A certain part of the importance of chemistry lies in the process of developing and testing new medical treatments and medicines.

5) Cleaning. Chemistry explains how cleaning works. We use chemistry to help decide what cleaner is better for dishes, laundry and our home. Detergents contain active surfactants or a so-called surface active material. Surfactants are able to reduce the tension of the water surface so that water can mix with oil or fat, that is why we wash our clothes with detergent – chemicals allow a detergent to remove dirt in a liquid or solid form. Similarly, a shampoo detergent ingredient has the ability to reduce the water surface tension, thoroughly saturating and cleaning our hair.

6) Clothing. Textiles and fibers used in the process of clothes making sometimes are finished by chemical processes. Finishing agents are used to strengthen fabrics and make them wrinkle free.

7) Fragrances. A fragrance is ultimately an aromatic chemical compound that has a smell. These particular compounds are prone to vaporize, so a fragrance is often kept in a bottle with a narrow neck.

8) Insecticides. An example of insecticides – active substances used in houses and gardens – are permethrin and tetramethrin. These synthetic chemicals work through attacking the nervous system of insects.

9) Paints. There are many varieties of paint specifically made for certain materials: wood paint, iron paint, wall paint and car paint. Paints are a mixture of ingredients – binders, pigmentation, additives and a solvent or carrier – that originate from fossil, mineral, biological and synthetic sources.

Chemicals and the overall study of them represent an integral part of our life. Hence, chemistry is inevitable from anything a person does. It helps understand the composition, structure, and changes of matter. Taking into account all the above-mentioned examples, it may be inferred that the knowledge of chemistry and understanding of its application may help in the process of making many decisions in our daily lives.