

# Chemistry

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Name: Course: Instructor: Date: Chemistry Discuss soaps and detergents (how they are made, how they work, advantages and disadvantages of each. Soaps and detergents have a common ground in that they are both used for cleaning purposes in both domestic and non-domestic settings. Soaps are defined as water-soluble compounds of sodium or potassium salts, which are part of fatty acids. Soaps are essentially derived from the treatment of animal or vegetable fats with strong alkaline solutions.

Fats and oils used usually have chemical compounds known as triglycerides, which are essentially compounds, made up of three molecules of fat attached to a single molecule of glycerol. An alkaline solution used in the soap making process is known as the lye and plays a significant role in the reaction, which is known as the saponification reaction or process. Soaps are preferred over detergents because they are considered as effective cleaning agents specifically in soft water. On the other hand, soap is not a widely used modern cleaning agent because of its low versatility. This is brought about by the presence of new fabrics, washing temperatures and water conditions (Kanegsberg, & Edward, pp. 21).

A detergent on the other hand is defined as a surfactant, which is mixed in dilute solutions. Detergents are usually considered as alkylbenzenesulfonates. This family of chemicals is identical to soaps but has a higher solubility in hard water.

This is because detergents have what is described as the polar sulfonate, which has ability to bind with the chemicals in hard water such as the predominant calcium among other ions in the hard water. This is in

comparison to the polar carboxyl, which is found in soaps. Polar carboxyls are unable to react with the calcium and other ions in the hard water. Hence, detergents are preferred over soaps because of their ability to dissolve in hard water (Kanegsberg, & Edward, pp. 29). List two pain relievers and compare how they work, what they do, and why one might be preferred to another. Pain relievers are defined as part of the medicine family usable for reduction of pain by not treatment of the cause of pain.

However, the different pain relievers have differences in terms of their composition and level of effectiveness. There are two types of pain relievers, over the counter medications and prescription drugs. Over the counter (OTC) drugs usually consist of Acetaminophen (Tylenol, Aspirin Free Excedrin), Non-steroidal anti-inflammatory drugs (NSAIDs; aspirin, Motrin, and Aleve) and Topical Corticosteroids (Cortaid and Cortizone).

The identified drugs usually reduce fever and pains brought about by the muscle aches and stiffness. Prescription medicine usually consists of Corticosteroids, Opioids, Antidepressants and Anticonvulsants (antiseizure medications). They usually provide relief for inflammations, itches and swellings some of which are brought about by allergic reactions (Magill, 27). NSAIDs usually reduce fever and relieve the pain brought about by muscle aches and stiffness. NSAIDs usually act by reduction of the production of chemicals such as prostaglandins, which are usually hormone like substances that cause pain. NSAIDs could also be used for reduction of pain brought about by swelling and irritation brought about by inflammation.

NSAIDs are also addictive because of their ease in terms of acquisition by a patient.

Corticosteroids prescribed by medical professionals usually aid in relief of reactions brought about by allergies. Such pain is usually evidenced by the presence of swelling, redness and persistent itching. However, they usually have side effects such as weight increase, headaches, mood swings and trouble sleeping. Corticosteroids are usually prescribed for shorter periods because of their addictive nature and potential side effects. Hence, they are limited to pain relief and reduction of discomfort (Magill, 34).

Select one vitamin and one mineral and describe whether you think they should be added as a supplement to your diet. Vitamins play a significant role in enhancing the body metabolism and reduction of the potency to acquire diseases and infections. Vitamin C also known as L-ascorbic acid is vital in the animal kingdom in that it provides the much-needed nutritional value for healthy metabolism and development of the body. Vitamin C plays a significant role in at least eight known enzymatic body reactions.

This role assumed by the vitamin C is vital in prevention of scurvy, in that lack of the vitamin has potency to result in dysfunctional metabolic reactions (Blake, pp. 13). Vitamin C is essential in that it acts as an antioxidant and aims at reduction of oxidative stress in the human body. It also plays a significant role in increased immunity as it is readily absorbed in the human body and with specific reference in the white blood cells. It is claimed to aid in the production of phagocytes, the production of cytokines and lymphocytes, which are vital in fighting infections (Blake, pp. 23).

Vitamin A on the other hand is a necessity in the animal kingdom or body. This is because it provides humans and other animals with the needed nutritional value for proper retinal functions. Hence, it provides the human body with a needed metabolite, which is used in low light, and color vision functions of the retina and the entire visual capability of the human eye. Vitamin A in animals other than humans exists as an ether, specifically retinyl palmitate. It is an essential vitamin in the body in that it enhances visual ability such as sight in low light environment and increased color cognition (Blake, pp.

33). The three major chemical food groups are carbohydrates, proteins and fats. Discuss the importance of each one. What problems can occur from either too much or too little of each food group? Carbohydrates are considered as the most abundant naturally occurring organics compounds. They are usually made up of carbon, hydrogen and oxygen molecules. Carbohydrate is not an essential nutrient in the human body. However, it is considered as the largest source of energy for the body.

Excessive consumption of carbohydrates usually results in unwanted effects such as weight gain, high levels of insulin in the body, which could lead to health issues and complications. Proteins on the other hand, are considered as essential nutrients, which assume the form of chains of amino acids ((Taylor-Butler, 19). They usually perform an array of functions such as replication of DNA, catalysts in metabolic reactions, transport of molecules and stimuli response.

Proteins could also be converted into glucose to provide the much-needed energy in the body for execution of body functions such as movement. Excessive consumption of protein has the potency to result in stress on the body because of increase in very accrued from the large intake in protein on the other hand; little consumption of proteins usually results in lower body mass and metabolic abilities such as response to stimuli, movement of nutrients in the body, and catalyzing reactions (Taylor-Butler, 21). Fats on the other hand, are described as groups of compounds, which are soluble in organics solutions and are insoluble in water.

Fats in the human body are in the form of lipids, which assume vital structural, synthetic and metabolic functions in the human body. Fats play a role in transportation of vitamins such as Vitamins A, D, E, and K, which are essentially fat-soluble. They also play a significant role in maintaining healthy hair and skin through provision of the body with insulation from shock. In addition, fats also provide the body with the regulation of temperature and subsequently promoting or increasing cellular function in the body. Large intake of fats usually has a detrimental effect on weight and subsequently affecting the health of an individual. This usually brings about complications such as diabetes and heart problems (Taylor-Butler, 37).

Work Cited Blake, Steve. *Vitamins and Minerals Demystified*. New York: McGraw-Hill, 2008.

Print. Kanegsberg, Barbara, & Edward Kanegsberg. *Handbook for Critical Cleaning*. Boca Raton, FL: CRC Press, 2011. Print. Magill, Elizabeth.

Drug Information for Teens: Health Tips About the Physical and Mental Effects of Substance Abuse Including Information About Alcohol, Tobacco, Marijuana, Prescription and Over-the-Counter Drugs, Club Drugs, Hallucinogens, Stimulants, Opiates, Steroids, and More. Detroit: Omnigraphics, 2011. Print.

Taylor-Butler, Christine. The Food Pyramid. New York, NY: Children's Press, 2008. Print.