



## PHYSICO-CHEMICAL PROPERTIES OF SOAPS

Ibragimov Lochinbek Abdurakhmonovich

Assistant, Department of Food Technology,

Fergana Polytechnic Institute, Fergana, Republic of Uzbekistan

E-mail: ibragimovlochinbek007@gmail.com

### Abstract:

This article provides information on the Physico-chemical properties of soaps, types of soap based on consistency, and types based on the purpose of use. The chemical formulas of soaps are also mentioned.

**Keywords:** Soap, oil, laundry soap, perfume soap, oleic acid, naphthyl acids, sodium hydroxide, Potassium hydroxide.

Soap is obtained by treating neutral fats with caustic alkalis or by neutralizing fatty acids with caustic alkalis or alkaline carbonates. According to the consistency of soap, it is hard, oily, liquid and powdery; depending on the purpose of use, it is divided into laundry soap, perfume soap and technical soap; according to the method of preparation, it is divided into glue and core soap. Natural and hydrogenated vegetable oils, animal oils, synthetic fatty acids, oil refining waste, and rosin are used as raw materials for soap making. Neutral and decomposed oils are used for soap making. From a scientific point of view, this product is the result of the alkaline hydrolysis of fats or oils [1-4]. The first distribution of soaps and oils is attributed to the French chemist Michel Chevreul, who devoted almost all of his life to the study of higher carboxylic acids. Therefore, Michel Chevreul belongs to the foundations of the theoretical explanation of the composition of oils and, consequently, soap. Chevreul forms triglycerides, esters of acids, if glycerol, a trihydric alcohol containing three hydroxide groups, reacts with an acid whose general formula is R-COOH. They will be fat. If the reaction is carried out in an alkaline environment, the resulting product reacts with NaOH (KOH) to form soap [5-9]. These theoretical conclusions later strengthened Berthelot's experiments in the laboratory. Usually, the composition of various soaps includes the following parts:



Water;

Oleic acid;

Naphthyl acids;

Stearic;

Palmitic;

Rosin;

Sodium hydroxide or potassium hydroxide.

Therefore, the chemical formula of soap is conventionally written as follows:

R-COOME

If we talk about a typical household product used for washing clothes, the soap formula would look like this: C<sub>17</sub>H<sub>35</sub>-COONa.

It includes the following:

Stearic acid;

Caustic soda;

Rosin;

Water;

Sometimes it uses coconut oil.

In different countries, the production of this type of product is carried out in different ways, so often the results differ in terms of structure, color and washing quality. So the soap formula is self-explanatory. Chemistry gives the following definitions to this product: These are salts of higher carboxylic acids containing alkali or alkaline-earth metals. At the same time, it should be noted that the general condition of the products, transparency, smell and other organoleptic parameters differed greatly. Everything depends on the chemical composition and production method.

Large-scale production of soap is carried out in special soap factories. There, according to pre-planned and defined technologies and designs, solid and liquid copies of the product are produced in large quantities. The main technological chains are:

Neutralization reaction between caustic soda and fat hydrolysis products (carboxylic acids);

Caustic soda or interaction with caustic soda;

Alkyl hydrolysis of triglycerides.

In short, soap is widely used as an agricultural product. According to its physical and chemical properties, we can get different soaps.



## REFERENCES

1. H.N.Musaev "Anorganik va organik kimyo" Toshkent, 2012
2. H.M.Shohidoyatov, H.O'.Xojaniyazov h.b "Kimyo" Toshkent, 2012
3. T.Xudoyshukurov, B.Atoyev, M.R.Muxtorova. (1981). Ilmiy-nazariy asoslar. Umumiy ovqatlanish korxonalarida mahsulot ishlab chiqarish texnologiyalari. MKI, 224.
4. Martyn D. Wheeler, Styuart M. Nyuman, Endryu J. OrrEwing va Maykl N. R. Ashfold. (1998). Bo'shliq halqasini pastga tushirish spektroskopiyasi. J. Chem. Soc. Faraday Trans., 94(3), 337-351.
5. Усманов, Б. С., Кодиров, З. З., & Ибрагимов, Л. А. (2021). Способы использования высокочастотных лучей при длительном хранении сырья для производства растительных масел. *Universum: технические науки*, (5-3 (86)), 93-96.
6. Кодиров, З. З., & Ибрагимов, Л. А. (2021). Исследование технологий экстракции растительного масла из гранулированного сафлорного семени. *Universum: технические науки*, (10-3 (91)), 13-15.
7. Саттарова, Б. Н., & Ибрагимов, Л. А. (2021). Химический состав и свойства куриного мяса. *Universum: технические науки*, (4-4), 36-37.
8. Ibragimov, L. (2022, February). Quality of milk and dairy products. In *Archive of Conferences* (pp. 82-84).
9. Хошимов, И. Н., Худойбердиева, Ш. Д., & Ибрагимов, Л. А. (2021). Значения растений сои, мощ, арахиса. *Oriental renaissance: Innovative, educational, natural and social sciences*, 1(8), 597-604.
10. Ibragimov, L., & Ibragimova, S. S. (2022). Don va don mahsulotlari. *Miasto Przyszłości*, 24, 224-225.
11. Abdurahmonovich, I. L. (2022). Study of the influence of the use of various catalysts in the hydrogenation of safflower oil on the composition of fodder and technical fat. *Innovative Technologica: Methodical Research Journal*, 3(05), 54-63.