

### Results of the Study and Analysis of the Application of E-466 As a Stabilizer in Various Industries and as a Plasifier in Many Industries of the National Farming Economy

*M.M. Murodov<sup>1</sup>, Kh.A. Nasullaev<sup>2</sup>, Kh.D. Ismatov<sup>3</sup>,  
R.D. Asadova<sup>4</sup>, I.S. Abdurakhmonova<sup>5</sup>, J.J. Rakhmanov<sup>6</sup>, S.Sh. Turabdjonova<sup>7</sup>*

*<sup>1-6</sup>Tashkent Innovative Chemical Technology Scientific Research Institute;*

*<sup>7</sup>Tashkent Chemical-Technological Institute*

*E-mail: tiktitim@gmail.com*

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#### ABSTRACT

*The use of the innovative product E-466 as a consistency regulator in the production of desserts is 1-3g/kg, in ice-cream and jellies 2-8g/kg, and in the shell of meat, fish, confectionery, and nuts 5-20g/kg. These designations are related to the water permeability of the innovative product. E-466 can bind water from 1 part to 120-140 parts. The use of this additive is especially important in the processing of meat and fish..*

#### Introduction

Carboxymethylcellulose does not decompose completely under the influence of bright light, does not dissolve in vegetable and animal fats.

It is known that carboxymethylcellulose (food additive E-466) causes indigestion if the technical process is not followed (for example, when the dose is exceeded). There are no official scientific data on its toxicity when used in the cosmetics industry. In some animal studies, there is unconfirmed evidence that carboxymethylcellulose can increase cholesterol levels and cause tumors and cancer. Food additive E-466 is used as consistency stabilizer, thickener, encapsulating agent. The main property of carboxymethylcellulose is the ability to form a very viscous colloidal solution that does not lose its properties for a long time. As a thickener in the production of ice cream, cottage cheese mass, mayonnaise; as a consistency regulator in sweets,

jellies, creams and pastes; used in shells for fish, meat, confectionery products.

**Analytical steps of using E-466 as a stabilizer in different industrial sectors**

Stabilizers are mainly designed for filtration and viscosity reduction of drilling fluid. These are organic compounds that have high hydrophilicity and high-water solubility. Cellulose-based stabilizers are known reagent-stabilizers based on reagents (carboxymethylcellulose, carbaminol, carbofen), liginosulfonates, lignin, polyphenols, acrylic polymers, biopolymers, sodium and potassium salts of humic acids, starch (technical starch, modified starch). It is known that carmoxymethylcellulose (SMS) with any degree of polymerization retains its protective properties at a temperature of 130-1600C.

It is known from the literature that the physicochemical properties of SMS (E-466) vary depending on its chain length and degree of substitution. It is soluble in water and alkalis, moderately soluble in acids, and in glycerol. It does not dissolve in organic solvents. A laxative effect can be observed from its dose of 5g. DSP (permissible daily consumption) for hygienic standards SMS (E-466) is not limited. Hazards according to GN-98: PDK (Permissible concentration) in the air of the workplace is 10 mg/m3, hazard class 3, approved as stability regulator in SMS (E-466) 8 food standard:

- canned sardines up to 20 g/kg;
- canned mackerel up to 2.5 g/kg;
- meat products up to 15 g/kg;
- mayonnaise up to 1 g/kg;
- certain types of margarine up to 10 g/kg;
- processed cheeses up to 5 g/kg;
- flavored yogurt and others up to 5 g/kg;
- soups-broth up to 4 g/kg;

CMC (E-466) is pasteurized cream and other food products as consistency stabilizer, thickener, texturizer, binder, which belongs to the sieve control of TI (Technological instruction of the product), it is used according to the requirements of TI (Hygienic requirements for the use of food additives, paragraphs 3.1.8, 3.6.58, 3.16.53 SanPiN 2.3.2.1293-03), it is used according to the requirements.

"The use of the innovative product E-466 as consistency regulators in the production of sweets is 1-3g/kg, in ice-cream and jellies 2-8g/kg, and in shells for meat, fish, confectionery, nuts 5-20g/kg of E-466 designations are related to the water permeability of the innovative product. E-466 can bind water from 1 part to 120-140 parts. The use of this additive is especially important in the processing of meat and fish.

In the table below, taking into account the above, as a result of the research, the composition-recipe of the E-466 product synthesized from local raw materials, which can be used in various sectors of the national economy, was developed and recommended.

**The composition of the E-466 product, synthesized from local raw materials, can be used in various sectors of the national economy - a recipe.**

**Table-1**

No	Industry networks	Available content, g/kg	Suggested composition, g/kg	E-466 brand	TS 22235949-003: 2015
1	Mayonnaises	20	18	70/600-0	3,9
2	Meat products	15	12		

				85/700-C-O	78
3	Flavored yogurt and others	5	4,8	85/700-C-O	82
4	Soups-broth	4	3,7	70/600-0	99,0
5	Processed cheeses	5	5,4	70/600-0	3,9
6	Certain types of margarine	10	11,2	70/600-0	78

**Research on the use of E-466 as a plasticizer in many sectors of the national economy:** Plasticizers are substances that are added to polymeric materials to give (or increase) elasticity or plasticity during processing and use. Plasticizers facilitate the dispersion of ingredients, reduce the processing temperature of compositions, improve the cold resistance of polymers, but sometimes worsen their heat resistance. Some plasticizers can increase resistance to fire, light, and heat.

CMC is used as a thickening agent for emulsion paints, acts as a plasticizer, and delays the setting time as an auxiliary agent for powder paints, leveling compounds, cement mortars. It is also used in the production of adhesives for wallpaper.

CMC (E-466) is used as a plasticizer, thickener, and absorbent in the food industry, mainly as a viscosity changer or thickener, and as an emulsion stabilizer in various products, such as toothpaste, diet pills, water-based paints, detergents, and various paper products - widely used as a component of food products. In addition, CMC (E-466) is widely used in medicine, cosmetology, and chemical industry. There is no information about the harmful effects of this substance on the body, and therefore it is considered safe.

As a conclusion to this chapter, it can be noted that the research and analysis of the use of the innovative technology product E-466 as a stabilizer in the pharmaceutical industry and as a plasticizer in many sectors of the national economy was carried out based on the research results. In particular, the analytical stages of using E-466 as a stabilizer in various branches of industry were studied.

The use of the innovative product E-466 as a consistency regulator in the production of desserts is 1-3g/kg, in ice-cream and jellies 2-8g/kg, and in shells for meat, fish, confectionery, nuts 5-20g/kg. These designations are related to the water permeability of the innovative product. E-466 can bind water from 1 part to 120-140 parts. The use of this additive is especially important in the processing of meat and fish.

In the following table, taking into account the above, as a result of research, the composition-recipe of the E-466 product synthesized from local raw materials, which can be used in various sectors of the national economy, was developed and recommended. In addition, recommendations were made based on the results of studies on the use of E-466 as a plasticizer in many sectors of the national economy.

CMC (E-466) is used as a plasticizer, thickener, and absorbent in the food industry, mainly as a viscosity changer or thickener, and as an emulsion stabilizer in various products, such as toothpaste, diet pills, water-based paints, detergents, and various paper products. - widely used as a component of food products. In addition to these, CMC (E-466) is widely used in medicine, cosmetology, and the chemical industry. There is no information about the harmful effects of this substance on the body, and therefore it is considered safe.

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