are expensive, then enterprises that are superior at managing total recycling processes with customers will be able to beat the costs of competitors using throwaway methods. The system encourages maximum service competition with a minimum of Big Brother regulation. Real competition to improve the processes depends on open-system information.

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HYDROGELS IN THE CHEMICAL, PHARMACEUTICAL AND FOOD INDUSTRIES

Hydrogels are a system consisting of a polymer and water. It should be noted, that polymers have a long chain, which certainly gives them properties to form gels when dispersed in water. Depending on the available number of hydroxyl groups (-OH), which are also included in the composition of carboxyl groups (-COOH), hydrophilicity increases significantly, turning polymers into hydrocolloids.

It follows from the above that hydrogels in food products are able to change the consistency. This statement affects a number of key rheological properties, for instance, fluidity (viscosity) and texture. It cannot be denied that modifying of the texture and/or viscosity of a food system changes its sensory properties. In addition, such hydrocolloids as polysaccharides and proteins belong to the category of permitted food additives in many countries of the world. Scientists emphasize that in order to achieve the desired consistency and taste hydrogels are used in such dishes as cream soups, pureed soups, sauces, salad dressings, pastas, fillings use. Besides, hydrogels are also used in such food products as jellies, galyaret, jams,

ice creams, confitures, jelly-like desserts, candies, decorative semi-finished products for confectionery.

Consequently, hydrocolloids in food systems have a wide range of functional properties: thickening, gelling, emulsifying, stabilizing and controlling the growth of ice and sugar crystals. It follows that the degree of thickening depends on the type and nature of hydrocolloids. Eventually some of them give a low viscosity at a fairly high concentration, although most of them give a high viscosity at a concentration below 1% [1].

To date, the positive aspect of the development of the most advanced therapeutic agents are the properties of natural polymers ensure the effectiveness of drug doses over a long period of time.

In addition, the advantage of developing the prescription composition of systems based on hydrogels also lies in the controlled rate of release of medicinal substances, which undoubtedly improves the process of drug delivery to target organs.

It follows that such delivery systems can be classified as reservoir and matrix. Admittedly, hydrogels are non-reactive polymer matrices that provide controlled delivery of active substances [2, p. 1016].

To sum up, hydrogels are often used for clinical purposes. In particular, regenerative medicine and tissue engineering, for diagnostics, immobilization of cells and tissues, optimization of biological adhesion. However, it is worth noting that hydrogels are more and more actively used in food, production of food dietary supplements, cosmetic products, nutricosmetics.

What is more, natural hydrogels are biocompatible in most observations, which is an important aspect for humans.

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