

Application of Edible CMC in Pastry Food

1. Applications in Noodle Processing

(1) As a thickener and binder, CMC is added into the wheat flour because CMC also has strong dispersion and water retention characteristics. Furthermore, the aqueous solution of CMC is a network structure shaped colloid and its adhesive force is particularly strong, so the addition of CMC into the blank of instant noodles can shorten the kneading and mixing time, be easy to operate and shape, increase the toughness and strength of noodles, reduce the discount, thereby improving grade product rate.

(2) The aqueous solution of CMC is different from that of the general natural colloids. After addition, it enables to make the internal organization of noodles uniform and stable, the surface smooth, and the taste smooth and chewy. In addition, saving oil and prolonging the shelf life of fried instant noodles play very key indicators in the production of instant noodles, and the oil content in the fried instant noodles is generally 20% -25%.

During making the noodle blank in the production of fried instant noodles, after adding CMC, the structure and chewiness of noodles have been improved and the water content of dough has been increased. In addition, the CMC solution has hydrophilic and oleophobic properties, and can form a layer of thin film on the surface of the noodles, so can effectively reduce the oil content of noodles, and make the instant noodles enhance the toughness, hold the length, not easy to be broken, and easy to shape.

(3) CMC has thickening, bonding, strong adhesion and water retention characteristics. Furthermore, the aqueous solution of CMC is a network structure shaped colloid and its adhesive force is particularly strong, so the addition of CMC into the blank of instant noodles can shorten the kneading and mixing time, be easy to operate and shape, increase the toughness and strength of noodles, reduce the discount, thereby improving grade product rate. The aqueous solution of CMC is different from that of the general natural colloids.

After addition, it enables to make the internal organization of noodles uniform and stable, and the surface smooth. After soaked in 80°C water for 3-5min, the noodles have been soft, and the taste is smooth as well as chewy. After soaked in 100°C water for 5min, the noodles will not be pasty and the taste is still so. Therefore, the instant noodles with the addition of CMC will be neither "steel wire noodles" nor "pasty noodles". Saving oil and prolonging the shelf life of fried instant noodles play very key indicators in the production of instant noodles. If adding CMC in the production of noodle blank of fried instant noodles, it can not only improve the structure and chewiness of noodles, but also increase the water content of dough. In addition, the CMC solution has hydrophilic and oleophobic properties, and can form a layer of thin film on the surface of the noodles, so can effectively reduce the oil content of noodles.



2. Applications in Bread Processing

Applied in bread, CMC has emulsifying function, can be complexed with starch in dough, thus improving the internal organization of bread, enhancing dough processing machinery and water absorption properties, making the honeycomb of baked bread uniform, the volume increased and the surface bright, can also prevent the gelatinized starch in bread from aging retrogradation and extend the shelf life of bread. Since CMC is a cellulose derivative of a high molecular weight, and there are a large number of hydrophilic groups in the molecular chain, CMC has very good hydrophilicity and rehydration.

When baking bread, CMC is relatively stable to high temperatures. Maintaining constant temperatures in baking bread can prevent bread from getting dry, thereby keeping bread with a certain appearance and shape of bread. In addition, CMC is also widely used in frozen pastry, like dumplings, steamed buns, wonton skins, etc. They can still maintain the original state after freezing repeated for several times. Applied in pastry food, high viscosity models should be selected; the viscosity should be 800-1200mpa.s and the addition amount 0.5%. After adding CMC into biscuits and pancakes, it can improve the silty organization of wheat flour, adjust the flour chewiness, make biscuits and pancakes formed in good shape, the cake body smooth and bright, reduce breakage rate, and make biscuits and pancakes crisp and delicious, so it is also an ideal additive for the two kinds of food. The addition amount is 0.1%-0.3%.