BONE GLUE PRODUCTION TECHNOLOGY

Otamurodov Jurabek Otaniyozovich
Bukhara Institute of Engineering and Technology
E-mail: jurabek_i_@mail.ru

Abstract
This article discusses the technology for the production of bone glue in a production environment. Bone glue is also called animal glue or gluten glue, made from the skins, bones, tendons and ligaments of animals.

Keywords: bone glue, skin glue, lock, meal, skin, gelatin, nitrogenous waste

The glue is an organic colloidal substance with a strong binding ability, as a result of which it is used to connect the surfaces of various bodies to each other. The physical and chemical properties, as well as the appearance of the glue, are very different. It is usually obtained by boiling various and appropriately prepared materials of animal origin with water.
Glue of the most diverse shapes and colors is found on the market. These signs usually serve, although incorrectly, as a yardstick for assessing the quality of glue. Glue can be white, yellow, brown and black.
In recent years, various varieties of adhesives of animal origin have become widespread in the world. Depending on the kind of glue giving the material from which the glue is made, there are three varieties of animal glue:
Scrapings glue obtained from scraps of hides, leather production waste.
Bone glue - from animal bones.
Fish glue - from the swim bladder of fish, scales and fish bones.
All three types of glue differ both in their properties and in technological methods of manufacture.
The technology of bone glue production follows the following technological scheme:
-sorting and crushing of bones;
-soak the meal in water;
-de-gluing of meal;
-cleaning of glue broth;
-concentration of glue broth;
-preservation of evaporated glue;
-gelatinization and forming of biscuits;
-drying galerta;
-drying and grinding of de-glued bone.

The bone is sorted by anatomical types. Soft raw materials are sorted according to the degree of freshness, preservation methods and other characteristics. When sorting, impurities should be carefully selected. It is not allowed to mix raw and boiled bone. Only bone coming from meat processing plants can be sent to production without pre-cleaning. The selection of impurities during sorting is of particular importance for further production processes.

The selection of impurities during sorting is of particular importance for further production processes. The speed of the degreasing and de-gluing processes depends on the degree of bone crushing. When processing crushed bone, the capacity of the devices is better used. The preparation of raw materials consists in sorting and grinding it. When using bone as a raw material, the preparation of raw materials includes degreasing and polishing the bone.

The following requirements are imposed on soft raw materials: there should not be a large number of cuts of meat, fat, blood, dirt on it.

They accept raw materials in strict accordance with the current standard and contracts concluded with suppliers. Raw materials should be stored in appropriate conditions.

The bone is stored in separate, well-tested storage rooms or under a canopy with asphalt, concrete or other waterproof floors.

After pretreatment, the bone is soaked. Bone meal is soaked in special bunkers or wooden vats. This process is of great importance in the production of glue. Due to the swelling of the collagen tissue, the de-gluing process can be carried out with a softened thermal regime, which contributes to obtaining more concentrated broths, extracting the main part of the glue at the beginning of the de-gluing process, reducing the hydrolysis of gluten and improving the quality of the glue.

In water, the bone is soaked in diffusers, changing the water every 4-6 hours. It is better to make the lock under hydraulic pressure, since the swelling of the bone with a two-hour pressure lock corresponds to the swelling with a twelve-hour lock without pressure.

Bone meal is de-glued after washing. In practice, this process is commonly called diffusion. Diffusion is the process of transferring the bone–giving substance ossein into the glutinous substance glutin.

The end of the degreasing process is determined by the following signs: absence of gasoline coloring in the water-measuring glass, the density of the last miscell should be equal to the density of gasoline; cessation of ammonia water release; the temperature of the exhaust gases should be equal to 5-86 ° C, which indicates that there is no more water in the gasoline vapor. After the degreasing is finished, gasoline is distilled with sharp steam until it is odorless from the test tap on the gas line. In a fat-free bone, the fat content should be no more than 1.2%, moisture 8-10%.

After unloading from extractors, the skimmed bone has on its surface a significant amount of non-adhesive substances (dirt, hair, sand, etc.) or substances that give poor quality glue, for

example, non-ossifying cartilage, which is present in large quantities on the sausage bone, ballast proteins accompanying collagen.

After unloading from extractors, the skimmed bone has on its surface a significant amount of non-adhesive substances (dirt, hair, sand, etc.) or substances that give low-quality glue, for example, non-ossifying cartilage, which is present in large quantities on the sausage bone, ballast proteins accompanying collagen.

From the hopper, the bone is loaded into the extractor, the upper hatch is closed, the coils are blown to drain the condensate, the tap of the gasoline pipeline is opened to supply gasoline from the gasoline collector to the extractor, steam is opened to the coils, and on the gas line there is a test tap through which air leaves the extractor as it is filled with gasoline vapors. As soon as gasoline vapors appear from the test tap, it is closed and the valve connecting the extractor to the condenser is opened. When heated, free water, separating from the bone, enters the sublattice space and descends through the bottom line into the distiller.

The process of bone degreasing by extraction method is carried out in three ways: gas, liquid and mixed. With the gas method, the extractor is filled with gasoline at 1/3 of the height (sublattice space). Degrease the bone with condensing gasoline vapors. With the filling method, the extractor is filled with gasoline; the process takes place in hot liquid gasoline. If the bone is degreased in a mixed way, then the first two or three miscells are obtained by the gas method for faster dehydration. The mixed method should be used for degreasing wet and oily bone, liquid when degreasing dry bone.

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