

THE PECULIARITIES OF THE SOAKING - LIMING LEATHER PROCESS

Yevtushok D. P., Roienko L. V.

Kyiv National University of Technologies and Design

daryna.yevtushok@mail.ru

There are several stages in leather production. The aim of the given study is to examine the characteristic features of the soaking – liming process in leather manufacturing. The end products of the liming process are semi-finished products, which are called hides. The purpose of soaking is bringing the skin into a condition close to steamed condition, as well as removing from the skin the preserving substances, soluble proteins, blood, dirt, etc. Under soaking process skin proteins interact with water, resulting in watering the dermis, increasing the volume and weight of hides.

Before soaking and in the process of technology, the raw materials are rinsed thoroughly by washing and removing soluble microorganisms and soluble proteins from the raw materials, as well as salts that will interfere with further technology process. In the process of soaking the state of raw materials (the level of bacteria), the main parameters (duration of the process), the degree of watering and the degree of elasticity of the skins after soaking, as well as the pH of the soaking liquid are controlled.

After soaking, the readiness of the skins is checked. They should be soft on the whole area, dull white in the cut. In the case of improper saturation, we can observe cockling of the facial area and hardness of the finished skin. With excessive soaking of hides, there is a strong outwashing of proteins, which causes swelling and decaying of the dermis. The skin should be soft, with increased toughness and ductility. This kind of skin can be obtained by means of liming - unhairing process, which is performed with the help of submerging method. This operation is performed in a special mobile equipment (hanging drum). The benefits of this method are much greater output of the skin in area than after using the spreading method, which is less expensive concerning chemical materials and safer working conditions are experienced. As a result of liming - unhairing process an elastic swelled hide, which is free from hair, as well as from globular proteins and non-protein components, is obtained. During the process it is necessary to monitor periodically the content of sodium sulfide and calcium hydroxide concentration, temperature. It is essential to control the incision on the vertebral line of the occipital part, it should be transparent. The degree of liming of the hide is determined by its elasticity, there should be no trace when finger is pressed.

Under very high temperature and alkalinity of liming liquid there is a significant destruction of collagen fibers of the papillary layer and reducing of its strength, that leads to the formation of the shrinkage of the facial layer of the skin. Insufficient liming of the hide causes stiffness of the finished leather. The process of

fleshing is performed after the process of liming. The hide is processed on the fleshing machine all over the area. By doing it the subcutaneous fat layer, meat and fat are removed from the skin. The green-fleshing materials accelerate the process of soaking, contribute to the even distribution of moisture in the thickness of the skin, as well as penetration of the components of the liming liquid into the skin. After the process the hide is controlled regarding complete removal of the subcutaneous layer. In case of improper fleshing the holes, slashes can appear.

In the liming – soaking process the wet-salted method of preservation is used. Leather raw materials are preserved separately according to the types of raw materials: large, small, sheepskins, goats, etc. The hides are treated either by salination or by brining. A well-salted skin should have a dense, elastic leather tissue and wet, but firmly tied to dermis hair surface at the level of salinization of 13 - 17%. In accordance with the requirements of the industry standard 2845-90, the mass of raw materials during the salinization should decrease.

The processed raw material after the end of operations is cut off by hand with a sharp knife. After that the raw material is weighed on technical scales to determine the mass of the hide.

[1] <https://leathersellers.co.uk>

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