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Impact of Different Chemical Materials and Technologies on Leather Conductivity

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Impact of Different Chemical Materials and Technologies on Leather

Conductivity

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Keywords: leather; leather technology; material; electrical conductivity

Abstract. The paper researches the processing for leather by utilizing different kinds of tanning materials, retanning and leather fatliquoring, and analyses the effect of leather electroconductibility influenced by water ratio in it and pressure added on the leather. The study illustrates: the greater electric conduction function of tanning materials or amount of polar radical they containing, the better conductivity the leather has. There is a compact relationship between the electric charge of different chemical material which were added in leather and electric conduction function, and the electrical conductivity of leather can be improved obviously by increasing the electric charge and water ratio the leather has.

Introduction

Leather is a kind of natural polymer material. In the machining process, it is necessary to introduce cations with NH_2^+ , Na^+ , Ca^{2+} , Cr^{3+} , H^+ etc. and anions with Cl^- , COO^- , SO_4^{2-} , OH^- etc., normally the cations combine with the acidic groups of leather, at the meantime, the anions combine with the alkaline groups of that. This combination is unstable, it is easy to generate free ions or ion groups under the affection of water molecules, thus make the leather materials have conductivity.

Under different outside conditions such as temperature, finishing, dyestuff, pressure, voltage, appearance, humidity etc., internal structures of leather are changed, they changes the number of carriers, finally influence the conductivity of leather.

This subject mainly studies tanning, retanning, fatliquoring materials and their processes, as well as their influence rule of some external factors for leather materials conductivity such as temperature and humidity, it also supplies a beneficial exploration about improving the conductivity of leather materials and developing special function of new leather materials with high conductivity, antistatic etc.

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