

Aluminum-oxazolidine Combination Tanning for Sheep Garment Leather

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Abstract: With the development of science and technology and the consciousness of environment protection, the pollution caused by chrome tanning agent becomes a difficult problem and requires an urgent solution. Hence, it is very essential to study chrome-free tanning systems. A new aluminum-oxazolidine combination tanning system has been developed. The amount of aluminum-oxazolidine optimized has been 3.0% and 3.0% (basing on the weight of limed skins). The influence of ligands on the shrinkage temperature (Ts) of leathers has also been studied and aluminum-oxazolidine combination tanned leathers were above 95 °C. The whiteness of aluminum-oxazolidine tanned sheep garment leather is much better of that of chrome tanned sheep garment leather, being close to the standard whiteness. Degradation rate which is 38.34% after 150 days in soil of aluminum-oxazolidine combination tanning leather was much quicker than that of chrome tanning leather which is 6.15% after 150 days. Through observing SEM, the surface structure of leather which was not degraded was more regular than the leather degraded for 150 days. Meantime, the degradation of aluminum-oxazolidine combination tanning leather was much easier than chrome leather, which was benefit for the sustainable development of leather industry in future.

Key words: aluminum-oxazolidine, combination tanning, degradation, garment leather