Topic: Advances in Basic Leather Science

Title: NEW INSIGHTS IN METAL-ORGANIC FRAMEWORKS BASED LEATHER CHEMICALS

Abstract: As an important decorative and wearable material, the high-grade and comfortable leather products have become more and more indispensable in people's life. Metal-organic frameworks (MOFs), which have structural and functional diversity, large specific surface area and multiple active metal sites, have been widely used in many fields. Therefore, MOFs can be used to improve the added-value of leather products and expand their application scope. Herein, MOFs was applied into leather tanning and finishing processes in this study. The experimental results showed that MOFs could greatly increase the shrinkage temperature (> 25℃) of tanned leather when it was applied into the tanning as a chrome-free tanning agent, indicating that MOFs could significantly improve the hydrothermal stability of leather. Additionally, MOFs could also be used for leather finishing by introducing into the polyacrylate emulsion to enhance the mechanical performance and endow the leather functionality. In this work, the finished leather had good physical mechanical and flame retardancy properties. It is conclusive that this study can provide theoretical guidance for promoting the application of MOFs in the field of leather manufacturing.

Keyword 1: Metal-organic frameworks

Keyword 2: Chrome-free tanning

Keyword 3: Leather finishing