

USE OF NEATSFOOT OIL AS A FATLIQUOR FOR LEATHER MANUFACTURING

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by

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Abstract

Leather is a valuable product which obtained from hide and skin of the animals. Fat liquoring is the process in which 'tanned' fibers are treated with fat liquor oils, which attach themselves to the fibrous structure, and lubricate them so that they can move readily in relation to one another, producing a soft, supple leather. Ceylon Leather Product PLC is using synthetic oil and fish oil as fatliquors. Main problem is spent lot of money to import fat liquors and not available locally. As a solution, can replace the synthetic oil and fish oil with neatsfoot oil. Neatsfoot oil has property to softness of leather. Neatsfoot oils, when sulfonated, produce emulsions which are finer in particle size and produce a greater degree of softness to leather. The use of neatsfoot oil in this operation is less subject to breakdown from tanning chemicals. Since neatsfoot oil is non-drying, it will not cause embrittlement or hardening of the leather on aging. Non-drying oils should have iodine value below 95. To have a good lubrication power, Iodine value should be more than 70. Iodine value of neatsfoot oil is 85. In this study was conducted for investigation of the suitability of neatsfoot oil extracted from cattle. Neatfoots were collected that wasted in meat industry. Extraction was done using boiling water. Sulfation was done to emulsify the oil when dialuted with water. There are 3 levels of sulfation was done as low, medium and high sulfation. High sulfation concentration was 20% and medium sulfation concentration was 15%. Low sulfation concentration was 10%. All samples were undergone retanning process separately according to the cow lining recipe, corrected grain leather. After finishing of leather, data was collected. Sensory evaluation for the leather conducted for softness, fullness, loose grain, smoothness of the grain surface and overall acceptability. Properties of the leather, tensile strength, load and distension, flexing ability were measured. According to the statistical analysis, all sensory parameters are significant ($p < 0.05$) except smoothness in grain surface. Medium sulphated neatsfoot oil (15% treatment level) is better than other three treatments. There is no significant difference ($P > 0.05$) between treatments with distension of the leather, tensile strength of the leather and there is a significant difference ($P < 0.05$) between Load of the leather with treatments. Therefore, neatsfoot oil with 15% sulfation level is the best fatliquoring method. Because it has the highest load and distension, also overall acceptability in sensory evaluation.

Key words: Fat liquoring, Neatsfoot oil, Sulfation, Properties of the leather