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Leather — Raw Hides — Guidelines for Preservation of Hides

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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

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Foreword

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Introduction

This guideline has been developed to define processes of preservation that lead to higher quality of preserved hides. Such preserved hides are subsequently subjected to further treatments for manufacturing of leather and eventually for production of leather goods.

This guideline has indicated preservation procedures that need to be followed to prevent any of the following situations:

- conditions occurring through the preservation treatments which affect the processability of hides,
- various defects that may be formed on hides during inadequate preservation conditions and during the period of storage and delivery to the users.

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Leather — Raw Hides — Guidelines for Preservation of Hides

1 Scope

This guideline defines various preservation methods for raw hides. The preservation methods are needed to suppress microbiological activity and to maintain the quality and commercial value of the hides during storage.

This guideline applies to all raw hides of cattle and horses.

2 Terms and Definitions

2.1

Hides

raw outer covering of a mature or fully-grown animal of the larger kind

3 Specifications of salt and auxiliary substances used in preservation processes

3.1 Technical specifications of salt

For preservation by salting, clean salt should be used. Halophilic bacteria get acclimatised to salt media and can grow even in presence of high salt concentrations. During bacterial growth, they produce pink, red or violet pigments on salted hides which is called red-heat. Sea or lake salt tends to be more susceptible to contamination risk and development of red-heat. Hence, using rock salt is advantageous as it is free from chemical impurities.

Salt used in preservation processes should preferably contain 98% sodium chloride (NaCl) of total dry weight and should not contain clumped particles. The impurities should not exceed limits indicated below, otherwise the salt may negatively affect quality of the finished product:

Total calcium (Ca) and magnesium (Mg) compounds in salt, 2%

Total iron (Fe) compounds, 0.01%.

Particle size of salt is also important to achieve effective preservation. If salt particles are very fine, salt tends to form pasty patches with uneven coverage. On the contrary if salt particles are very coarse, they may immediately fall-off the hide while handling. Particle size also affects speed of dissolution; therefore to ensure an appropriate dissolution particle size of salt should be between 2 to 3 mm.

3.2 Quantity of salt

To ensure proper dehydration of raw hides, quantity of salt should be 25-30% of fresh weight.

3.3 Auxiliary chemicals and preservation mixtures

Improvement in preservation could be achieved by use of additional substances along with common salt.

3.3.1 Addition of sodium carbonate (Na_2CO_3) to the salt mixture prevents formation of iron stains on skins, which might form due to existing impurities in salt. If iron impurities exceeds 0.01 % in total mass, iron stains would occur in limed pelt and thereby cause inferior quality.

Restricted pesticides or other toxic substances, like pentachlorophenol (PCP), should not be used in preservation mixtures.

4 Preservation methods of hides

When an animal is alive, the hide serves as an anatomical barrier between external physical, chemical and biological agents and the internal organs. After death of the animal, the hide becomes susceptible to microbiological spoilage because of its natural structure and excess water content. Preservation is necessary to maintain the quality and commercial value of the hide.

Before preservation process hides are conditioned by carrying out certain basic operations like cleaning, draining and trimming in order to ensure effective preservation. Subsequently, hides are cured, which may take 4-5 hours depending on environmental conditions. There are several ways to preserve hides to inhibit micro-organic putrefaction and autolysis.

Micro-organisms need humid conditions to survive. Hence, the most important step for preservation of hides is decreasing the water content of fresh hides which will prohibit bacterial growth and activity.

4.1 Drying

Drying is one of the earliest and simplest preservation forms, in which the water content is lowered to a certain level where microorganisms are inactive and unable to spoil hides. Although dry conditions are hostile for many microorganisms, some could stay dormant until the environment becomes favourable again.

In this method, dehydration of raw hides is carried out by natural airflow at ambient temperature in the shade. Extreme conditions and irregular foldings should be avoided. Direct sunlight and high temperatures may cause flash drying of outer layers but the inner layers still retain moisture. Hence, the drying is not homogeneous. Cross sectional transfer of water may take place in such cases thereby leading to decay during storage.

Dry cured hides should not contain following defects or formations which affect the quality negatively;

- Over dried and crusted areas and irregular foldings
- Discolorations and livid areas
- Small or large tears caused by autolysis
- Insect infestations and digested areas.
- Wetted areas or skin masses caused by improper storage.
- Partial gelatinisation due to high temperature while drying.

If hides have one or more of the defects indicated above, they might be degraded until castoff depending on the degree of existing defects.

4.2 Wet salting

Wet salting is the most common curing method for hides all over the world. Wet salting is carried out by treating hides with common salt. After skinning, hides are salted at slaughterhouses to prevent decay. Wet salting reduces 55% of the total water out of hide mass. Hides are kept for 3 to 6 days in piles to drain excess water content.