SRI LANKA STANDARD 1013 : 1994

UDC 675 . 031 . 1/ .5 : 675 . 021

CODE OF PRACTICE FOR

CURING AND PRESERVATION OF HIDES AND SKINS

SRI LANKA STANDARDS INSTITUTION

CODE OF PRACTICE FOR CURING AND PRESERVATION OF HIDES AND SKINS

SLS 1013 : 1994

Gr.5

SRI LANKA STANDARDS INSTITUTION
53, Dharmapala Mawatha,
Colombo 3.
Sri Lanka.

Sri Lanka Standards are subject to periodical revision in order to accommodate the progress made by industry. Suggestions for improvement will be recorded and brought to the notice of the Committees to which the revisions are entrusted.

This standard does not purport to include all the necessary provisions of a contract.

SRI LANKA STANDARD

CODE OF PRACTICE FOR CURING AND PRESERVATION OF HIDES AND SKINS

FOREWORD

This standard was approved by the Sectoral Committee on Textiles, clothing and leather and was authorized for adoption and publication as a Sri Lanka Standard by the Council of the Sri Lanka Standards Institution on 1994-03-31.

Raw hides and skins deteriorate in quality due to different antimortem and postmortem defects. Curing is one of the postmortem treatments which influence the quality of hides and skins to a considerable extent. Under tropical conditions delay in cure or an inadequate cure often leads to putrefactive changes in hides and skins due to autolytic and bacterial enzymes.

This code of practice has been prepared to provide guidelines to be followed in curing of hides and skins with a view to upgrading their quality.

In the preparation of this code of practice, the valuable assistance derived from the following publications is gratefully acknowledged :

ISO 2821 : 1974 Leather - Raw hides of cattle and horse -Preservation by stack salting.

IS 7656 : 1985 - Code of Practice for curing and preservation of cattle hides and goat and sheep skins by wet salting method.

1 SCOPE

This code of practice recommends practices to be observed in wet salting method of curing of cow and buffalo hides and goat, sheep and calf skins.

2 REFERENCE

SLS 1015 Glossary of terms for leather.

3 DEFINITIONS

For the purposes of this code, the definitions given in SLS 1015 and the following definitions shall apply.

3.1 **hair slip** : Slipping or loosening of the hair in hides and skins due to putrefaction.

3.2 **iron stain** : Stain caused by iron compounds by their reaction with vegetable tanning or vegetable tanned leather.

3.3 **red heat/red stain** : Red or pink coloured spots or patches which appear on the flesh side of salted raw hides and skins.

3.4 **salt pit** : A depression on hide caused by bigger salt crystals due to the pressure of a pack when the hides are kept in piles.

3.5 **salt stain** : A stain which is not apparent immediately after the process of salting but appears after the tanning of salted hides.

3.6 **salt stippen** : Star like crystals raised on the grain surface.

4 CURING DEFECTS IN WET SALTED HIDES AND SKINS

4.1 Curing defects in hides and skins may be caused by bacterial action, chemical impurities present in salt and faulty curing process.

4.1.1 *Bacterial action*

Bacterial damage to hides and skins may occur either before or after curing. Because of the delay in curing, bacterial and autolytic enzymatic action in hide or skins may become rapid, leading to serious defects like hair slip, loose structure, greasy patches, grain damage or even holes due to complete disintegration of hides or skins. Common salt due to its bacteriostatic activity can preserve the hides well for certain period after which the putrefactive organisms gain tolerance to high salt concentration and then cause damage to cured hides and skins. Cured stock is also degraded in quality due to the development of red heat or red stain on the hide or skin surface, caused by the chromogenic halophilic bacteria generally present in marine and solar evaporated salt.

4.1.2 *Impurities present in common salt*

The chemical impurities in curing salt may result in a number of defects, such as salt stain, salt stippen, salt pits, iron stains etc. Salt stain may be of the following types :

a) flesh side salt stain;
b) grain side salt stain; and
c) circular salt stain.

These salt stains are caused by the calcium salt (present as impurity) which is deposited as calcium phosphate in the fibre structure of the hide or skin. Curing salt containing magnesium salt as imputiry is responsible for stippen which first develops as magnesium ammonium phosphate, but after tanning this is converted into calcium sulfate. Traces of iron present in common salt as impurity often produces stain on limed pelts. Presence of calcium and magnesium salts makes the curing salt more hygroscopic and less suitable for curing. Magnesium sulfate also encourages the growth of halophilic organisms responsible for red stain.

4.1.2.1 The grain size of salt may influence the rate of curing. Neither a very fine grain nor a coarse grain salt is suitable for curing. Fine grain salt prevents further penetration of salt by caking on the hide surface. On the other hand, a coarse grain salt is dissolved rather slowly resulting in slow curing action and may also produce pits on hide surface when kept in big piles.

4.1.3 *Faulty operational techniques*

The quality of cure may also be affected due to careless handling of the hides and skins and lack of technical knowledge. On some occasions, hides and skins after flaying are left in the sun where they may be partially dried in the exposed areas. Curing of such hides will not be uniform as salt absorption in the dried areas will be inadequate. Blood and manure present in the hide or skin should be washed well before curing, otherwise they may retard dehydration and also encourage bacterial degradation of the hide or skin during storage. Presence of adhering fat and flesh layer on the hides appreciably delays salt absorption and dehydration.

4.1.3.1 To overcome defects of microbial nature, hides and skins should be cured after flaying without much delay. Also antiseptics should also be used in admixture with curing salt or applied to the hides and skins in the form of spray, prior to curing.

4.1.3.2 Defects of chemical nature can best be avoided by using clean good quality salt.

4.1.3.3 Other defects mentioned above can be dealt with by following proper techniques for curing and by careful handling of hides and skins.

5 PRECAUTIONS TO AVOID DEFECTS AND TO IMPROVE QUALITY

5.1 Wet salting is the most common method of curing hides and skins. In this process common salt in adequate quantity is applied on the flesh side of the hide or skin. Curing and preservation with common salt is mainly due to the limited bacteriostatic property of salt and partial dehydration by salt. But the efficiency of the process depends on the factors given in 5.1.1 to 5.1.11 which should be carefully controlled.

5.1.1 *Trimming of the hide or skin*

After flaying, unwanted parts of the hide or skin for example snout, eyes, ears, teats of the mammary glands and scrotum sheath are to be removed off.

5.1.2 *Defleshing and defatting*

Often thick layer of flesh and fat are retained on the hide or skin. These adhering flesh and fat layers are to be removed before curing.

5.1.3 *Washing and cleaning*

Hides and skins should be washed with water to remove blood and manure. Excess water should be drained out before salting.

5.1.4 *Delay in cure*

A delay in cure may appreciably affect the quality of hides and skins. Goat, sheep and calf skins are affected quicker than thicker hides. Delay in cure encourages salt stain and salt stippen formation. Hides and skins should, therefore, be cured as soon as possible and not later than 4 hours of flaying of the animal.

5.1.5 *Quality of salt*

5.1.5.1 The salt used should be of a good technical quality, preferably containing not less than 98 per cent by mass of sodium chloride calculated on the dry basis. Salt should be free of any impurity which could be detrimental to the preserving process.

5.1.5.2 The ideal grain size of the salt for curing hides is 2 mm to 3 mm. For skins a mixture of fine grain and medium grain salt having a grain size in the range 0.4 mm to 1.50 mm is considered preferable.

5.1.5.3 Salt once used for curing and preservation of hides and skins should not be reused as it may directly affect the quality of cure.

5.1.6 *Quantity of salt*

The minimum amount of salt required for effective curing is about 35 per cent for cattle hides and 40 per cent to 45 per cent for calf, goat and sheep skins, calculated on the mass of raw hide or skin.

5.1.7 *Use of antiseptics*

Wet salted hides and skins cured properly with good quality salt are preserved well for a considerable period. If it is desired to preserve the hides for more the 10 weeks, it is necessary to use suitable preservative during curing. A suitable biocide should be used depending on the period of storage required.

5.1.8 *Application of salt*

Hides should be placed flesh side up over a wooden lattice platform or on a slanting cemmented floor. The amount of salt required is calculated on the basis of 35 per cent of the mass of raw hide. Initially 50 per cent to 60 per cent of the salt is applied uniformly on the flesh surface. When the salt is considerably absorbed by the hide (duration may vary from 6 hours to overnight depending on atmospheric conditions) the rest of the salt is applied in another one or two instalments.

5.1.8.1 The same procedure may be followed in case of skins. Goat and sheep skins may be cured in the form of a case but opening the case before salting is recommended.

5.1.9 *Curing in pile*

Cattle hides may be cured in piles, placing one hide above the other flesh side up. calf, goat and sheep skins may be cured in piles felsh to flesh.

5.1.10 *Period of cure*

After salting, the hides and skins should remain in piles for at least 3 to 7 days, depending on the thickness to attain more uniform distribution of salt in different layers of the hide or skin. The hides or skins are then ready for packaging, storage or transportation.

5.1.11 *Resalting*

In case the primary salting of the hides and skins is not properly done, the stock should be resalted immediatly. The salt on the flesh surface is to be brushed off or removed by washing. The hides or skins should then be resalted with salt containing preservative or should be sprayed with an antiseptic prior to salting.

6 CONDITIONS OF STORAGE

6.1 During storage, hides are to be kept in piles over lattice platforms. It is preferable to restrict the height of the pile to 1 metre. If there is a tendency for increase in temperature then the pile is to be broken and made into a fresh one.

6.2 Cured hides and skins may be preseved for a longer period in good condition if the temperature and humidity of the store house are maintained at 6 °C to 8 °C and 70 per cent to 80 per cent relative humidity. A lower temperature delays bacterial growth and helps better preservation. From the point of view of both bacterial action and reduction of mass, a relative humidity of about 75 per cent is most suitable.

SLS CERTIFICATION MARK

The Sri Lanka Standards Institution is the owner of the registered certification mark shown below. Beneath the mark, the number of the Sri Lanka Standard relevant to the product is indicated. This mark may be used only by those who have obtained permits under the SLS certification marks scheme. The presence of this mark on or in relation to a product conveys the assurance that they have been produced to comply with the requirements of the relevant Sri Lanka Standard under a well designed system of quality control inspection and testing operated by the manufacturer and supervised by the SLSI *which includes surveillance inspection of the factory, testing of both factory and market samples.*

Further particulars of the terms and conditions of the permit may be obtained from the Sri *Lanka Standards Institution, 17, Victoria Place, Elvitigala Mawatha, Colombo 08.*

Printed at SLSI (Printing Unit)

SRI LANKA STANDARDS INSTITUTION

The Sri Lanka Standards Institution (SLSI) is the National Standards Organization of Sri Lanka established under the Sri Lanka Standards Institution Act No. 6 of 1984 which repealed and replaced the Bureau of Ceylon Standards Act No. 38 of 1964. The Institution functions under the Ministry of Science & Technology.

The principal objects of the Institution as set out in the Act are to prepare standards and promote their adoption, to provide facilities for examination and testing of products, to operate a Certification Marks Scheme, to certify the quality of products meant for local consumption or exports and to promote standardization and quality control by educational, consultancy and research activity.

The Institution is financed by Government grants, and by the income from the sale of its publications and other services offered for Industry and Business Sector. Financial and administrative control is vested in a Council appointed in accordance with the provisions of the Act.

The development and formulation of National Standards is carried out by Technical Experts and representatives of other interest groups, assisted by the permanent officers of the Institution. These Technical Committees are appointed under the purview of the Sectoral Committees which in turn are appointed by the Council. The Sectoral Committees give the final Technical approval for the Draft National Standards prior to the approval by the Council of the SLSI.

All members of the Technical and Sectoral Committees render their services in an honorary capacity. In this process the Institution endeavours to ensure adequate representation of all view points.

In the International field the Institution represents Sri Lanka in the International Organization for Standardization (ISO), and participates in such fields of standardization as are of special interest to Sri Lanka.

Printed at the Sri Lanka Standards Institution, 17, Victoria Place, Elvitigala Mawatha, Colombo 08.