Trade Practices for Proper Packer Cattlehide Delivery

Issued By

Leather Industries of America

and

U.S. Hide, Skin & Leather Association

FOREWORD

This booklet is the result of a combined effort by the Leather Industries of America and the United States Hide, Skin & Leather Association to clarify the 1982 publication of "Trade Practices for Proper Cattlehide Delivery." It was prepared to fill a need for an up-to-date compilation of terms and practices used in the industry for the takeup and delivery of cattlehides. It is offered in the hope that a common understanding of terms and practices will benefit producers and users of hides alike.

The standards and definitions contained in this booklet are voluntary, and it is recognized that some producers and users may use other terminology or employ other practices in their dealings with one another. This booklet should, nevertheless, prove useful in whole or in part to the entire industry. The standards and terms employed for patterning, selection, cure, fleshing, trimming and tare allowances in packing have been reviewed and approved by a wide cross-section of industry representatives.

It is recognized that international transactions will be governed by the "Standards Governing the Export of North American Cattlehides" (U.S. Hide, Skin & Leather Association, February 1990) which will supercede the "Trade Practices."

ACKNOWLEDGMENT

The Hide Committee of the Leather Industries of America and the Raw Stock Committee of the United States Hide, Skin & Leather Association volunteered their efforts in the preparation of this document. Their cooperation is gratefully acknowledged.

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TRADE PRACTICES FOR PROPER PACKER-CATTLEHIDE DELIVERY

I. ELEMENTS OF THE TRANSACTION

A. Contract

Sales of cattlehides should be subject to the terms and conditions of a written contract signed by both parties. A sample contract form is contained in the appendix.

B. Documentation

1. Invoices—shall show separately the total gross weight, type of tare (each type to be listed individually) and the net weight of each selection. Invoiced weights shall be the actual net weight, i.e., the gross weight less the tare.
2. Shippers Weight Sheets—shall accompany each shipment and shall contain the following information.
   a. Buyer's reference number (purchase number) and/or seller's number.
   b. Number of bundles (for palletized shipments shall show number of hides per pallet, gross and net weight per pallet), and gross weight of each load going into carrier.
   c. Total gross weight, type of tare, and net weight of each selection.
   d. Show each selection separately. Show #2s separately from #1s and reasons for #2s; #3s separately from #1s and #2s and reasons for #3s.
   e. Be signed by scaler or shipper's representative.
3. Loading Diagram—shall accompany the shipment and show the location and method of identification of the various selections and grades in the carrier.

   Note: Throughout this document, in addition to the usual meaning, "carrier" shall be used to mean car, truck, container or other means of transportation.

C. Grades

1. When hides are sold on a selected basis, that is, with a specific price of #1s, then a price discount shall be made for #2s and/or grubby hides in accordance with established trade practice.
   a. The allowance for grubs is applied to the weight of the #1s times the percentage of grubby hides in the shipment.
   b. The allowance for the #2s is applied to the weight of the #2s.
2. When hides are sold on a flat basis, there shall be no price discount for #2s.

D. Weights

Hide weights for invoicing are determined at time of loading.

E. Quantities
A deviation of 5% shall be permissible unless quantity is based on the maximum freight incentive loading. Shipper shall then deliver enough hides to assure the minimum weight needed for such freight differential based upon carrier's ability to transport. Shipper shall mark bill of lading to indicate carrier's inability to haul minimum requirements.

F. Packer Hide Selections
The following describe the selection of packer hides available.

PACKER HIDE SELECTIONS

Selection	Description	Net Weight Range (Pounds) Conventional	Trimmed & Fleshed
Heavy Native Steer	Steer hide free of brands	58/up	47/up
Light Native Steer	Steer hide free of brands	48/58	39/47
X-Light Native Steer	Steer hide free of brands	30/48	23/39
Heavy Butt-Branded Steer	Steer hide branded one or more times back of break in flank	58/up	47/up
Butt-Branded Steer	Steer hide branded one or more times back of break in flank	30/up	23/up
Heavy Colorado or Side-Branded Steer	Steer hide branded one or more times forward of break in flank	58/up	47/up
Colorado or Side-Branded Steer	Steer hide branded one or more times forward of break in flank	30/up	23/up

Selection	Description	Net Weight Range (Pounds) Conventional	Trimmed & Fleshed
Light Branded Steer	Steer hide branded one or more times	30/58	23/47
Heavy Texas Steer or Branded Steer	Steer hide branded one or more times	58/up	47/up
Texas Steer or Branded Steer	Steer hide branded one or more times	30/up	23/up
Heavy Native Cow and Heifer (plump)	Hide from female bovine free of brands	53/up	43/up
Light Native Cow and Heifer (plump)	Hide from female bovine free of brands	30/53	23/43
Heavy Native Cow and Heifer (thin or spready)	Hide from female bovine free of brands	53/up	43/up
Light Native Cow and Heifer (thin or spready)	Hide from female bovine free of brands	30/53	23/43
Branded Cow and Heifer	Hide from female bovine branded one or more times	53/up	43/up
Light Branded Cow and Heifer (plump)	Hide from female bovine branded one or more times	30/53	23/43
Heavy Native Bull	Hide from bull free of brands	58/up	
Heavy Branded Bull	Hide from bull branded one or more times	58/up	

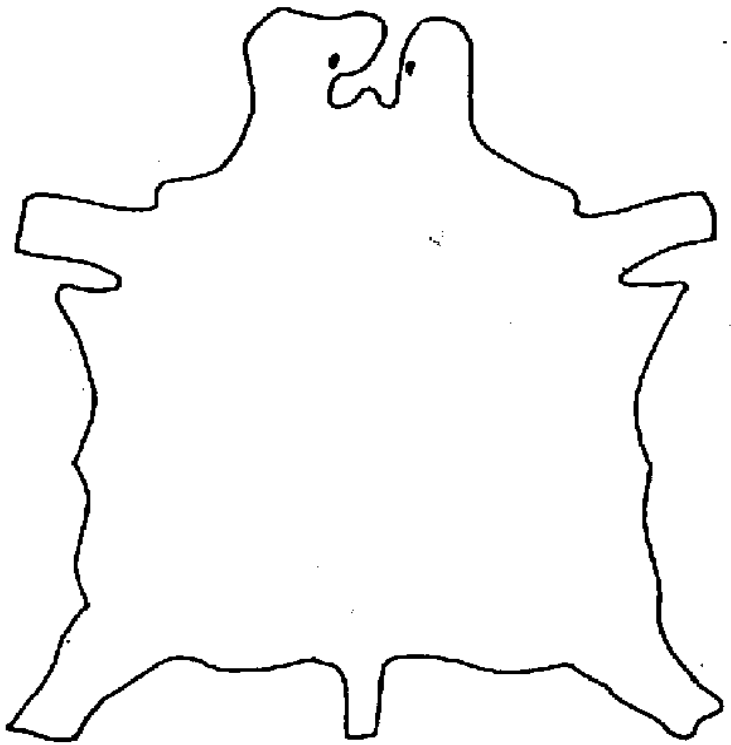
G. **Type of Trim**

1. Conventional Hides - The parts which are to be removed before salting the hides are as follows: horns, snouts, lips, ears, tail bone, sinews, tendons, etc. Excessive meat and fat should be removed.
This method of trim meets the requirements of what is commonly known as the "Standard Hide Trim" shown in Figure 1.

STANDARD HIDE TRIM

FLESH SIDE UP

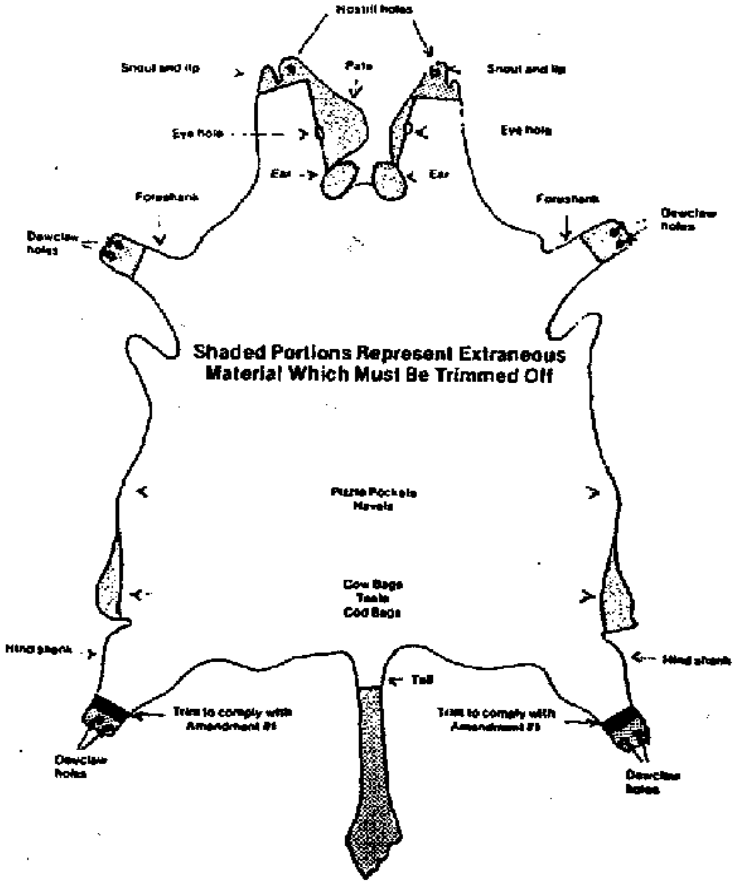
FIGURE 1



2. Modern Trimmed & Fleshed - Hides should be machine fleshed to remove all fat and meat. A fleshed hide as delivered by the shipper should contain no stringy or loose tissue, and along the back the fleshing should be deep enough to open but not remove the veins. Hides should be trimmed according to the hide pattern shown in Figure 2.

MODERN TRIM PATTERN FOR CATTLEHIDES

FIGURE 2



a. Shanks

i. **Foreshanks** should be trimmed straight across through the center of the knee. (See Figure 3 below.)

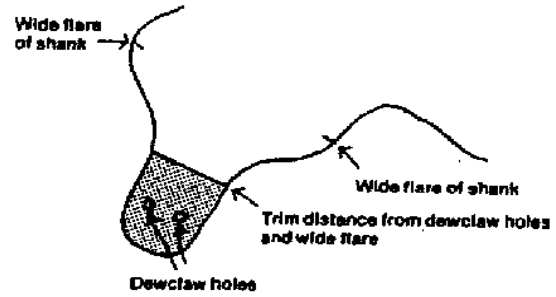
FORESHANK

FIGURE 3

ii. **Hindshanks** should be trimmed straight across one-third the distance from the dewclaw holes and the wide flare of the shank. (See Figure 4 below.)

HINDSHANK TRIM

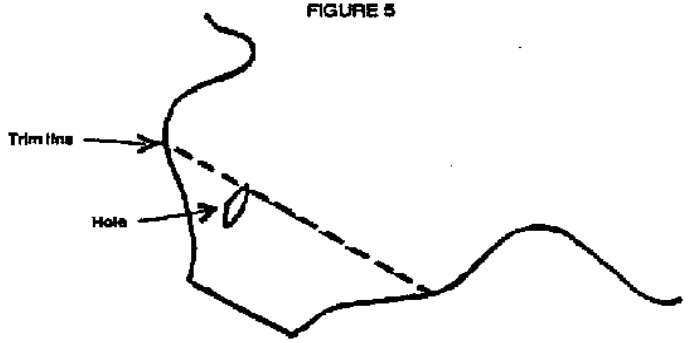
FIGURE 4



Any hindshank having a cut or hole below the knee or hock 1 inch or more in length, should be corrected by trimming straight across at the top of the cut or hole. If the cut or hole is smaller than the above, such a shank is acceptable without trimming, providing it is of proper pattern otherwise. (See Figure 5 on next page.)

CORRECTIVE TRIM ON CUT SHANKS

FIGURE 5

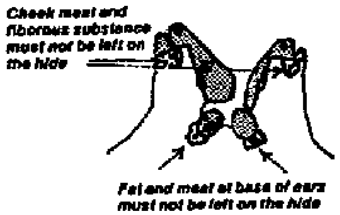


b. Head

i. Regular modern trim requires that all ears, ear butts, snouts and lips, fat and muscle tissue be removed from the pate side of the head by cutting through the eye-hole. The narrow side of the head should be trimmed through the eye in a similar manner. Removal of all ragged edges is necessary. (See Figure 6 below.)

HEAD

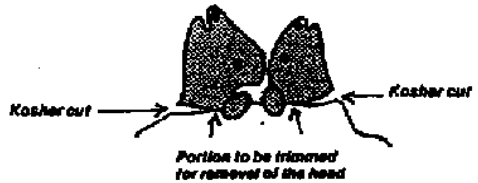
FIGURE 6



ii. Kosher heads should be removed by cutting across at top of kosher cut. (See Figure 7 below.)

KOSHER HEAD

FIGURE 7



c. Cow Bags, Teats, Cow Navels, and Cod Bags - These should be removed straight with the belly line, preserving a standard pattern.

d. Pizzle Pocket - This should be split through the center for curing and left on the hide for steer identification.

e. Tails - Maximum tail length should be no more than 4 inches, cured, measured from the root. (See Figure 2)

II. DESCRIPTIONS OF GRADES AND DEFINITIONS

A. Grades

Hides are graded either #1, #2, or #3 according to the following:

#1 Hides - Prime hides without defects which have a correct pattern and are sufficiently cured. They are free of holes, cuts, scores or gouges, visible grain defects and broken grain (over 1" long).

Exception: Rear shanks can contain one hole or cut below hock that measures less than one inch in length. If the hole or score is located on the welt of a brand it should be a #1 hide if satisfactory in other respects.

#2 Hides - Hides that are off pattern or contain a hole, cut, deep score, or gouge, none of which is longer than 6 inches, visible grain defects or warts in an area less than one square foot (located above a straight line drawn through the break in hair of the fore and hind flanks).

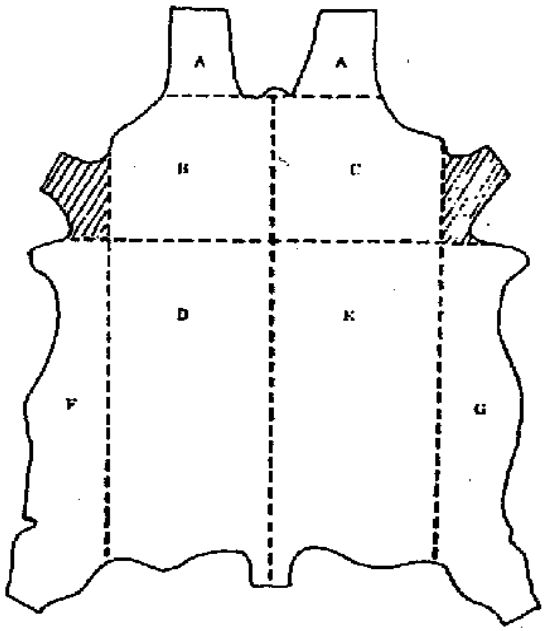
#3 Hides - Hides that contain hairslips, five holes and/or scores and gouges, any hole or cut 6 inches or more, insufficient cure, a pepper box, warts or any other defect covering one square foot or more. Diseased hides are also #3s. Seller may not deliver #3 hides without consent of buyer. Untannable hides shall not be delivered to buyer.

B. Definitions

1. Brand - a permanent man-made mark on the hide for animal identification purposes usually made with a hot iron.
2. Conventional Hide - a hide which is cured, trimmed to the "Standard Pattern" and which has not been machined fleshed.
3. Defects
   a. Chatter Damage - a series of parallel gouges into the hide which occurs during the fleshing operation.
   b. Grain Break - any hide having a defect on the hair side causing the grain to be broken one inch or more in length or diameter, or having two or more such defective spots which in aggregate total one inch or more in length or diameter. This includes scores, rubs, scuffs, deep scratches, mechanical damages, etc.
   c. Grubby Hides - hides containing five or more grub holes.
   A Pepper Box is a hide in which the concentrated grub area covers one square foot or more. It is a #3 hide.
   d. Hair Slipped Hide - hide that has been allowed to degenerate to the extent that the hair and epidermis is loosened and can easily be removed. Epidermal tissue may be observed still attached to the ends of the tufts of removed hair.

SUBDIVISIONS OF A HIDE

FIGURE 8



HEAD	A	CROP	A+B+D or A+C+E
SHOULDER	B+C		
BEND	D or E	BACK	B+D or C+E
BELLY	F or G	CROUPON	D+E
SIDE	A+B+D+F or A+C+E+G	DOSSET	B+C+D+E+A or -A
		CULATTA	D+E+F+G

F and G includes shaded area except for culatta

e. Off-pattern Hides - hides which do not conform to either the standard or modern pattern. Off-pattern hides can be classified as #2 or #3 grades.
f. Scores and Gouges - mechanical damage or knife marks and/or a cut or scooped out cavity(s) at least half-way through the hide.

4. Fleshed Hide - a hide which has been machine fleshed over the entire area of the hide to remove most non-hide tissue and trimmed to the "Modern Pattern.
5. Kosher Hide - the hide of an animal which has been slaughtered by having its throat cut according to Rabbinical Law. Such hides are normally delivered without heads.
6. Latent Defects - include but are not limited to the following: puller or clamp, or other mechanical damage which is discovered after hair removal. Buyers have recourse when latent defects are discovered. Defects which are inherent in the hide, such as those existing prior to slaughter, are not latent defects. Good business practice would indicate that samples be run ahead to verify quality on hide lots intended to be stored for an extended period.

III. SHIPPING

A thorough inspection of all outgoing products is the shipper's and/or seller's responsibility and must be performed in order to insure maintenance of uniform product standards.

A. **Equipment** - shipper should check carrier carefully before loading hides, and:
   1. Reject carrier which recently was loaded with substances such as tar, lime, acid, or other ores which could cause stains in finished leather.
   2. Reject carrier which shows evidence that it recently held items containing animal grease or fat as it may be contaminated with beetles.
   3. Reject carrier with leaky roof.

B. **Loading** - shipper should:
   1. Clean out carrier, spread a layer of clean salt, or lay a protective cover.
   2. Spray empty boxcars with a recommended pesticide to control larder beetle infestation.
   3. Separate hides from the metal sides of steel carriers.
   4. Pile bundled hides by hand in rows making unloading easier.
   5. Place boards across the doorways to prevent the weight of the hides from resting against the carrier doors.

IV. RECEIVING

A thorough inspection of all incoming product is the buyer's responsibility and must be performed in order to insure maintenance of uniform product standards.

A. **Unloading** - buyer should:
   1. Check carrier seals and numbers against documents.
   2. Examine carrier and bundles for live larder beetles and larvae. Upon finding such evidence replace any bundles already unloaded and advise the seller and the carrier. Entire contents of carrier should be fumigated by a professional exterminator. Fumigation charges are the responsibility of the shipper, seller and/or carrier, depending upon source of infestation. Related charges such as demurrage and additional labor should be the responsibility of the same party.
   3. Weigh hides. Check for surface moisture on the floor of the carrier and on the hides. Check incoming weights with gross shipping weights.
   4. Check for discolorations. Stains should be noted and when serious, reported to the seller and/or shipper.
   5. Perform cure analysis (See Cure; Appendix).
   6. Inspect each carrier by random sample within five days after unloading of the carrier. (See Appendix for sample inspection report.) All deliveries with defects of 3% or more from specified quality standard should be reported by the seller and/or shipper. In such instances, the entire deviation is the responsibility of the seller and/or shipper.

B. **Weights** - Hides must be in merchantable condition with appropriate allowance for various types of tare.
   1. In Transit Shrink Standards - Hides should be in proper moisture condition before weighing at time of shipment. Brine hides stored by the seller in bundles instead of in curing pack should remain in storage for at least three days so that excess moisture can drain and evaporate before shipment. Shrinkage calculations, by the buyer, should be on a gross to gross basis, less pallet tare when applicable. Industry experience is as follows: 1% or less for shipments in transit seven days or less and up to 3% for shipments in transit twenty-two days.
   2. Tare Allowance - Types of tare and respective weight allowance must be identified individually.
      a. Salt - As determined by shake or sweep test.
      b. Moisture - As determined by overnight banking.
      c. Manure/Mud - As determined by spading.
      d. Pallet - If hides are weighed net and are shipped on pallets.

3. **Delivery Counts** - Hide count must equal invoice count when sale is on a per piece basis. Deviations from invoice count are acceptable when deviation does not affect contractual average weight on minimum/maximum purchase.
4. Delivery Weights
   a. Estimated Average Weight Range Purchase - hide average may vary 0.99 pound above or below estimated range.
   b. Estimated Average Weight Range with Maximum Average Purchase - hide average may be up to 0.99 pound below minimum estimated weight but may not exceed maximum weight of contract.
   c. Weight Range Purchase - all hides must be within weight range specified on contract.

C. **Cure**

Hide curing must be promptly attained by the utilization of curing salt or saturated brine solutions by appropriate commercial procedures. Inadequate curing, resulting from excessive delay prior to curing, is detected by the staling test. Thoroughness of cure is determined by analyses of the lot sample for moisture and ash (equivalent to salt).

Properly cured hides will show no attack on the gelatin film and receive a zero (0) rating, indicating acceptable cure quality. A film rating of one (1) after one hour of testing demonstrates some hide damage which can be detected by histological examination. Ratings of two (2) or three (3) in thirty minutes or in one hour indicate progressive damage which can result in poor leather quality.

A well-cured green-salted or a well-cured brined hide will have moisture content between 40 and 48 percent. The brine saturation in the lot at the time of sampling shall be equal to or greater than 85 percent.

Brine saturation below 85% in and of itself shall not constitute grounds for a claim or rejection. In such cases the buyer should notify the supplier within seven days to determine what course of action to follow.

Note: See appendix for recommended test methods.

V. **DISPUTES**

A. **Inspection** - Buyer shall afford seller and/or shipper prompt and reasonable opportunity to inspect goods which in the buyer's opinion are subject to a dispute.

B. **Delivery** - Disputes arising from the shipper's delivery shall be settled on an individual basis between buyer and seller and/or shipper.

APPENDIX

STANDARD TEST METHODS FOR SALT PRESERVED HIDES

STANDARD METHOD FOR CURE EVALUATION MICROWAVE METHODS FOR CURE EVALUATION GELATIN FILM STALING TEST

STANDARD TEST METHOD FOR CURE EVALUATION OF SALT PRESERVED HIDES

1. **Scope**

   This method covers the estimation of degree of saturation of the brine content of salt-preserved hides and evaluation of the cure of the hides from the estimated brine saturation and the moisture content.

2. **Summary of Method**

   The moisture (volatile matter) and ash content of a composite specimen representative of a commercial lot of hides is determined. For purposes of calculation the ash is assumed to be equivalent to sodium chloride and the moisture (volatile matter) is assumed to be equivalent to water. The percent ratio of ash to moisture is calculated. This ratio is divided by 35.9 (which is the percent salt to moisture ratio in a saturated sodium chloride brine solution at 20°C) to estimate the percent of saturation in the brine solution in the hides.

3. **Significance**

   The method is intended to evaluate whether sufficient salt has been retained by the hides to keep them from deterioration until they are permanently preserved by a tanning process and to provide a commercial standard for salt-preserved hides.

4. **Terminology**

   Terms used can be understood by reference to ASTM D1517 Standard Definitions of Terms Relating to Leather.

5. **Apparatus and Materials**

   5.1 Die to cut circular specimens 7/8 inch (22 mm) in diameter from hide samples.

5.2 Clipping tools: scissors or clippers and/or razor blade for removing hair from hide specimen.

5.3 Crucible, 30 to 50 ml, high form, platinum or porcelain.

5.4 Oven

5.4.1 Vacuum Oven, capable of maintaining a temperature of 80°C ± 2°C, or

5.4.2 Circulating Air Oven, capable of maintaining a temperature of 100°C ± 2°C.

5.5 Phosphorus Pentoxide (for use with oven 5.4.1).

5.6 Electric Muffle Furnace with controller or rheostat and pyrometer, capable of maintaining a temperature of 600°C ± 25°C.

6. Sampling and Test Specimens

6.1 Samples:

Lot Sample - At least five hides shall be randomly selected from the commercial lot. Each hide shall be sampled by removal of a plug at least two inches in diameter. These plugs shall be located about two inches away from the backbone and at least seven inches inward from the root of the tail.

The five or more specimens shall immediately be hair-clipped and fleshed closely. The prepared specimens shall then immediately be placed into a water-vapor impermeable plastic bag for transferral to the laboratory for analyses. Water absorptive identification tags shall not be placed within the sealed bags.

6.2 Test Specimens: A test specimen shall be made consisting of a circular cutting 7/8 inch (22 mm) in diameter. One test specimen shall be made from each hide plug in the sealed bag.

6.3 Test Specimen Composites: From the test specimens, test specimen composites shall be prepared using equal amounts from the test specimens.

7. Procedure

Cut test specimens from hide. Remove hair from specimen with scissors or clippers and/or razor blade. Some of this preparation may have already been done under the sampling. Make test composites as described in 6.3. Dice the pieces of the composite into 1/4 inch (6 mm) cubes. Weigh accurately (to 1 mg) into a tared crucible 2 to 5 grams of test specimen composite. The entire procedure should be carried out with a minimum of moisture loss.

If using vacuum oven (5.4.1) place crucible and specimen in vacuum oven. Put about 5 to 10 grams of phosphorus pentoxide in a glass petri dish and place in vacuum oven. Apply vacuum to oven, raise temperature of oven to 80°C ± 2°C. After 16 hours ± ½ hour, remove crucible and test specimen, weigh and record to nearest ± .001 gram.

If using circulating air oven (5.4.2), place crucible and specimen in oven at 100 ± 2°C. After 16 ± ½ hour, remove crucible and test specimen, weigh and record to nearest ± .001 gram.

After the dried weight has been obtained by either method, the specimen may be precarbonized before being placed in the hot furnace. The specimen shall be ashed in the hot furnace at 600 ± 25°C until constant weight is obtained (±0.01 gram). Weigh and record weight.

8. Calculation

8.1 Calculate moisture (volatile matter) as follows:

A = original weight of test composite used and crucible

B = weight of dried test composite and crucible

C = weight of crucible

$$D = \text{moisture (volatile matter)} = \frac{A - B}{A - C} \times 100$$

8.2 Calculate ash as follows:

A and C as in 8.1

E = weight of ash and crucible

$$F = \text{ash} = \frac{E - C}{A - C} \times 100$$

8.3 Calculate ash/moisture ratio in percent

$$G = \text{ash/moisture ratio} = \frac{F}{D} \times 100$$

8.4 Calculate brine saturation

$$H = \text{brine saturation} = \frac{G}{35.9} \times 100$$

9. Interpretation of Results

Hide moisture contents below 40 percent indicate excessive hide dryness and will result in impaired leather quality caused by protein denaturation. Low moisture levels also can reflect

inadequate curing resulting from inadequate brining (Tancous. Journal of American Leather Chemists Association. *67* 1972, 488-508). An indication of this inadequate brining on hides whose moisture content is below 40 percent can be determined by the conversion procedure given by Tancous.

Hide moistures over 48 percent in the sample indicate excessive wetness of the hide and inadequate cure. Brine saturation of 85 percent may be inadequate for maintenance of hide quality during storage on these wet hides.

10. **Report**

The report shall state whether the vacuum oven or the circulating air oven was used in the tests. The brine saturation and moisture values reported shall be the average of duplicate tests.

11. **Precision and Accuracy**

Deasy (Rf.1) found that the population standard deviation of the ash content of brine cured cattle hide was 0.5. Kallenberger and Lollar (Rf.2) found that the population standard deviation of the moisture of brine cured cattlehides by the vacuum oven method was 3.48. Utilizing a randomly selected lot sample of 5 hides, the standard deviation of the means would be

a - Ash = 0.22

b - Moisture = 1.56

Utilizing Normal Frequency Distribution assumptions (which the data analyzed by Lollar (Rf.3) indicates), 95.5 percent of all means should be with these limits of the true mean

a - Ash, ± 0.44

b - Moisture, ± 3.12

The following table presents data which confirms these analyses and shows the resultant variability of the calculated brine saturation.

REPRESENTATIVE VARIABILITY DATA

Hide Lot	%Moisture Duplicate Samples		% Ash Duplicate Samples		% Brine Saturation
1	42.76		14.80		
	40.20	41.49	14.81	14.66	98
	38.52		14.45		
	40.62	39.58	14.09	14.27	100

Hide Lot	%Moisture Duplicate Samples		% Ash Duplicate Samples		% Brine Saturation
2	42.05		14.80		
	42.01	42.03	14.08	14.44	96
	42.37		15.09		
	39.75	41.06	16.02	15.56	106
3	46.90		12.07		
	46.54	46.72	12.21	12.14	72
	44.55		12.25		
	44.26	44.40	12.02	12.13	76
4	42.71		13.44		
	43.03	42.88	13.57	13.51	88
	45.08		13.50		
	44.81	44.95	13.67	13.59	84
5	46.86		11.10		
	45.58	46.21	11.01	11.06	67
	46.70		11.09		
	47.06	46.89	11.16	11.13	66

12. **References**

(1) Deasy, D., JALCA, Vol. 51, 271-282 (1956).
(2) Kallenberger, W.E., and Lollar, R.M., JALCA, Vol. 74, 454-468 (1979).
(3) Lollar, R.M., Leather Manufacturer, Vol. 101, No. 1, 14-15 (1983).

METHODS OF TESTING SALT PRESERVED HIDES BY MICROWAVE OVEN

1. **Scope**

1.1 These methods cover the testing of cured hides by microwave oven. The methods permit more rapid analyses of commercial hide lots than the Standard Method for Cure Evaluation.

1.2 The test procedures appear in the following order:

	Sections
Moisture	4 to 6
Chlorides (as NaCl)	7 to 10

2. **Applicable Documents**

Journal of the American Leather Chemists Association, Vol. 74, 454, 1979.

Journal of the American Leather Chemists Association, Vol. 76, 143, 1981.

3. **Purity of Reagents**

3.1 Reagent grade chemicals shall be used in all tests.

3.2 Unless otherwise indicated, references to water shall be understood to mean distilled water.

MOISTURE

4. **Scope**

4.1 This method covers the determination of volatile matter (moisture) in all types of salt preserved hides.

4.2 The test specimen composites shall be prepared as Section 6.3 of the Standard Method.

5. **Procedure**

5.1 Weigh sample dish to the nearest 0.01 g and record weight.

5.2 Transfer 5 ± 1g of cured hide to dish and weigh. Record to the nearest 0.01g.

5.3 Microwave on full power (Amana RC-14, 1400 watt oven was used) for consecutive intervals of 20, 40, 40, and 40 seconds, allowing one to two minutes between intervals in ventilated space for evaporation. Microwave oven should be warmed briefly before first sample.

5.4 Insert dish and hide in a mechanical convection oven at 100°C for 1 hour.

5.5 Cool sample to room temperature and weigh. Record to nearest 0.01g.

6. **Calculations**

6.1 Calculate the percent volatile matter (moisture) as follows:

$$\text{Moisture, \%} = \frac{S - D}{S - B} \times 100\%$$

where:

S = weight, of original specimen plus dish, g

B = weight, of empty dish, g

D = weight, of dried sample plus dish, g

CHLORIDES - As NaCl *

7. **Scope**

7.1 This method covers the determination of the total percentage of sodium chloride in cured hides. The sample is dispersed and the salt concentration measured with a Dicromat Salt Analyzer.

8. **Significance and Use**

8.1 The Dicromat Salt Analyzer measures solution conductivity. As a consequence, samples must only be cured with sodium chloride, with no other electrolytes added.

8.2 Silver nitrate titration of chlorides can be used in place of the Dicromat Salt Analyzer, if precautions are observed to prevent complexation of silver nitrate.

9. **Procedure**

9.1 Dice approximately 5 g of cured hide into pieces no more than 1/4 inch square.

9.2 Weigh a 5 ± 1 gram sample of chopped hide and record. Transfer the sample to a 500 ml Erlenmeyer flask.

9.3 Add 200 ml water to the flask.

9.4 Tightly cover the mouth of the flask with plastic wrap and make a single, tiny hole in the covering to allow pressure release.

9.5 Initially microwave on full power for 90 seconds, followed by 3 minutes on low power. (Amana RC-14, 1400 watts full power and 700 watts low power).

9.6 Cool samples for two hours at room temperature. Occasional agitation is desirable.

9.7 Adjust sample volume to 200 ml by adding water. Allow the sample to remain in this measured volume.

9.8 Prepare standard sodium chloride solutions by adding 0.25 g, 0.50 g, and 1.00 g of NaCl to 100 ml volumetric flask and diluting to mark with distilled water. Run standard solution through the Dicromat Salt Analyzer and record readings. Plot readings versus salt concentration (g/100 ml).

9.9 Determine salt concentration with Dicromat Salt Analyzer by comparison to prepared standard sodium chloride solutions.

10. Calculations

10.1 Calculate the percentage of salt as NaCl as follows:

$$\text{Chlorides, \%} = \frac{(A \times 2)}{B} \times 100\%$$

where:

A = salt concentration, g/100 ml from plot

B = weight, of cured hide, g

11. Precision and Accuracy

Section 2. Applicable documents present the data comparing results from these methods in comparison to the Standard Method.

11.1 Moisture

	Vacuum Oven	Microwave
Population Mean	48.33	48.02
Population Standard Deviation	3.48	3.60

11.2 Ash

Six Samples	Standard Method	Microwave
Average	15.4	15.5
Range	14.3 - 16.8	15.0 - 16.1

11.3 These preliminary data indicate the two microwave methods for moisture and ash give equivalent results to the standard method. If the microwave methods are used, this fact shall be stated.

STANDARD TEST METHOD FOR GELATIN FILM RATING ON SALT PRESERVED HIDES

1. Scope

This method covers testing for the action of proteolytic enzymes in the juice pressed from hide onto the gelatin of photographic film.

2. Summary of Method

Hair, manure and loose salt are removed from the hide sample. Liquid is pressed from the hide. The pH of the pressed liquid is adjusted to a pH between 7.0 and 7.6. Several drops of the pH-adjusted juice are placed on a wetted gelatin film strip. The juice acts on the film strip for a fixed time and temperature (1 hour at

35-39°C). The juice is rinsed off and the test film is rated for the action of the juice in removing layers of gelatin.

3. Significance

Delayed cured hides (hides which have not been put directly into effective salt preservation immediately after flaying) contain higher concentrations of enzymes than hides which were properly processed. These enzymes can be detected even after curing and storage by the gelatin film test (Ref. 1 and 2). Enzymes from salt tolerant (halophilic) bacteria even on hides that have been properly processed may also attack gelatin and give positive film tests (Ref. 3).

4. Apparatus and Materials

4.1 Clipping tools: Scissors to remove hair and manure from the hide samples.

4.2 Press: A press or vise to squeeze juice from the hide samples.

4.3 Petri dishes: 100 mm diameter by 15 mm high. One needed for each composite sample.

4.4 Short range pH paper: Short range pH paper which includes the range of 7.0 to 7.6.

4.5 Sodium hydroxide solution (1 percent): Dissolve 1 gram of sodium hydroxide in 100 ml of water.

4.6 Gelatin film strip: A ½ inch strip of 35 mm photographic film. All films are not satisfactory. Kodak PX-135 is one film which has been found to be satisfactory.

4.7 Plastic tray with cover: A suitable size to fit incubator and hold desired number of tests.

4.8 Incubator: Incubator capable of setting to 35-39°C ± 2°C with thermoregulator system capable of holding incubator to ± 2°C of set point.

5. Sampling

5.1 Samples:

Lot Sample - At least five hides shall be randomly selected from the commercial lot. Each hide shall be sampled by removal of a plug at least two inches in diameter. These plugs shall be located about two inches away from the backbone and at least seven inches inward from the root of the tail.

The five or more specimens shall immediately be hair-clipped

and fleshed closely. The prepared specimens shall then immediately be placed into a water-vapor impermeable plastic bag for transferral to the laboratory for analyses. Water absorptive identification tags shall not be placed within the sealed bags.

5.2 Juice Composites: The juice composites prepared from the five or more hide plugs shall consist as far as possible of equal amounts of juice from each hide plug.

6. Procedure

Clip off the hair and manure from hide samples with scissors and knock excess salt off the area to be squeezed for juice. Some of this preparation may have already been done under the sampling.

Squeeze hide samples with press or vise until a juice composite of 20 drops has been collected in a petri dish. Check pH of juice with indicator paper.

If the initial pH is below 7.0 to 7.6, adjust pH to 7.0 to 7.6 with 1% sodium hydroxide solution. If the pH goes above 7.6, discard juice and start over.

Place a few drops of water on each film strip to be used, allow it to remain 30 seconds and then shake off.

Add 3 or 4 drops of hide juice composite which is adjusted to pH 7.0 to 7.6 onto film strip. Repeat for duplicate sample. Make control strip using water in place of hide juice.

Place film strips in plastic tray. Cover to prevent excessive evaporation. Keep tray and film strips in incubator at 35-39°C for 1 hour. Remove film strips and rinse gently. Examine the film strips while still wet for gelatin removal and compare with control strip.

Grade film strips on a rating scale of 0 - 3. The rating scale is:

0 - The gelatin film is intact.

1 - The upper layer of gelatin film is removed where it was in contact with the hide juice. The film is hazy in this area when held against the light.

2 - Both upper and lower layers are partially removed where the film was in contact with the hide juice. Hazy and clear areas appear when the film is held against the light.

3 - The gelatin film is completely removed where it was in contact with the hide juice. The whole area of the film is clear when the film is held against the light.

A set of typical film strips for each rating may be prepared for

comparison in rating future tests. The appearance of such a set is illustrated on page 579 of Reference 1.

7. Interpretation of Results

A rating of 1 is an indication that some damage to the hide has occurred. A rating of 2 or 3 indicates that a greater damage to the hide has occurred.

8. Report

The report shall state the number of hides used in making the juice composite and a rating value secured from each juice composite.

9. References

(1) "A Test Method to Detect Delayed Cure in Hides." Rolf R. Schmitt and Clara Deasy, Journal of American Leather Chemists Association, Vol. 58, 577-587 (1963).

(2) "Additional Notes on a Test Method to Detect Delayed Cure in Hides." Rolf R. Schmitt and Clara Deasy, Journal of American Leather Chemists Association, Vol. 59, 361-364 (1964).

(3) "Halophilic Bacteria Thrive in Seasonal Cycles." Waldo E. Kallenberger and Robert M. Lollar, Journal of American Leather Chemists Association, Vol. 81, 248-264 (1986).

Sample

CONTRACT FOR PURCHASE AND SALE OF HIDES

.....as
Seller, through.....of
....., hereby
SELLS to.....
as Buyer, and Buyer hereby purchases from Seller, the hides hereinafter described (the "Hides"), with full knowledge of and solely upon the terms and conditions set forth on the front and the printed terms and conditions on the rear sides of this Contract, all such terms and conditions constituting an essential part of this Contract, to which Seller and Buyer hereby agree:

QUANTITY	DESCRIPTION	POINT OF ORIGIN	PRICE

TAKE OFF DATES	WEIGHT RANGE	ESTIMATED WEIGHT AVERAGE	SHIPPING DATE

Terms of Payment:

Special Clause(s):

IN WITNESS WHEREOF, the undersigned Seller and Buyer have caused this Contract to be duly executed, as of the date(s) respectively set forth below, by their respective officers thereunto duly authorized.

..... (SELLER)	..... (BUYER)
By:.....	By:.....
Title:	Title:
Address:.....	Address:.....
.....	.....
Date:.....	Date:.....

Sample
Shippers' Data
and
Tannery Inspection Report
Figure 9

Tannery _____ Date Invoice _____
Freight Rate _____

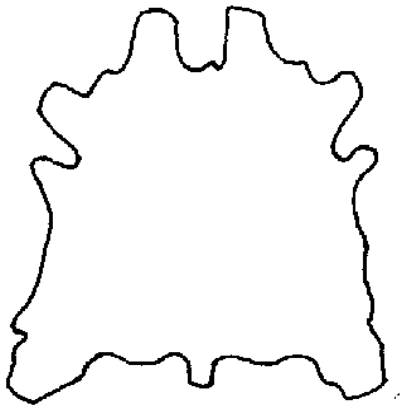
Car Initial and No.	No. Hides	Lot No.	Kind & Av. Weight Range	Packer	Point of Origin	Month's Kill

	Quantity Shipped	Gross Weight	Invoice Weight	Average Invoice Weight	Tare Used	Manure Hair	Grub Pct.
#1 Hides							
#2 Hides							
Total							

Tannery Inspection Report

Quantity Rec'd.	
Total Wt. Rec'd.	
Condition of Bundles	

Location of Defect



Random Sample Inspection	Numbers, 50 Pcs. or 25%, Lgr. of two	Unbranded, 100 Pcs. or 8% Lgr. of two
Wt. Test for Grade & Range		
Tare (average)		
Manure		
#2 in #1		
#3 in #2 or #1		
Cut and Slit Shanks		
Pattern		
Fleshing		
Dark		
Grain		
Burns on Natural		
Cuts in Burn in Blanket		
Grubs		
Worm		
Brand saturation (50 Hides)		

Comments:

Broker _____ Date Finished _____
Date Rec'd. _____ Tannery _____
Date Insp. _____ Reported by _____

NOTES

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