



# Standard Test Method for Brine Saturation Value of Cured (Salt-Preserved) Hides and Skins<sup>1</sup>

This standard is issued under the fixed designation D7476; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

## 1. Scope

1.1 This test method covers the estimation of degree of saturation of the brine content of cured (salt-preserved) hides and skins containing 40 % or more moisture.

1.2 The values stated in inch-pound units are to be regarded as the standard. The values given in parentheses are for information only.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

## 2. Referenced Documents

2.1 *ASTM Standards*:<sup>2,3</sup>

[D6715 Practice for Sampling and Preparation of Fresh or Salt-Preserved \(Cured\) Hides and Skins for Chemical and Physical Tests](#)

[E177 Practice for Use of the Terms Precision and Bias in ASTM Test Methods](#)

[E691 Practice for Conducting an Interlaboratory Study to Determine the Precision of a Test Method](#)

## 3. Terminology

3.1 *Definitions*:

3.1.1 The terms and definitions employed within this test method are commonly used in normal laboratory practice and require no special comment.

## 4. Summary of Test Method

4.1 The moisture (volatile matter by oven drying) and ash content of a composite hide or skin sample are determined. For

<sup>1</sup> This test method is under the jurisdiction of ASTM Committee D31 on Leather and is the direct responsibility of Subcommittee D31.02 on Wet Blue.

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<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

<sup>3</sup> "Trade Practices for Proper Packer Cattlehide Delivery," issued by Leather Industries of America and U.S. Hide, Skin & Leather Association (printed May 1985).

purposes of calculation the ash is assumed to be equivalent to sodium chloride and the moisture is assumed to be equivalent to water. The percent ratio of ash to moisture is calculated. This ratio times 100 is divided by 35.9 (which is the percent salt to moisture ratio in a saturated sodium chloride (brine) solution at 20°C (68°F)) to estimate the percent of saturation in the brine solution in the hides or skins.

NOTE 1—A saturated solution of sodium chloride at 20°C (68°F) contains 26.4 % by weight of NaCl. Therefore, in 100 g of that saturated solution only 73.6 g (100 – 26.4 g) is contributed by water. As such on a weight basis, 100 parts by weight of water will dissolve 35.9 parts [(100 x 26.4)/73.6] by weight of NaCl.

## 5. Significance and Use

5.1 This test method is intended to evaluate whether sufficient salt (NaCl) has been retained by the hides or skins to slow down degradation by bacterial (enzymatic) action, and to slow down autolysis by inherent enzymatic action, until they are preserved by a tanning process.

NOTE 2—Osmosis occurs during brine curing because moisture is drawn out by salt through the epidermis.<sup>4</sup> Low moisture (< 40 %) in the hides does not necessarily indicate poor cure. A hide may have low moisture due to osmosis; to increased fat content; or to drying out conditions. In all instances the hides would still show adequate cure if the moisture was saturated to approximately 85 % salt, because the ash: moisture ratio would be adequate.

## 6. Apparatus

6.1 *Crucible*, 30 to 50 mL, high-form, platinum or porcelain. Prepare crucible by heating it for 15 min in a muffle furnace set at 600 ± 25°C. Cool in a desiccator before use.

6.2 *Electric Muffle Furnace*, with controller or rheostat and pyrometer, capable of maintaining a temperature of 650 ± 25°C.

6.3 *Desiccator*, of appropriate size and charged with fresh desiccant.

6.4 *Analytical Balance*, capable of weighing to 0.001 g.

6.5 *Oven*, forced air, capable of maintaining 100 – 105°C.

## 7. Reagents and Materials

7.1 Distilled or de-ionized water.

<sup>4</sup> JALCA, 1963, p. 143.