

AERONAUTICAL MATERIAL SPECIFICATION

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LEATHER, CHROME RETANNED
Fuel and Hot Oil Resistant

1. ACKNOWLEDGMENT: A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.
2. APPLICATION: Primarily for parts such as packings and washers requiring resistance to fuel and hot lubricating oil.
3. MATERIAL AND FABRICATION: Butt ends close trimmed from green salted steer hides, tanned first with chromium salts and then retanned with vegetable tanning material.
4. TECHNICAL REQUIREMENTS:
 - 4.1 General:
 - 4.1.1 Tanning: Tanning process shall be such that in retanning with vegetable tanning material, the leather will be tanned throughout so that examination of a cross-section will reveal no indication of a chrome streak. Tanning process also shall preserve the highest percentage of natural fiber of the butt and bring the fiber into closest contact.
 - 4.1.2 Impregnation: Leather shall not be impregnated except for the greases and oils used in currying.
 - 4.1.3 Color: No dyes except tanning agents shall be used.
 - 4.1.4 Forming: Leather shall be capable of being formed without tearing, cracking, or noticeably wrinkling.
 - 4.1.5 Oozing: Leather shall not ooze on flat surfaces or edges. Leather showing evidence of oozing within six months of receipt by purchaser shall be subject to rejection.
 - 4.2 Composition: Leather shall conform to the following requirements:

Hide Substance	40 - 60%
Vegetable Tanning Material	20 - 35%
* Petroleum Ether Extract	10 - 18%
** Total Ash	7% max
** Chromic Oxide (Cr_2O_3)	3% min
Acidity (pH)	3.0 min
Glucose	none

- * Percentage on basis of moisture-free leather
** Percentage on basis of moisture-, grease-, and wax-free leather

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4.3 Physical Properties:

<u>Property</u>	<u>Value</u>	<u>Test Method</u>
4.3.1 <u>As Received:</u>		
Tensile Strength, Average of 5 specimens, psi, min	2500	
Tensile Strength, Individual, psi, min	2000	
Deflection, in., max	5/8	4.3.6.1
Bend, 180 degrees around a diameter equal to 2T	no cracks	4.3.6.2
4.3.2 <u>Fuel Resistance:</u>		
Deflection, in., max	5/8	Immerse in ASTM Fuel No. 1 at 70 - 85 F for 1 hr. Let specimens rest 1 hr. Then measure deflection, and bend.
Bend, 180 degrees around a diameter equal to 2T	no cracks	
4.3.3 <u>Lubricating Oil Resistance:</u>		
Linear Shrinkage, %, max	15	Immerse in ASTM Oil No. 1 at 437 F \pm 5 for 2 min. Measure shrinkage immediately after removal; then bend.
Bend, 180 degrees around a diameter equal to 2T	no cracks	
4.3.4 <u>Water Resistance:</u>		
Deflection, in., max	5/8	Immerse in boiling water for 10 min. Measure shrinkage immediately after removal. Let specimens rest 1 hr. Then measure deflection, and bend.
Linear Shrinkage, %, max	5	
Bend, 180 degrees around a diameter equal to 2T	no cracks	
4.3.5 <u>Dry Heat Resistance:</u>		
Deflection, in., max	5/8	Heat at 200 F \pm 2 for 1 hr. Measure shrinkage immediately. Let specimens rest 1 hr. Then measure deflection, and bend.
Linear Shrinkage, %, max	5	
Bend, 180 degrees around a diameter equal to 2T	no cracks	
4.3.6 <u>Test Procedures:</u>		
4.3.6.1 <u>Deflection:</u> Cut specimens 3 x 1 x 1/8 in. Support specimen as a horizontal cantilever beam, with flesh side down, with 2-1/2 in. of free span. Attach a 45-gram weight to the center of the strip at a distance of 2 in. from the supported end. Measure the resultant vertical deflection from horizontal at the end of the strip. This test applies only to leather 1/8 in. thick, but other thicknesses shall be of the same grade of leather.		
4.3.6.2 <u>Bending:</u> Specimens shall be bent at room temperature with the flesh side of the leather on the inside of the bend.		