



## PERFORMANCE, LEATHER STEERING WHEEL, SHIFT KNOB OR BOOT

WSS-M98P12-C2

### 1. SCOPE

This specification defines the performance requirements for tanned top grain or split leather made from steer hides to be used in steering wheel, shift/handbrake boot or knob applications.

### 2. APPLICATION

This performance specification is to be used for steering wheel, shift/handbrake boot or knob applications.

The material must also meet its respective WSS-M1F21 or WSS-M1F22-X specification requirements.

#### 2.1 LIMITATION

Foam used on the leather wrapped steering wheel cannot contain Diocetyl phthalate (DOP) in its formulation. Foam containing DOP will migrate thru the leather and cause topcoat peel in the field.

### 3. MATERIAL REQUIREMENTS

#### 3.1 APPROVED SOURCES

This specification is performance based and does not have approved sources.

#### 3.2 CONDITIONING AND TEST CONDITIONS

All test values are based on material conditioned for not less than 24 h prior to testing in a controlled environment of 23 +/- 2 °C and 50 +/- 5% relative humidity. Testing of the material should occur in the conditioning environment or soon after removal.

#### 3.3 SAMPLE SELECTION LOCATIONS

The location of the test samples is described in ISO 2418 or ASTM D2813 for physical testing of leather samples. For the material approval, samples are to be taken for the belly and backbone as noted in Table 1.

Component level DV/PV testing requirements are referenced in Table 2. Additional FSMS/SDS requirements are to be met as required from Ford Product Development Engineering.

#### 3.4 APPEARANCE

The color, grain, gloss and hand shall match the approved Corporate Design master sample.

| Date       | Action   | Revisions | Rev. 0 |
|------------|----------|-----------|--------|
|            |          |           |        |
|            |          |           |        |
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**3.5 LOT CERTIFICATION**

Each lot of finished hides is required to be inspected and certified by the finisher to the requirements listed in the control plan (see Table 1).

**3.6 FOGGING (GRAVIMETRIC)**

(SAE J1756 16 h at 100 °C heating, 21 °C cooling plate, post testing conditioning, 4 h)

Weight of Condensate

4.0 mg max

All materials, parts and components should be stored in an open environment for 14-28 days after manufacture, and then must be bagged in sealed polyethylene (PE) or PE coated aluminum bags for shipping. Parts for testing must be labelled with supplier and date of manufacture.

After conditioning, the samples shall be pre-dried by storing in a desiccator over silica gel or equivalent for a period of 2 days.

**3.7 ODOR**

(FLTM BO 131-03, 90 X 200 mm specimen, Variant B)

Condition 1

Rating 3 max

Condition 2

Rating 3 max

Condition 3

Rating 3 max

**3.8 FLAMMABILITY**

(ISO 3795)

Burn Rate

100 mm/minute max

**3.9 COLOR AND RESISTANCE PROPERTIES**

3.9.1 Resistance to Interior Weathering  
(FLTM BO 116-01,  
AATCC Evaluation Procedure 1)

Rating 4 min

| Component        | Exposure                 |
|------------------|--------------------------|
| Steering Wheel   | 2406.4 kJ/m <sup>2</sup> |
| Shift Knob, Boot | 977.6 kJ/m <sup>2</sup>  |

General Acceptance Criteria:

The material shall not exhibit any change in appearance such as color change, fading or gloss change in excess of the required AATCC rating. In addition, the material must remain flexible and exhibit no cracking at 6 – 6.5X magnification when bent around a 10 mm mandrel when tested on a hide.

3.9.2 Resistance to Heat Aging  
(7 days at 107 +/- 2 °C,  
AATCC Evaluation Procedure 1)

Rating 4 min

3.9.3 Resistance to Humidity  
(7 days at 70 +/- 2 °C and 95 +/-5% RH  
AATCC Evaluation Procedure 1)

Rating 4 min

There shall be no tone or gloss change or any loss of grain definition. Samples to be suspended vertically in the test cabinet.



- 3.9.4 Soiling and Cleanability Rating 4 min  
(FLTM BN 112-08, AATCC  
Evaluation Procedure 1)

Test only grease and standard soil.

- 3.9.5 Leather Test for Color Fastness-Rub Resistance Rating 4 min  
(ISO 11640, 10% elongation/mount felt pad 2-3 mm in the holder/  
AATCC Evaluation Procedure 2)

The surface shall show no evidence of wear through of top coat or painted layer, including bubbling of surface coating or particulate transfer onto felt pad.

- 3.9.5.1 Dry Felt 2,000 cycles

- 3.9.5.2 Wet Felt 500 cycles

- 3.9.5.3 Commercially Available Window Cleaner 100 cycles

- 3.9.5.4 Leather Cleaner per FLTM BN 112-08 100 cycles

- 3.9.5.5 Acetic Acid Solution (5% in deionized water) 100 cycles

- 3.9.5.6 Ethyl Alcohol/ Deionized water 70% v/v 100 cycles

- 3.9.5.7 Suntan Lotion 100 cycles  
(Apply 0.16 +/- 0.01 grams of  
Sunscreen or sunblock lotion  
with SPF factor of 30, water-proof  
and commercially available)

- 3.9.5.8 Insect Repellant 100 cycles  
(20-30% DEET commercially available)

- 3.9.6 Leather Test for Color Fastness-Rub Resistance/ Rating 4 min  
Perspiration Agent  
(ISO 11640/EN ISO 105-E04, 500 cycles  
AATCC Evaluation Procedure 2)

Use both acid and alkaline perspiration solutions.

- 3.9.6.1 Sample as received

- 3.9.6.2 Sample after Fade Resistance Per para 3.9.1

- 3.9.6.3 Sample after Heat Aging Per para 3.9.2

- 3.9.6.4 Sample after Humidity per para 3.9.3

The surface shall show no evidence of wear through of top coat or painted layer, including bubbling of surface coating or particulate transfer onto felt pad.