



Number: CTSO-C14b

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## China Civil Aviation Technical Standard Order

This China Civil Aviation Technical Standard Order (CTSO) is issued according to Part 37 of the China Civil Aviation Regulations (CCAR-37). Each CTSO is a criterion which the concerned aeronautical materials, parts or appliances used on civil aircraft must comply with when it is presented for airworthiness certification.

### Aircraft Fabric, Intermediate Grade

#### **1. Purpose.**

This China Civil Aviation Technical Standard Order (CTSO) is for manufacturers applying for Aircraft Fabric, Intermediate Grade CTSO authorization (CTSOA). This CTSO prescribes the minimum performance standards (MPS) that Aircraft Fabric, Intermediate Grade must first meet for approval and identification with the applicable CTSO marking.

#### **2. Applicability.**

This CTSO affects new application submitted after its effective date. Major design changes to article approved under this CTSO will require a new authorization in accordance with section 21.353 of CCAR-21R4.

#### **3. Requirements**

Aircraft fabrics that are to be so identified and that are manufactured

on or after the date of this CTSO must meet the standards set forth in Society of Automotive Engineers, Inc. (SAE), Aerospace Material Specification (AMS) Document No. AMS 3804C, "Cloth, Airplane, Cotton, Mercerized 65 lb. (290N) Breaking Strength," dated January 1, 1984, with the exceptions and additions in this CTSO.

a. Exceptions.

(1) Delete from paragraph 2. of SAE AMS 3804C the following: "the latest issue of Aerospace Material Specifications (AMS) shall apply."

(2) Compliance with paragraphs 4.2.2.1, 5.2.4, and 8.3 of SAE AMS 3804C is not required.

b. Additions.

(1) Paragraph 1.1 of SAE AMS 3804C shall read as follows:

Form: This specification covers one strength and one weave of mercerized cotton cloth known as "airplane cloth." However, synthetic fabric material, in particular polyester in the greige condition, also may be identified and used as "airplane cloth" if the fabric is shown to have certain equivalent properties as cotton cloth.

(2) Paragraph 1.2 of SAE AMS 3804C shall read as follows:

Application. Aircraft with wing loading less than 9 pounds per square foot (psf) and never-exceed speeds of less than 160 miles per hour (mph). Primarily for the external covering of aircraft surfaces, such as wings, fuselage, ailerons, elevators, and other airfoil surfaces.

(3) Replace the word cotton with cotton cloth in paragraph 3.1.1 of SAE AMS 3804C.

(4) Paragraph 3.1.2 of SAE AMS 3804C shall read as follows:

Yarn: The cloth shall be woven from 2-ply combed cotton yarn or synthetic continuous filament yarn.

(5) Paragraph 3.1.4 of SAE AMS 3804C shall read as follows:

Finishing: The cloth shall be uniformly finished in accordance with the best practice for high grade airplane cloth. Finishing of cotton cloth shall consist of washing, framing, and calendaring. The calendaring shall be sufficient to lay any nap present and shall provide a smooth even surface. Nap may be removed by singeing. Synthetic cloth shall remain unfinished (greige).

(6) In addition to the requirements of paragraphs 3.2.1, 3.2.2, and 3.2.5 of SAE AMS 3804C, include the following after each title: (cotton cloth only).

(7) The first sentence of paragraph 3.3 of SAE AMS 3804C shall read as follows:

Quality: The cotton fibers and synthetic filament shall be evenly spun into yarns of proper and uniform yarn count, twist, and diameter to produce the texture and weight required.

(8) In addition to the requirements of 4.6.1, 4.6.2, 5.1, and 5.2.2 of SAE AMS 3804C, replace reference to AMS 3804C with TSO-C14b.

#### **4. Marking.**

Requirements for marking are specified in paragraph 5.1 of SAE AMS 3804C.

#### **5. Application Data Requirements.**

The applicant must furnish the responsible certification personnel with the related data to support design and production approval. The application data include a statement of conformance as specified in section 21.353(a)(1) in CCAR-21R4 and one copy each of the following technical data:

- a. A complete description of the aircraft cloth including weight, thread count, breaking strength, elongation, and burst strength.
- b. A report of the test conducted in accordance with SAE AMS 3804C for qualification and approval.
- c. Quality control test specifications to be used to test each production article to ensure compliance with this TSO.

#### **6. Furnished Data Requirements.**

The manufacturer must furnish to the user a note with the following statement:

“The conditions and tests required for CTSO approval of this article are minimum performance standards. It is the responsibility of those desiring to install the article either on or within a specific type or class of

aircraft to determine that the aircraft installation conditions are within the CTSO standards, the article may be installed only if further evaluation by the applicant documents an acceptable installation and is approved by the Administrator. In particular, approved polyester fabric must be installed using an approved process specification.”

## **7. Availability of Referenced Documents.**

a. Order SAE AMS documents from:

Society of Automotive Engineers, Inc.

Department 331, 400 Commonwealth Drive, Warrendale, PA 15096.

You may also order them online from the SAE AMS Internet website at:

[www.sae.org](http://www.sae.org)

b. Order SAE ASTM documents from:

American Society for Testing and Materials, 1916 Race Street,  
Philadelphia, PA 19103.

You may also order them online from the ASTM Internet website at:

[www.astm.org](http://www.astm.org)