



A.I.U.F.F.A.S.S.

Association Internationale des Utilisateurs de Fils de Filaments Artificiels et Synthétiques et de Soie Naturelle

International Association of Users of Artificial and Synthetic Filament Yarns and of Natural Silk

TO THE OFFICE OF THE SECRETARY
U.S. NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

Attn: Rulemakings and Adjudications Staff

A.I.U.F.F.A.S.S. is the Association of European silk and man made filament weavers and represents 95% of European silk users (twisters, weavers and finishers) mainly located in Italy and France.

You will find herewith enclosed a petitioning for rulemaking that A.I.U.F.F.A.S.S. is submitting with the aim of amending the Standard for the flammability of clothing textiles 16 CFR 1610 that was published in the Federal Register (vol. 73, No. 58) in March 25, 2008.

Here is our contact reference: g.tettamanti@unindustriacomo.it

We thank you for taking our petition into proper consideration.

Yours sincerely,

Franco Ghiringhelli
A.I.U.F.F.A.S.S. President

A handwritten signature in black ink, appearing to read 'Franco Ghiringhelli', written over a faint, larger version of the A.I.U.F.F.A.S.S. logo.

January, 27, 2015

Encl.

**A.I.U.F.F.A.S.S. PETITIONING
FOR AMENDING THE STANDARD
FOR THE FLAMMABILITY OF CLOTHING TEXTILES (16 CFR 1610)
REGARDING SILK PRODUCTS**

PETITIONER

A.I.U.F.F.A.S.S. is the "INTERNATIONAL ASSOCIATION OF USERS OF ARTIFICIAL AND SYNTHETIC FILAMENT YARNS AND OF NATURAL SILK".

It comprises Silk Weavers from Italy, France and Switzerland, representing 95% of European silk weaving industry. They are usual suppliers of luxury brands in Italy, France and all over the world.

It is supported by Ufficio Italiano Seta (Como, Italy), Intersoie (Lyon, France) and Swiss Silk Group, (Zurich, Switzerland), the most important groups of silk entrepreneurs in Europe.

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STATUTE UNDER CONSIDERATION:

STANDARD FOR THE FLAMMABILITY OF CLOTHING TEXTILES (16 CFR 1610)

The latest amendment to the Standard for the flammability of clothing textiles 16 CFR 1610 was published in the Federal Register (Vol 73, No. 58) on March 25, 2008.

All clothing textiles (fabrics and garments) for adults and children (except children's night clothes, which are subject to Standards 16 CFR 1615-1616) fall within the scope of Standard 16 CFR 1610.

CRITICAL ASPECTS OF 16 CFR 1610 concerning silk products

1. Technical approach

According to the procedures foreseen by Standard 16 CFR 1610, the sample of fabric is first tested in its original state (ready for use as a clothing article), then, if found acceptable (class 1), subjected to further testing after having been refurbished as required.

Before running the test, the specimens need to be dried in an oven at 105°C for 30 minutes, then placed in a desiccator and left to cool for at least 15 minutes.

The fabric, as a result of such treatment, loses all its humidity content. This is an extreme condition not found in reality. **Silk** in its natural state and under normal conditions of use, as silk garment, **is a hygroscopic material and its relative humidity is about 11% and never less than 9%.**

There are exceptions to the provisions foreseen by Standard 16 CFR 1610. The Standard does not apply to specific kinds of hats, gloves, interlinings, etc. and a few special cases where products can be exempted from testing. The first case for exemptions is for "Plain surface fabrics weighing 88.8 g/m² (2.6 oz/ya²) or greater, regardless of fiber content".

There is no scientific evidence to support the upper limit of 88.8 g/s.m (2.6 oz/ s.ya), it is a simple matter of experience and tradition.

A.I.U.F.F.A.S.S. has conducted almost 130 tests on silk fabrics of different structures with a weight between 20 and 88 g/m², each one of these single fabrics has been tested according to the Standard 16 CFR 1610 and it has been classified Class 1.

Several reports are assembled in Annexe 1.

Lightest silk fabrics sometimes may be only a little bit below the limit set for conformity, but A.I.U.F.F.A.S.S. has also done laboratory tests which demonstrate that the conditioning atmosphere is the real critical point of the Standard 16 CFR 1610.

15 samples of different silk fabrics with a mass per unit less than 30 g/m² were tested in accordance with the conditioning conditions described in the Standard 16 CFR 1610 (30 min at 105°C) versus the standardized conditions of test (according to ASTM 1776-04* and/or ISO 139**): 20°C – 65%HR

*ASTM 1776-04 : Standard Practice for Conditioning and Testing Textile

**ISO 139 : Standard atmospheres for conditioning and testing

The results are summarized in the following table:

	16 CFR 1610 Conditioning of samples: 30 min at 105°C Humidity of samples: 0 %HR		ISO 139 " testing conditions for apparel/textile" Conditioning of samples": Temperature : 20°± 2°C Humidity: 65± 4% HR	
weight g/m ²	Average burning time	Class	Average burning time	Class
21	2,9	3	3,6	1
21	3,1	3	3,5	1
22	3,1	3	3,8	1
10	2,8	3	3,9	1
17	3,3	3	3,6	1
17	3,6	1		
19	4,7	1		
19	IBE	1		
19	3,1	3	5,3	1
24	4,4	1		
24	4,2	1		
26	5,9	1		
27	5,1	1		
30	IBE	1		
30	IBE	1		

IBE = IGNITION BUT EXTINGUISHED

The reports are assembled in Annexe 2

The overwhelming majority of silk fabrics can reach a performance Class 1 when they are conditioned in the standard humidity rather than subjected to the conditioning oven and desiccator at 0 percent humidity.

Standard 16 CFR 1610 foresees very severe conditioning requirements that are not developed according to usual international methods and that are not adequate for testing the flammability of silk fabrics for apparel.

2.Scientific approach

The second case for exemptions is for "Plain or raised surface fabrics, regardless of fabric weight, made, entirely or in a combined form, from the following fiber types: acrylic, modacrylic, nylon, olefin, polyester, wool."

Scientific community at international level has no discussion at all about the fact that silk is considered among the less flammable fibers, as well as wool. Silk is a protein fiber. It burns slowly, it tends to self-extinguish, in contact with a flame it is difficult to ignite.

The flammability behaviour of fibers is scientifically represented by L.O.I. (limiting oxygen index) value, which is the most authoritative measure of flammability characteristics of textile.

L.O.I. provides a measure of flame retardancy through the amount of oxygen needed to support combustion.

In the following table, you'll find L.O.I. % value for some textile fibers available in literature

Cotton	Rayon	PET	silk	Nylon 6	wool
16 - 17	17 - 19	20 - 22	22 - 23	22 - 24	24 - 25

L.O.I. for silk (22-23) is very similar to nylon (22-24, exempted from testing) and it is much less flammable than polyester (20-22, exempted from testing) and acrylic (18-20, exempted from testing).

There is no scientific reason to submit silk to mandatory testing.

3.Consumer Safety approach

European silk weavers are well aware of the utmost importance of consumer safety. They are striving for improving these aspects in the sake of final consumers. They supply international markets and their European silk fabrics do not face any problem at all with flammability standards all over the world but in the U. S.

As far as we know, silk fabrics do not exhibit "rapid and intense burning". Italy and France have a very long tradition in silk industry. In these two European countries silk fabrics and clothes have been produced since the 15th Century. Manufacturers have neither produced nor sold items "so highly flammable as to be dangerous when worn by individuals". The precautionary principle applies to internal market and external trade. As you know, this principle has been even enshrined in the French Constitution. For all we know in Europe no injuries from silk goods consumption have ever been recorded.

European manufacturers of silk fabrics and items are fully conversant with whatever may jeopardize consumers' health and safety. They are unwilling to imperil their own customers. They obviously have the same respect for public security and the same ethical behavior towards American customers.

There is no relevant safety reason for impeding the free commercial movement of silk goods

4.Economic approach

U.S. market is fundamental for European Silk Industry and Standard 16 CFR 1610, with its complex certification procedure, has affected severely European exporters of silk products.

European silk sales always consist of several lots of small quantities and they regard fashion articles which always vary deeply, according to various colours and various patterns developed on various kinds of fabrics.

For this reason the economic impact of certification procedures on E.U. industry has been very relevant also because customers are used to reverse it entirely on their suppliers.

CONCLUSION AND REQUEST FOR AMENDMENTS

For all the reasons stated above, A.I.U.F.F.A.S.S has been asking for long to include silk in the exemption list. As there has been no agreement on this from the CPSC, A.I.U.F.F.A.S.S is now asking for the following amendments to be included in 16 CFR Part 1610.

The comments are mainly linked to the conditioning procedure of the specimen tests foreseen by 16 CFR 1610 in order to align them with international practice ISO standard 139 and/or ASTM 1776-04

In the past even the National Cotton Council of America suggested that cotton fabrics should have been tested in standard humidity conditions. In its answer, Consumer Product Safety Commission stated that more severe conditions in the Standard could provide a greater level of safety, but it also acknowledged N.C.C argument was right.

As far as we know, Standard 16 CFR 1610 is one of the only case of standard in which it is required such an extreme conditioning for textile. The national standards of E.U. countries (UNI, BS, DIN, etc.), European EN standards, and I.S.O standards for clothing (including protective type) and furniture provide conditioning of test specimens in the standard atmospheres for textile testing (20 or 23° and 50 or –65% R.H.) Even ASTM 1776-04 foresees that all fabrics should be tested in standardized humidity.

It should be noted, also, that the tests relating to protective clothing are carried out after conditioning in a standard atmospheres according to ISO 139

For all reasons stated above, AIUFFASS submits the following amendments describing the procedure for testing with normal humidity instead of 0% humidity:

§ 1610.6 Test procedure

(a) Step 1—Testing in the original state.

(2) Plain surface textile fabrics: ...

(iv) Condition specimens.

Remove:

~~(All specimens mounted in the holders shall then be placed in a horizontal position on an open metal shelf in the oven to permit free circulation of air around them.~~

~~The specimens shall be dried in the oven for 30 ± 2 minutes at 105 ± 3 °C (221 ± 5 °F), removed from the oven and placed over a bed of anhydrous silica gel desiccant in a desiccator until cool, but not less than 15 minutes.)~~

Replace with:

All specimens mounted in the holders shall then be placed in a horizontal position in the standard atmosphere for testing textiles, which is 21 ± 1 °C (70 ± 2 °F) and 65 ± 2 % relative humidity for at least 24 h. according to the atmosphere defined in ASTM 1776-04

The specimens before to be removed from the standard atmosphere shall be placed in a tight container and the test shall be initiated within 1 min after the opening of the container.

Idem for (3) Raised surface textile fabrics— (v) Condition specimens.

§ 1610.6 Test procedure.

Modification of :

(b) Step 2—Refurbishing and testing after refurbishing.

(1) The refurbishing procedures are the same for both plain surface textile fabrics and raised fiber surface textile fabrics. Those samples that result in a Class 3, Rapid and Intense Burning after Step 1 testing in the "as received" or original state shall not be refurbished and do not undergo

Step 2.

(i) Dry cleaning procedure. (A) All samples shall be dry cleaned before they undergo the laundering procedure. Samples shall be dry cleaned in a commercial dry cleaning machine, using

the following prescribed conditions:

Solvent: Perchloroethylene, commercial grade

Detergent class: Cationic

Cleaning time: 10–15 minutes

Extraction time: 3 minutes

Drying Temperature: $60 \text{ } \neq \text{ } 66$ °C ($140 \text{ } \neq \text{ } 150$ °F)

Drying Time: 18–20 minutes

Cool Down/Deodorization time: 5 minutes

(B) Samples shall be dry cleaned in a load that is 80% of the machine's capacity. If necessary, ballast consisting of clean textile pieces or garments, white or light in color and consisting of approximately 80% wool and 20% polyester, shall be used.

(ii) Laundering procedure. The sample, after being subjected to the dry cleaning procedure, shall be washed and dried one time in accordance with sections 8.2.2, 8.2.3 and 8.3.1(A) of AATCC Test Method 124–2001 "Appearance of Fabrics after Repeated Home Laundering." Washing shall be performed in accordance with sections 8.2.2 and 8.2.3 of AATCC Test Method 124–2001 using wash water temperature (V) ($149^{\circ} \pm 5^{\circ}\text{F}$; $60^{\circ} \pm 3^{\circ}\text{C}$) specified in Table II of that method, and the water level, agitator speed, washing time, spin speed and final spin cycle specified for "Normal/Cotton Sturdy" in Table III. A maximum wash load shall be 8 pounds (3.63 kg) and may consist of any combination of test samples and dummy pieces. Drying shall be performed in accordance with section 8.3.1(A) of that test method, Tumble Dry, using the exhaust temperature ($150^{\circ} \pm 10^{\circ}\text{F}$; $66^{\circ} \pm 5^{\circ}\text{C}$) and cool down time of 10 minutes specified in the "Durable Press" conditions of Table IV.

(2) Testing plain surface textile fabrics after refurbishing. The test procedure is the same as for Step 1—Testing in the "as received" or original state described in paragraph (a)(1) of this section; also follow the test sequence § 1610.7(b)(2).

(3) Testing raised fiber surface textile fabrics after refurbishing.

The test procedure is the same as for Step 1—Testing in the "as received" or original state as described in paragraph (a)(3) of this section; also follow the test sequence in § 1610.7(b)(4).

Add here the following sentence:

(4) Before performing the test, according to test procedure described as for Step 1 the specimen pre-treated will have to be conditioned according to the atmosphere defined in ASTM 1776-04 which is: $21 \pm 1^{\circ}\text{C}$ ($70 \pm 2^{\circ}\text{F}$) and $65 \pm 2\%$ relative humidity"

Da: RulemakingComments Resource <RulemakingComments.Resource@nrc.gov>
Inviato: mercoledì 28 gennaio 2015 11.10
A: TETTAMANTI GUIDO
Cc: RulemakingComments Resource
Oggetto: Your E-mail to the Office of the Secretary, NRC, Rulemakings Mailbox

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Da: WeTransfer <noreply@wetransfer.com>
Inviato: mercoledì 28 gennaio 2015 11.10
A: TETTAMANTI GUIDO
Oggetto: Grazie per aver utilizzato WeTransfer. File inviato a rulemaking.comments@nrc.gov

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FROM DR. FRANCO GHIRINGHELLI
PRESIDENT OF AIUFFASS.

SENDING

AIUFFASS PETITIONING
FOR AMENDING THE STANDARD
FOR THE FLAMMABILITY OF CLOTHING TEXTILES (16
CFR 1610)
REGARDING SILK PRODUCTS

Appena il destinatario avrà scaricato il file, riceverai un'e-mail di conferma.



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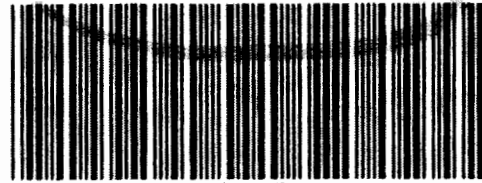
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STUK TEXTILES (16 CFR 1610)

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