

هيئة التقييس لدول مجلس التعاون لدول الخليج العربية GCC STANDARDIZATION ORGANIZATION (GSO)

مشروع مواصفة نهائي
Final Draft of Standard FDS

إعداد اللجنة الفنية الخليجية رقم TC 01

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رغوة اليوريثات القابلة للانتناء (الاسفنج الصناعي)
والفرشات والوسائد المصنوعة منها

Flexible Urethane Foam (industrial sponge)
And Mattresses And Pillows Mad IT

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This document is a draft Gulf Standard circulated for comments. It is, therefore, subject to alteration and modification and may not be referred to as a Gulf Technical Regulation until approved by GSO.

هذه الوثيقة مشروع لمواصفة قياسية خليجية تم توزيعها لإبداء الرأي والملاحظات بشأنها، لذلك فإنها عرضة للتغيير والتبديل، ولا يجوز الرجوع إليها كلائحة فنية خليجية إلا بعد اعتمادها من الهيئة.

تقديم

هيئة التقييس لدول مجلس التعاون لدول الخليج العربية هيئة إقليمية تضم في عضويتها أجهزة التقييس الوطنية في الدول الأعضاء، ومن مهام الهيئة إعداد المواصفات القياسية واللوائح الفنية الخليجية بواسطة لجان فنية متخصصة.

قرر/قررت مجلس الإدارة لهيئة التقييس لدول مجلس التعاون لدول الخليج العربية في اجتماعه رقم **اختر رقم الاجتماع** الذي عقد بتاريخ...../...../..... هـ، الموافق...../...../.....م اعتماد اللائحة الفنية الخليجية رقم ... GSO " رغوة اليوريثان القابلة للانثناء (الاسفنج الصناعي) وفرشات والوسائد المصنوعة منها" التي تم دراستها وإعدادها ضمن برنامج عمل اللجنة الفنية الخليجية رقم TC.01 "اللجنة الفنية الخليجية للمواصفات الكيميائية والغزل والنسيج" المدرجة في خطة دولة الكويت.

Flexible Urethane Foam (industrial sponge)
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1 – Scope and Field of Application

This Gulf Standard covers the requirements and specifications that must be available in foldable urethane foam (industrial sponge), which is used in (mattresses, pillows, etc.), it's also specifies the requirements for these mattresses and pillows.

2 - Normative References

2.1 ISO 1798 Flexible cellular polymeric materials – Determination of tensile strength and elongation at break.

3 - Terms and Definitions

Urethane foam: foldable material, consisting of network of cells with have similar properties that are necessarily open and interconnected and with homogeneous construction of the foam.

4 - Requirements

4.1 Urethane foam classified into the following two categories:

A-Right angel foam

B- Multi shape foam

4.2 Flexible urethane foam prepared in the shape of blocks, sheets or strips, and due to same manufacturing conditions it may be necessary to make correction or repair, in this case, the foam that has been corrected or repaired is considered to comply this standared

But It should be from the same composition and quality of the original foam , provided that such corrections don't effect Corrections and difference agreed between seller and buyer regarding the measurement , shape and suitability of the use of the foam .

During correction, repair, or manufacturing operations Adhesives should not cause any damage to the foam, and the bonds resulting from the strength of the original foam should be at the very least.

4.3 The outer surface should not have loosened at the agreed important surfaces, Also, the marks resulting from removing molds as well as other surface defects should not be worse than the standard sample agreed between the seller and the buyer.

4.4 The foam shall be odorless

4.5 The color shall be appropriately uniform and according to what agreed upon between the seller and the buyer, taking into account the tendency of urethane foam to change the color when exposed to light.

4.6 Bendable urethane is classified according density to the following categories:

Table (1)

category	Density kg/m ³
A	12-14.9
B	15-19.9
C	20-24.9
D	25-29.9
E	30-34.9
F	35-39.9
G	40-44.9
H	45-49.9
I	50-64.9
J	65+

4.6.1 taking confederation the condition surrounding manufacturing, the difference in density if agreed between seller and buyer should be as fallow:

- Density less than 40kg/m³ , the tolerance shouldn't be more than $\pm 8\%$.
- Density more than 40kg/m³ , the tolerance shouldn't be more than $\pm 5\%$

4.7 Dimension variation should be according what is agreed between the seller and the buyer.

- 4.8** The seller and the buyer have the right to agree to produce other density not mentioned in clause 6.4 In proportion to the needs of the market and the customer.
- 4.9** The product shall be stored in well- ventilated ware house far from the surface of the earth, and in atmosphere that free from combustion resulting from any heating device, and free from fumes of solvents or acid fumes. Also the finished ductile mattresses or cushions should not be stored – under any circumstances- under direct sun light or exposer to ultraviolet light.
- 4.10** sponge plate must be stumped with the name of the manufacturer, the category of sponge and the production date.

5- Mattresses

- 5.1** The mattress should be made of polyurethane foam that comply the specifications mentioned in clause 6.4, provided that it free from any rectifying part or any other materials.
- 5.2** Mattresses are made of urethane foam either from one or several parts of different of mold but it should be with same density:
A) the inner part made of foldable urethane foam.
B) bag (the cover) which contain the inner part.
- 5.3** the inner part of the mattress should be made of urethane foam that comply the specification mentioned in clause 2 provided that its free from any rectifying part that might be harmful to any person who's contact with it (the ingredient must be free from Coarse grains and particles), the urethane foam is either molded directly or composed of parts, and it might have gaps on it.
- 5.4** if the mattress is composed of different parts or different layers it should be homogenous and from the same density.
- 5.5** the bag of the mattress should be made of clean fabric suitable for the purpose pf using, regular fabric and free from defects.
- 5.6** Accomplished mattress
Its permitted to manufacture mattress with different dimensions and thickness with agreement between the seller and buyer, provided that the percentage of

variation is according table (2) and table (3) which concern the normative dimension of the mattress and tolerance permitted in centimeters.

Table (2)
normative dimension of the mattress and tolerance permitted in centimeters.

Dimension (length- width) cm	Tolerance permitted
Less than 50	± 0.4
50-80	± 0.05
80-100	± 0.06
100-140	± 0.08
More than 140	± 1.0

Table (3)
Mattresses Thickness and permitted tolerance

Density (cm)	Permitted tolerance
4-6	± 0.2
6-10	± 0.3
10-15	± 0.4
15-25	± 0.5
More than 25	± 0.6

Note: mentioned Thickness is not related to the length of the mattress

5.7 labelling card of the mattress should be fixed and should indicate the length, width, normative thickness, density, category in metric unit.

5.8 in Accomplished mattress its allow to add allayer of brocade but it should be recorded on labelling card.

5.9 The product should be stored according what is mentioned in clause 4.9.

6- cushions

6.1 cushions shall made of bendable urethane category which mentioned in clause 4.6., and its consist three parts :

- A) the inner part which is made of foldable urethane foam.
- B) slice of foam with low thickness.
- C) the bag (outer cover).

6.2 The inner part of the polyurethane foam shall be manufactured according the specification mentioned in clause 4, provided that its free of any rectifying component or other materials.

6.3 The foam slice should be made of foldable urethane foam, separating the inner part from the bag, its thickness should be range between 0.8-1 cm.

6.4 The bag (the outer cover) should be made of clean fabric and free from defects.

6.5 its permitted to manufacture cushions with different dimensions and thickness by agreement between the seller and buyer, provided that their measurements and intensity are determined at the time of the sale, provide that the percentage of variation is according table (4) concerning normative dimensions and weights of the cushions and permitted tolerance.

Table (4)
Normative dimension and weights for cushions and permitted tolerance

Length (cm)	Tolerance (cm)	Width (cm)	Tolerance (cm)
Less than 50	± 0.3	Less than 50	± 0.3
50-80	± 0.5	50-80	± 0.5
80-100	± 0.6	80-100	± 0.6

7- Test methods

Test methods should be applying according standards mentioned in clause 2.1 and appendix no (A).

8- the product should be stored according what is mentioned in clause 4.9.

APPENDIX (A)

Density test:

This method describes the procedure used to determine the density of the foldable urethane foam.

Test sample:

Surface – free sample is used to measure 80x30x30 cm

Method:

The sample is weight to be accurate scale that allows the weight to be accurately with up to +1% of the quantity weighted, length and width are measured using specific scale.

As for thickness, it is measured using a specific scale measured by a graduated disk.

Density is estimated in kg, cubic meter.

Density in kg/cubic meter sample weight in kg sample size in cubic meter

References:

- ASTM D 3454
- ASTM D3574