

Chemical Technical Specifications

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**ESSENTIAL REQUIREMENTS OF SAFETY AND
HEALTH IN FURNITURE**

The Kurdistan Standardization and Quality Control Authority

Essential Requirements of Safety and Health in Furniture

1- Scope

- 1.1 This specification addresses the essential safety and health requirements of indoors (home) and outdoors (gardens, beaches, etc.) furniture with regards to basic requirements wither for raw materials used such as artificial and natural woods, fabrics, and leathers whether natural or artificial, or for the final product as one piece of furniture
- 1.2 This standard applies to both finished and non- finished furniture

2- Complementary Standards

- 2.1 ES 906-12 on wood-based panels and particle boards part 12: determination of formaldehyde release – released Formaldehyde room method no, 906-12
- 2.2 ES 3596 – 5 on methods of analysis of wood fibre boards part 5: determination of formaldehyde content using the perforator method.
- 2.3 ES 650-1 on natural woods Part 1: General Requirements
- 2.4 ES 650 – 2 on Natural woods Part 2: Testing Methods for natural woods
- 2.5 ES 4166 on grading of soft woods
- 2.6 ES on cut Arrow woods
- 2.7 ES 4379 on cut Zen woods
- 2.8 ES 4892 on moisture conditioning of natural woods and wood-based raw materials
- 2.9 ES 5934 on cut woods of wide-leafed trees (hard) – measurement of defects
- 2.10 ES 5933 on cut woods of wide-leafed trees (hard) – terms and definitions

2.11 ES 5929 on cut woods of wide-leafed trees (hard) – dimensions – measuring methods

2.12 ES 5928 cut woods of wide-leafed trees (hard) – nominal sizes

2.13 EN 15338

Hardware for furniture – Strength and durability of extension elements and their components

2.14 EN 15570

Hardware for furniture – strength and durability of hinges and their components – hinges pivoting on a vertical

2.15 EN 15706

Hardware for furniture – strength and durability of slide fittings for sliding doors and roll fronts

2.16 EN ISO 10283 / 2007

Binders for paints and varnishes – Determination of monomeric diisocyanate resins.

2.17 ISO 15320 / 2003

Pulp, paper and board – determination of pentachlorophenol in an aqueous extract

3. Definitions

Please refer to the European norm EN 13986

4. Basic Requirements for raw materials used in furniture

4.1 Processed Woods

4.1.1 Arsenic and mercury compounds (used as preservatives for woods from boring insects, white ants and molds) shall not be present in all types of processed woods.

Note 1:

Arsenic and mercury compounds are found for instance in CCA (Chromated copper arsenate) and it is banned for use in preservatives of wood. Instead, the use of Ammonium Chromium quat (ACQ) is recommended

4.1.2 Essential requirements for the presence of formaldehyde and its release

4.1.2.1 When materials used in manufacture contain formaldehyde, especially aminoplastic glue and urea formaldehyde added to the product during manufacture, the product shall be tested and classified into one of two grades (E1 & E2). Tables 1, 2, and 3 detail the limits of formaldehyde content and release in boards used in the manufacture of furniture of both classes E1 and E2.

Note 2:

Class E1 boards may be used without the need for equilibration in the testing room atmosphere higher than 0.1 parts per million formaldehyde according to the terms of the ES 906 – 12.

4.1.2.2 Testing requirements are not applicable to wood-based panels to which no materials containing formaldehyde have been added during or after manufacture. They can be classified E1 without testing. See note 3

Note 3:

Examples of this type of boards:

- Cement boards (non-covered)
- moist method fiber boards (non-covered) when no glue that releases formaldehyde has been added, or when the released quantity is negligible after manufacture when Isocyanate and phenol resins are used.

4.1.2.3 Values of formaldehyde content in ES 3596 – 5 for particle boards and wood fiber boards and medium density fibre board shall be calculated for environmentally conditioned boards so that moisture content is 6.5 %.

4.1.2.4 In the case of particle boards, or --- wood fiber boards, or medium density fiber boards with a different moisture content, the analytical values in the ES 3596 – 5 standard (known as perforator values) shall be multiplied with the F index.

4.1.2.5 In the case of particle boards in the EN 312 standard or in the ES 3578 – 2 standard for medium density fibre boards or in the EN 300 standard for directional wood fiber boards, the F indices in the aforementioned standards are only for boards with a moisture content specified in the standards.

Note 4:

Experience has shown that to verify conformity with the limits listed in table 1, the average values listed in the ES 3596 – 5 standard relative to the internal control of plant production during 6 months shall not exceed 6.5 mg formaldehyde / 100 g of the weight of the medium density fibre board (MDF)

Note 5:

In some countries only grade E1 is permitted.

Table 1 –formaldehyde content and release (E1) and type of wood used according to directive EEC / 89 / 106

		Type of Board		
		Painted and coated or coated with a layer	Non-coated	Non-coated
		1- particle boards 2- Oriented strand boards (OSB) 3- Medium density fibre boards (MDF) 4- Plaquage 5- Hardwood boards 6- Wood fiber boards (wet method) 7- cement particle boards 8- wood boards coated with a vinyl layer	1- Plaquage 2 – hardwood boards 3- wood covered with a layer of vinyl	1- particle boards 2- oriented strand boards (OSB) 3- Medium density fibre boards (MDF)
First test type Note 6	Testing method	ES 906 – 12		
	Requirements	Released quantities less than or equal to 0.124 mg / m ³ air		
	Testing method	ES 3596 – 5		
	requirements	Content less than or equal to 8 mg / 100 g board dried in dry oven method. See note 4		

Plant production control	Testing method	EN 717 - 2	ES 3596 – 5
	Requirements	Released quantity less than or equal to 3.5 mg / m ² per hour during less than 3 days after production of the board	Contents less than or equal to 8 mg / 100 g board in dry oven method. See note 4
<p>Note 6:</p> <p>Testing of listed products shall be performed on the first sample according to ES 3596 – 5 and EN 717 – 2 standards either during production control or in outside testing.</p>			

Table 2 –Formaldehyde content and release (E2) and type of wood used according to directive EEC / 89 / 106

				Type of board		
				Painted and coated or coated with a layer	Non-coated	Non-coated
				1- Oriented strand boards (OSB) 2- Medium density fibre boards (MDF) 3- Plaquage 4- Hardwood boards 5- Wood fiber boards (wet method) 6- cement particle boards 7- wood boards coated with a vinyl layer	1- Plaquage 2 – hardwood boards 3- wood covered with a layer of vinyl	1- oriented strand boards (OSB) 2- Medium density fibre boards (MDF)
Testing a final sample for analysis or outside inspection	Either	Method of testing	ES 906 – 12			
		Requirements	Released quantity less than or equal to 0.124 mg / m ³ air note 7			
	or	Method of testing	EN 717 - 2		ES 3596 – 5	

		Requirements	Released quantity greater than 3.5 mg / m ² per hour and less than or equal to 8 mg / m ² per hour Or Greater than 5 mg / m ² per hour and less than or equal to 12 mg / m ² per hour during 3 days after the manufacture of the board	formaldehyde content greater than 8 mg / 100 g and less than or equal to 30 mg / 100 g of board in dry oven method
Plant production control	Method of testing		EN 717 – 2	ES 3596 – 5
	Requirements		Released quantity greater than 3.5 mg / m ² per hour and less than or equal to 8 mg / m ² per hour Or Greater than 5 mg / m ² per hour and less than or equal to 12 mg / m ² per hour during 3 days after the manufacture of the board	formaldehyde content greater than 8 mg / 100 g and less than or equal to 30 mg / 100 g of board in dry oven method

Note 7:

The upper limits for wood fibre boards of type E2 are listed in ES 3596 – 5 and EN 717 – 2 standards for plant production control and outside control tests.

Table 3 –Formaldehyde content and release (E2) for particle boards according to directive EEC / 89 / 106

			Type of board	
			Painted or coated with a layer	Non-coated
Testing a final sample or outside inspection	Either	Method of testing	ES 906 – 12	
		Requirements	Released quantity greater than 0.124 mg / m ³ air and less than or equal to 0.3 mg / m ³ air	
	or	Method of testing	EN 717 - 2	ES 3596 – 5
		Requirements	Released quantity greater than 3.5 mg / m ² per hour and less than or equal to 8 mg / m ² per hour	formaldehyde content greater than 8 mg / 100 g and less than or equal to 20 mg / 100 g of board in dry oven method
Plant Production Control	Method of Testing		EN 717 - 2	ES 3596 – 5
	Requirements		Released quantity greater than 3.5 mg / m ² per hour and less than or equal to 8 mg / m ² per hour	formaldehyde content greater than 8 mg / 100 g and less than or equal to 20 mg / 100 g of board in dry oven method

Note 8

Experience has shown as regard particle boards that to verify conformity with these limits, the average values listed in the ES 3596 – 5 standard relative to the internal control of plant production during 6 months shall not exceed 6.5 mg formaldehyde / 100 g of the weight of the board

Note 9:

In some countries only grade E1 is permitted.

4.2 In Natural Woods

4.2.1 Pentachlorophenol (PCP) in natural woods shall not exceed 5 parts per million according to directive EEC / 89 / 106

4.2.2 Arsenic and mercury compounds (used as preservatives of wood against boring insects, white ants, and molds) shall not be present in all kinds of natural woods according to Regulation EC No. 1907 / 2006

Note 10:

Arsenic and mercury compounds are present for instance in chromated copper arsenate (CCA). It is banned for use in wood preservatives. The use of Ammonium chromium quat (ACQ) is recommended.

4.3 Upholstery Fabrics used in Furniture

The standard on the Essential Requirements of Safety and Health in fabrics issued by the Authority shall be applied.

4.4 Leathers (Natural leathers or artificial leathers) used in upholstery

4.4.1 The standard on the Essential Requirements of Safety and Health in upholstery leathers issued by the Authority shall be applied.

4.4.2 The Egyptian standard on upholstery leathers number 635 shall be applied.

4.5 Sponge (Natural sponges or artificial sponges (Polyurethane)) used in upholstery:

The Egyptian Standard numbered 1495 on Flexible cellular Polymers – flexible polyurethane (artificial sponges) used in upholstery shall be applied.

4.6 Hardware (metals and others)

4.6.1 No breakage shall be present in any of the hardware or hinges used in furniture either in the hardware or in any element common with the furniture.

4.6.2 The hinge shall remain in good condition to fill its role without the appearance of any malfunction or breakdown (it shall remain in its position)

4.6.3 Hardware (metals or others) shall fill their role after the removal of loads

4.6.4 No disfiguration or wear shall be in any component

4.6.5 There shall be no pointed edges, protruding nails, or gaps that can harm the user.

Testing for clauses 4.6.1 to 4.6.5 shall be performed according to the European standards: EN 15338, EN 15706, and EN 15570

5. Essential Requirements for the Finished Furniture Piece

5.1 Raw Materials

Woods and wood based materials shall be free of molding, insect and boring insects.

5.2 Appearance

Visible edges and protruding parts shall be rounded and free of sharp edges or protrusions. No open ended pipes shall be present, and the furniture shall be free of any nails or metal parts with exposed ends having sharp edges that may harm or hurt the user. All assembly and fixing holes and guides shall be bored by the manufacturer who shall provide instructions with the parts of the finished or semi-finished furniture.

5.3 Ignitability

Ignitability for furniture shall be determined in the following areas

5.3.1 Furniture – Determination of ignitability of upholstered furniture:

5.3.1.1 Ignition source – smoldering cigarette

Ignitability of upholstery elements when exposed to ignition by a lighted cigarette shall be in conformity with the Egyptian standard number 7232 – 1 / 2010 that lists the limits and the method of testing. The limits of ignition shall be as follows:

- 1- Most of the sample burns during the time of the test
- 2- The sample burns to the edges during the time of the test.

5.3.1.2 Ignition source – match-flame equivalent:

Ignitability of upholstery elements when exposed to ignition by the equivalent of the flame of a match shall be in conformity with the Egyptian standard number 7232 – 1 / 2010 that lists the limits and the method of testing. The limits of ignition shall be as follows:

- 1- Most of the sample burns during the time of the test
- 2- The sample burns to the edges during the time of the test.
- 3- The sample remains ablaze for more than 120 seconds after the removal of the flame source.

5.3.2 Furniture – Determination of ignitability for heads and bases of upholstered beds:

5.3.2.1 Ignition source – smoldering cigarette

Ignitability of heads and bases of upholstered beds when exposed to ignition by a lighted cigarette shall be in conformity with the Egyptian standard number 7232 – 1 / 2010 that lists the limits and the method of testing. The limits of ignition shall be as follows:

- 1- Most of the sample burns during the time of the test
- 2- The sample burns to the edges during the time of the test.
- 3- The sample remains ablaze for one hour from the start of the test

5.3.2.2 Ignition source – match-flame equivalent:

Ignitability of heads and bases of upholstered beds when exposed to ignition by the equivalent of the flame of a match shall be in conformity with the Egyptian standard number 7232 – 1 / 2010 that lists the limits and the method of testing. The limits of ignition shall be as follows:

- 1- Most of the sample burns during the time of the test
- 2- The sample burns to the edges during the time of the test.
- 3- The sample remains ablaze for more than 120 seconds after the removal of the flame source.

5.4 Paints:

Furniture paints shall be free of the toxic free cyanide.

6. Labeling

Each piece of finished furniture shall have a label containing the following information:

- 6.1** Name and trademark of the manufacturer or importer
- 6.2** Date of production or batch number and country of origin
- 6.3** The raw materials used for each piece of furniture

6.4 Contents of the furniture and number of pieces

7. Sampling

One piece of imported finished or semi-finished furniture shall be taken as a representative of the consignment.

8. Technical Terms

Upholstered furniture	أثاث منجد
Particle boards	الواح الخشب الحبيبي
Fibre boards	الواح الالياف الخشبية
Wood based panels	الواح الاخشاب التركيبية
Match –flame equivalent	مكافئ غود ثقاب
Smoldering cigarette	سيجارة مشتعلة
Hardware	إكسسوارات (خردوات وحديد)
Ignitability	قابلية للاشتعال

9. References

- 1 – EN 13986
Wood-based panels for use in construction characteristics, evaluation of conformity and marking
- 2 – EN 622 – 1 / 2003
Fibre boards specifications.
Part 1: General requirements
- 3 – EN 312 / 2010
Particleboards – specifications.
- 4 – EEC / 89 / 106
Construction products.
- 5 – EN 1021 – 1 / 2006
Furniture – assessment of the ignitability of upholstered furniture.
Part 1: Ignition source smoldering cigarette
- 6 – EN 1021 – 2 / 2006
Furniture – assessment of the ignitability of upholstered furniture.
Part 2: Ignition source: match – flame equivalent
- 7 – EN 597 – 1 / 1995
Furniture – assessment of the ignitability of mattresses and upholstered bed bases

Part 1: Ignition source smoldering cigarette

8 – EN 597 – 2 / 1995

Furniture – assessment of the ignitability of mattresses and upholstered bed bases

Part 2: Ignition source: match – flame equivalent

9 – REGULATION (EC) No 1907 / 2006

Evaluation, Authorisation and Restriction of Chemicals (REACH)

10 – EN 13336 / 2004

Leather – Upholstery leather characteristics – Guide for selection of leather for furniture.

11 – EN 15338 / 2007

Hardware for furniture. Strength, durability and safety of extension elements and their components.

12 – EN 15570 / 2008

Hardware for furniture. Strength, durability and safety of hinges and their components. Hinges pivoting on a vertical axis.

13 – EN 15706 / 2009

Hardware for furniture. Strength and durability of slide fittings for sliding doors and roll fronts.

14 – ES 650 on upholstery leathers

15 – ES 1495 on flexible cellular polymers – Polyurethane (Artificial Sponges)