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English Version

Furniture - Classification for properties for furniture surfaces

Ameublement - Classification des propriétés des surfaces d'ameublement

Möbel - Klassifizierung von Möbeloberflächen

This Technical Specification (CEN/TS) was approved by CEN on 7 February 2022 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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European foreword

This document (CEN/TS 16209:2022) has been prepared by Technical Committee CEN/TC 207 “Furniture”, the secretariat of which is held by UNI.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes CEN/TS 16209:2011.

Compared to CEN/TS 16209:2011, the following modifications have been made:

- resistance to microscratching added;
- normative references updated;
- revised Clause 4 classification: normative text added; examples to Table 1 and Table 2 added; Table 3 revised and “Mustard” and “Red wine” added; revolutions Table 4 revised;
- additional Clause 4.7 regarding microscratching added;
- document editorially revised in its entirety.

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

According to the CEN/CENELEC Internal Regulations, the national standards organisations of the following countries are bound to announce this Technical Specification: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

CEN/TS 16209:2022 (E)**Introduction**

This document is a working document for the classification of the resistance of furniture surfaces according to the following properties:

- Resistance to dry heat;
- Resistance to wet heat;
- Resistance to cold liquids;
- Resistance to abrasion;
- Resistance to scratching;
- Resistance to microscratching.

NOTE Classification for other important properties for furniture surfaces, such as adhesion or light fastness, are included in EN ISO 2409:2007 and EN 15187:2006.

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1 Scope

This document specifies a system for the classification of the resistance to:

- Dry heat;
- Wet heat;
- Cold liquids;
- Abrasion;
- Scratching;
- Microscratching.

The classification applies to foils, laminates, melamine faced boards, pigmented and transparent lacquers. The classification for the resistance to cold liquids also applies to oils and waxes.

The following classification does not apply to leather surfaces.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

CEN/TS 16611, *Furniture - Assessment of the surface resistance to microscratching*

EN 12720, *Furniture - Assessment of surface resistance to cold liquids*

EN 12721, *Furniture - Assessment of surface resistance to wet heat*

EN 12722, *Furniture - Assessment of surface resistance to dry heat*

EN 15185, *Furniture - Assessment of the surface resistance to abrasion*

EN 15186, *Furniture - Assessment of the surface resistance to scratching*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 12720, EN 12721, EN 12722, EN 15185, EN 15186 and CEN/TS 16611 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

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4 Classification

4.1 General

This is a classification system for six properties.

Each property relates to five classes, from A to E, by decreasing the requirements asked for each class, as stated in 4.2 to 4.7.

4.2 Classification of the resistance to dry heat

Table 1 — Resistance to dry heat

Temperature °C	Class				
	A	B	C	D	E
55					≥ 4
70				≥ 4	
100			≥ 4		
140		≥ 4			
180	≥ 4				

If the rating is “5”, it is allowed to add “+” to the classification.

EXAMPLE

Test = “class C” (temperature = 100 °C)

Assessment = “4”, result = “class C”

Assessment = “5”, result = “class C+”

4.3 Classification of the resistance to wet heat

Table 2 — Resistance to wet heat

Temperature °C	Class				
	A	B	C	D	E
55				≥ 4	= 3
70			≥ 4		
85		≥ 4			
100	≥ 4				

If the rating is “5”, it is allowed to add “+” to the classification (exception: “class E” cannot become “class E+”; assessment > “3” will lead to result “class D” or to result “class D+”, respectively).

EXAMPLE

Test = “class B” (temperature = 85 °C)

Assessment = “4”, result = “class B”

Assessment = “5”, result = “class B+”

4.4 Classification of the resistance to cold liquids

Table 3 — Resistance to cold liquids

Liquid	Class									
	A		B		C		D		E	
	Time	Rating	Time	Rating	Time	Rating	Time	Rating	Time	Rating
Acetic acid	16 h	4	1 h	4	2 min	4	x	x	x	x
Acetone	10 min	4	10 s	2	x	x	x	x	x	x
Ammonia (10 %)	16 h	4	1 h	4	2 min	4	x	x	x	x
Citric acid (10 %)	16 h	4	1 h	4	x	x	x	x	x	x
Cleansing solution	16 h	4	6 h	4	1 h	4	10 min	4	2 min	4
Coffee	16 h	4	6 h	4	10 min	4	10 min	4	2 min	4
Ethanol 48 %	6 h	4	1 h	4	2 min	4	2 min	4	x	x
Mustard ^a	16 h	4	6 h	4	x	x	x	x	x	x
Paraffin oil Dynamic viscosity 20 °C 25 mPas to 80 mPas	24 h	4	24 h	4	6 h	4	1 h	4	10 min	4
Red wine ^b	16 h	4	6 h	4	10 min	4	2 min	4	x	x
Water	24 h	4	24 h	4	1 h	4	10 min	4	10 min	4

NOTE x means no value.

^a Mustard shall be "medium", yellowish and without seeds.

^b Red wine shall be originally from South Europe, South Africa or California with a content of alcohol higher than 13,0 Vol.-%. Merlot, Rioja, Bordeaux and Cabernet Sauvignon are recommended.

The highest class achieved by all the liquids shall be the class that is assigned for that surface finish. Only if all liquids belonging to one class are assessed "5", it is allowed to add "+" to the classification. Exceptions are "ethanol 48 %" in classes B to D (rating "4" is required) and "acetone" in class B (rating "2" is required).

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EXAMPLE Example for classification:

Liquid	Example 1		Example 2	
	Class	Rating	Class	Rating
Acetic acid	B	4	B	5
Acetone	B	2	B	2
Ammonia (10 %)	B	5	B	5
Citric acid (10 %)	B	4	B	5
Cleansing solution	A	4	A	5
Coffee	A	4	A	5
Ethanol 48 %	B	4	B	4
Mustard	B	5	B	5
Paraffin oil	A	4	A	5
Red wine	C	4	C	5
Water	A	4	A	5
Classification	Class C		Class C+	

“Class C” is the highest class achieved by all liquids, therefore the surface shall be classified as “class C” (Example 1) or “class C+” (Example 2), respectively.

If “red wine” achieved “class B” (identical rating), the surface shall be classified as “class B” (Example 1), or “class B+” (Example 2), respectively.

4.5 Classification of the resistance to abrasion TS 16209:2022

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Table 4 — Resistance to abrasion 2022

IP	Class				
	A	B	C	D	E
Revolutions	≥ 350]350-150]]150-50]]50-30]	< 30

4.6 Classification of the resistance to scratching

Table 5 — Resistance to scratching

Method	Class				
	A	B	C	D	E
Linear Method A	≥ 16,0 N]16,0-11,0] N]11,0-5,0] N]5,0-1] N	x
Circular Method B	≥ 2,5 N]2,5-1,5] N]1,5-1,0] N]1,0-0,5] N	< 0,5 N