

Maxwell Road  
Stevenage  
Hertfordshire  
SG1 2EW

T: +44(0) 1438 777 700  
info@fira.co.uk

www.fira.co.uk

## Hemel Emprenye San.ve Tic. A.S

IDOSB

Vakum Cad.No:25 B-1 Ozel Parsel

Aydinli-Orhanli Mevkii

Tuzla

34957

Istanbul

Portal Ref: MA-13716-S7

Your Ref:

Date: 25<sup>th</sup> May 2021

Delivery Date: 14<sup>th</sup> April 2021

Pre-condition Date: 16<sup>th</sup> – 26<sup>th</sup> April 2021

Test Date: 26<sup>th</sup> – 28<sup>th</sup> April 2021

For the attention of Mr Mert Cakir

### SAMPLE FOR TEST

Wooden panel supplied as: 'Hemel Hardwax Oil'  
Construction: wooden panel with one coat finish of hardwax oil.  
Nominal size: 1 off - 500mm x 500mm x 20mm.  
Finish system: 1x coat of hemel hardwax oil  
Supplier: Information not provided

### TEST REQUIREMENTS

FIRA Standard 6250 2018 Specification: Furniture Materials (Interior):  
Finish Performance - Horizontal Surfaces: Domestic use

### PERFORMANCE SUMMARY

FS 6250: 2018 Finish Performance - Horizontal Surfaces: Domestic

PASS

Technical report references marked \* indicate this report is supplementary to the previous report with the same reference.  
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# TECHNICAL REPORT

## FINISH PERFORMANCE TESTS FIRA STANDARD 6250 2018

Finish performance requirements for the assessment of furniture panels are specified in FIRA Standard 6250 2018. Specification: Furniture Materials (Interior).

The tests are generally applicable to all types of finishes including liquid based finishes, plastics laminate and surfacing foils such as paper, melamine and PVC bonded to wood based substrates. The finish is normally tested on the substrate on which it will be used, such that the durability of the finish/substrate combination is assessed rather than the finish in isolation.

Test procedures to assess the durability of furniture surface finishes are detailed in the following standards:

### **BS 3962-6: 1980 Methods of test for finishes for wooden furniture Part 6 Assessment of resistance to mechanical damage**

#### **Crosscut Test**

A grid pattern of knife cuts, to a depth of 0.3mm, is made into the surface finish of the sample and the test area then brushed and examined for chipping and delamination of the surface coating.

#### **Impact Test**

A 19.1mm diameter steel ball weighing 28g is dropped on to the test panel from a height of two metres and the test area for cracking.

### **BS EN 12721:2009 + A1:2013 Assessment of Surface Resistance to wet heat**

A 100 mm diameter aluminium alloy block is heated to the required test temperature and placed on a wetted nylon cloth in contact with the surface of the test panel. The block is allowed to cool for 20 minutes and then removed. The test area is wiped dry and left undisturbed for at least 16-24 hrs following which the test surface is assessed.

### **BS EN 12722:2009 + A1:2013 Assessment of Surface Resistance to dry heat**

The dry heat test is similar to the wet heat test except for the omission of the wetted cloth.

### **BS EN 12720:2009 + A1:2013 Furniture Assessment of surface resistance to cold liquids**

An absorbent 25mm diameter paper disc is immersed in a test liquid and placed in contact with the panel surface and covered with a glass dish for a period of 1 hr. The excess liquid is then soaked up by an absorbent material (but not rubbed clean) and left for further 16 -24hrs after which the test surface is cleaned and the area assessed. In the case of cold oil and cold fat these are placed on the panel uncovered for a period of 24hrs then fully removed and the area cleaned and then left for further 16 -24hrs before assessment.

### **Flexible rating allowance**

FIRA Standard 6250 contains the following flexible allowance "A maximum of two results in any column may fall below the ratings shown in the table, provided that each is not more than 1 rating below the rating shown and that neither rating is less than a rating 2".

### **Deviations**

BS 3962 – the viewing / illumination condition noted in BS 3962 using an adjustable desk lamp with a 60w frosted lamp is not used. The panel is generally examined at various angles from horizontal to vertical using the viewing light source noted in BS EN 12720/21/22.

Crosscut test- FIRA uses 'Stanley 1991' brand knife blades directly from the pack and as currently supplied from time to time - this overrides any other specific requirements noted in the standard. The grid pattern of 2mm spacing with a particularly tight tolerance requirement of  $\pm 0.01$ mm cannot reliably be controlled with this type of equipment. BS EN 12720/1/2 states under: Assessment of results. *'Each test surface shall be rated by an experienced observer. In cases of doubt three observers shall be required.'* BS 3962 recommends 5 observers. FIRA uses two experienced observers for assessment and any rating discrepancies are discussed and a consensus rating agreed. BS 6222 references 1997 (withdrawn) versions of BS EN 12720/21/22. FIRA use the latest versions of the standards for carrying out test. Generally the tests have not changed in substance but procedures clarified and tightened to closely control test.

# TECHNICAL REPORT

## FINISH PERFORMANCE TEST RATINGS

<b>BS 3962 CROSSCUT - APPEARANCE OF TEST AREA</b>	<b>RATING</b>
Cuts are smooth, no finish removed, except for small chips at the intersections of the cuts and an occasional small chip along the cut.	5
Finish removed at intersections and intermittently along the cuts.	4
Finish consistently removed along the cuts.	3
Finish removed along the cuts and completely from one or more of the squares, but from less than 50% of the squares.	2
Finish removed completely from more than 50% of the squares.	1

<b>BS 3962 IMPACT TEST - APPEARANCE OF TEST AREA</b>	<b>RATING</b>
No surface cracking	5
Slight cracking e.g. one or two circular cracks around the edge of the indentation.	4
Moderate or severe cracking confined to the area of the indentation	3
Cracking extending outside the area of the indentation and/or slight flaking of the finish	2
More than 25% of finish removed from the area of indentation	1

<b>BSEN 12720 COLD LIQUIDS - APPEARANCE OF TEST AREA / BSEN 12721&amp;12722 WET AND DRY HEAT - APPEARANCE OF TEST AREA</b>	<b>RATING</b>
<b>No change</b> - Test area indistinguishable from adjacent surrounding area	5
<b>Minor change</b> - Test area distinguishable from adjacent surrounding area, only when the light source is mirrored on the test surface and is reflected towards the observer's eye, e.g. discolouration, change in gloss and colour. No change in the surface structure, e.g. swelling, fibre raising, cracking, blistering	4
<b>Moderate change</b> - Test area distinguishable from adjacent surrounding area, visible in several viewing directions, e.g. discolouration, change in gloss and colour. No change in the surface structure, e.g. swelling, fibre raising, cracking, blistering	3
<b>Significant change</b> - Test area clearly distinguishable from adjacent surrounding area, visible in all viewing directions e.g. discolouration, change in gloss and colour. And /or structure of the surface slightly changed, e.g. swelling, fibre raising, cracking, blistering	2
<b>Strong change</b> - The structure of the surface being distinctly changed - and / or discolouration, change in gloss and colour, and / or the surface material being totally or partially removed, (Liquid attack test) and / or the filter paper adhering to the surface (Wet heat test) and/or the polyamide fibre cloth adhering to the surface	1

# TECHNICAL REPORT

## RESULTS – FIRA STANDARD 6250 2018 FINISH PERFORMANCE – FOR DOMESTIC

SAMPLE: WOODEN PANEL SUPPLIED AS: 'HEMEL HARDWAX OIL'			
FIRA 6250 2018 TABLE 1 Finish performance - Horizontal Surfaces Domestic			
TEST	FIRA 6250: 2018 Requirements - For domestic use	TEST RESULT	COMMENTS
Crosscut	3	5	
Impact	3	4	Partial crack visible
Wet heat 55°C	3	3	Moderate change - some surface disturbance & whitish disc visible
Wet Heat 70°C	2	3	Moderate change - some surface disturbance & whitish disc visible
Dry Heat 85°C	3	5	
Dry Heat 100°C	2	5	
Ethanol 96% (1hr)	3	4	Minor change
Ethanol 48% (1hr)	4	3*	Moderate change - whitish disc
Tea (1hr)	5	4*	Minor change - whitish disc
Coffee (1hr)	5	5	
Cold Oils (24hr)	4	4	Minor change
Cold Fats (24hr)	4	4	Minor change
(* Indicates failed areas)			
<b>STATUS: PASS with a flexible rating allowance</b>			
Flexible rating allowance FIRA Standard 6250: 2018 – contains the following flexible allowance – “ A maximum of two results may fall by one rating below the ratings specified, provided the result is not less than a rating of 2”.			

### SAMPLE FOR TEST



HEMEL Hardwax Oil- One Coat

WOODEN PANEL SUPPLIED AS: 'HEMEL HARDWAX OIL'

Reference details as supplied

TEST & REPORT BY: T CORDWELL & J ERIBANKYA

APPROVED BY: J ERIBANKYA (ACTING SECTION HEAD - MATERIALS TECHNOLOGY)

\*\*\*\*\* END OF REPORT \*\*\*\*\*