



# FORMICA® Products

## technical properties 2012



# GENERAL INFORMATION

## **COMPOSITION**

High pressure decorative laminates are ready-finished man made veneers of high density.

Formica® decorative laminates consist of layers of specially selected papers, impregnated with thermosetting synthetic resins, fused together under heat and very high pressure.

The surface layer(s), incorporating decorative colours or designs, are impregnated with melamine based resins to give high resistance to wear, impact, heat and staining.

The core layers are impregnated with phenolic-based resins for strength and flexibility.

## **SHEET SIZES**

Formica decorative laminates are available in a comprehensive range of sheet sizes.

Availability is related to grade and surface finish. For full details please check the Formica® Collection Availability programme.

## **WEIGHT**

As a general guide Formica decorative laminates weigh 1.45 kilograms per square metre per millimetre of thickness of the sheet.

# GRADES

Description	Grade	Performance Category	Typical Applications
Horizontal, General purpose, Standard	HGS	Materials of high performance for general use in horizontal, interior applications and for use in vertical, interior applications requiring particularly high performance.	Kitchen and commercial work surfaces, restaurant and hotel tables, doors and wall coverings, heavy duty interior walls of public transport vehicles.
Horizontal, General purpose, Postforming	HGP	Similar to HGS, but can be heated and formed under controlled conditions.	As for HGS, where curved details are required.
Horizontal, General purpose, Flame retardant	HGF	Similar to HGS, but also meeting specified fire performance requirements.	Areas requiring compliance with fire performance requirements specified in construction, transport and marine fire safety regulations.
Vertical, General purpose, Standard	VGS	Materials of less high performance than HGS for general use in vertical, interior applications and for use in some horizontal applications where only moderate performance is required.	Kitchen front panels, wall coverings, shower panels, shelves.
Vertical, Flame retardant, Postforming	VFP*	Similar to VGS, but meeting specified fire performance requirements and can be heated and formed under controlled conditions.	Areas requiring compliance with fire performance requirements specified in construction, transport and marine fire safety regulations and where curved details are required.
Pearlescent, thin decorative design laminate, Postforming	ATP	Materials having special decorative effects, typically pearlescent, with lower wear resistance, for general use in vertical, interior applications.	Kitchen front panels, wall coverings etc., where curved details are required.
Coloured core, thin high pressure laminate, Standard	BTS	Materials of high performance for general use in horizontal, interior applications and for use in vertical, interior applications requiring particularly high performance and where edge and surface detailing are important.	Kitchen and commercial work surfaces, restaurant and hotel tables, doors and wall coverings, heavy duty interior walls of public transport vehicles.
Metallic, thin decorative design laminate, Postforming	MTP	Materials having special decorative effects, typically real metal surfaces, with lower wear resistance, which can be heated and formed under controlled conditions, for general use in vertical, interior applications.	Kitchen front panels, wall coverings etc., where curved details are required.

## GENERAL

Formica Group produce the above grades of decorative laminate each with its own performance characteristics. These grades conform to EN 438-2:2005 and are suitable for the typical applications shown.

Description	Grade	Performance Category	Typical Applications
Metallic, thin decorative design laminate, Flame retardant	MTF	Materials having special decorative effects, typically real metal surfaces, with lower wear resistance, but also meeting specified fire performance requirements, for general use in vertical, interior applications.	Areas requiring compliance with fire performance requirements specified in marine fire safety regulations.
Compact, General purpose, Standard	CGS	Thick materials, of high performance for use in interior applications requiring high impact and moisture resistance.	Washroom cubicles, partitions, laboratory bench tops, work surfaces and various self-supporting components in construction and transport applications
Compact, General purpose, Flame retardant	CGF	Thick, high performance materials for use in interior applications, meeting specified fire performance requirements.	Areas requiring compliance with fire performance requirements specified in construction and transport fire safety regulations.
Exterior grade, Moderate use, Standard	EGS	Thick, high performance materials meeting specified UV and weather resistance requirements, for general use in exterior cladding applications involving medium term exposure to average levels of sunlight and weathering.	Exterior cladding applications and related areas, soffits, balcony panels, decorative screening and infill panels where moderate levels of UV and weather resistance are required.
Exterior Grade, Moderate use, Flame retardant	EGF	Thick, high performance materials meeting specified UV and weather resistance requirements and specified fire performance requirements, for use in general exterior cladding applications involving medium term exposure to average levels of sunlight and weathering.	Areas requiring compliance with fire performance requirements specified in construction fire safety regulations and where moderate levels of UV and weather resistance are required.
Exterior Grade, Severe use, Standard	EDS	Thick, high performance materials meeting specified UV and weather resistance requirements, for use in exterior ventilated rainscreen façade applications involving long term exposure to strong sunlight and weather.	Ventilated rainscreen façade applications, and related areas, soffits, balcony panels, decorative screening and infill panels where high levels of UV and weather resistance are required.
Exterior Grade, Severe use, Flame retardant	EDF	Thick, high performance materials meeting specified UV and weather resistance requirements and specified fire performance requirements, for use in exterior ventilated rainscreen façade applications involving long term exposure to strong sunlight and weather.	Ventilated rainscreen façade applications and related areas requiring compliance with fire performance requirements specified in construction fire safety regulations and where high levels of UV and weather resistance are required.

The references above denote the product classification system contained in EN 438-2. Each grade has specific properties suitable for specific applications. Flame retardant laminates meet the fire performance requirements specified for Transport, Building Products (Euroclass) and the specified National Standards, for example, Class 1 (BS 476-7), B1 (DIN4102-1), M1 (NF P92-501 & UNE23727). DecoMetal laminates and Formica HGP grade laminates meet the requirements for Marine (IMO/MED). For further information on fire performance and certification please contact your regional Formica Group Technical Department.

\*VFP does not appear in the EN 438-2 : 2005 classification system.

Nominal Thickness			mm	0.7
Surface Defects	Dirt/Spots Fibres/Hairs/Scratches	EN438:2005-2-4	mm <sup>2</sup> /m <sup>2</sup> mm/m <sup>2</sup>	≤ 1 ≤ 10
Thickness		EN438:2005-2-5	mm	± 0.1
Length & Width		EN438:2005-2-6	mm	-0 / +10
Squareness		EN438:2005-2-7	mm/m	≤ 1.5
Edge Straightness		EN438:2005-2-8	mm/m	≤ 1.5
Flatness		EN438:2005-2-9	mm/m	≤ 60
Surface Wear Resistance		EN438:2005-2-10	revolutions	≥ 350
Immersion in Boiling Water	Gloss Other Mass Increase (2mm ≤ thickness < 5mm) Mass Increase (thickness ≥ 5mm) Mass Increase (2mm ≤ thickness < 5mm) Mass Increase (thickness ≥ 5mm)	EN438:2005-2-12	Class  % % % %	3 4 / / / /
Resistance to Water Vapour	Gloss Other	EN438:2005-2-14	Class	3 4
Resistance to Wet Conditions	Appearance Mass Increase (2mm ≤ thickness < 5mm) Mass Increase (thickness ≥ 5mm)	EN438:2005-2-15	Class	/ / /
Resistance to Dry Heat (180°C)	Gloss Other	EN438:2005-2-16	Class	3 4
Dimensional Stability	Longitudinal (2mm ≤ thickness < 5mm) (Thickness ≥ 5mm) Transverse (2mm ≤ thickness < 5mm) (Thickness ≥ 5mm)	EN438:2005-2-17	%	≤ 0.55 / / ≤ 1.05 / /
Resistance to Climatic Shock	Appearance Flexural Strength Index Flexural Modulus Index	EN438:2005-2-19	Class Ds Dm	/ / /
Impact Resistance (Small Ball)		EN438:2005-2-20	N	≥ 20
Impact Resistance (Large Ball)	Height of Fall (2mm ≤ thickness < 6mm) Height of Fall (thickness ≥ 5mm) Diameter of Imprint	EN438:2005-2-21	mm mm mm	/ / /
Resistance to Cracking		EN438:2005-2-23	Class	4
Resistance to Crazeing		EN438:2005-2-24	Class	/
Scratch Resistance	Gloss Other	EN438:2005-2-25	Class	3 3
Stain Resistance	Group 1 & 2 Group 3	EN438:2005-2-26	Class	5 4
Light Fastness		EN438:2005-2-27	Grey Scale	4 to 5
Resistance to UV	Contrast (1500hr) Appearance (1500hr)	EN438:2005-2-28	Grey Scale Class	/ /
Resistance to Artificial Weathering	Contrast (335 MJ/m <sup>2</sup> ) Contrast (650 MJ/m <sup>2</sup> ) Appearance (325 MJ/m <sup>2</sup> ) Appearance (650 MJ/m <sup>2</sup> )	EN438:2005-2-29	Class	/ / / /
Resistance to Cigarette Burns		EN438:2005-2-30	Class	3
Postforming Radius		EN438:2005-2-31	Minimum Radius mm	7
Resistance to Blistering		EN438:2005-2-33	Class	≥ 10
Density			g/cm <sup>3</sup>	≥ 1.35
Fire Rating	(4mm ≤ thickness < 6mm) (thickness ≥ 6mm)			IMO / /

EN438 Class Definitions - Class 5 No visible change  
Class 2 Marked loss of gloss and or colour

Class 4 Slight loss of gloss and or colour  
Class 1 Blisters and or delamination

Class 3 Moderate loss of gloss and or colour

Nominal Thickness			mm	0.7
Surface Defects	Dirt/Spots Fibres/Hairs/Scratches	EN438:2005-2-4	mm <sup>2</sup> /m <sup>2</sup> mm/m <sup>2</sup>	≤ 1 ≤ 10
Thickness		EN438:2005-2-5	mm	± 0.1
Length & Width		EN438:2005-2-6	mm	-0 / +10
Squareness		EN438:2005-2-7	mm/m	≤ 1.5
Edge Straightness		EN438:2005-2-8	mm/m	≤ 1.5
Flatness		EN438:2005-2-9	mm/m	≤ 60
Surface Wear Resistance		EN438:2005-2-10	revolutions	≥ 350
Immersion in Boiling Water	Gloss Other Mass Increase (2mm ≤ thickness < 5mm) Mass Increase (thickness ≥ 5mm) Mass Increase (2mm ≤ thickness < 5mm) Mass Increase (thickness ≥ 5mm)	EN438:2005-2-12	Class  % % % %	3 4 / / / /
Resistance to Water Vapour	Gloss Other	EN438:2005-2-14	Class	3 4
Resistance to Wet Conditions	Appearance Mass Increase (2mm ≤ thickness < 5mm) Mass Increase (thickness ≥ 5mm)	EN438:2005-2-15	Class	/ / /
Resistance to Dry Heat (180°C)	Gloss Other	EN438:2005-2-16	Class	3 4
Dimensional Stability	Longitudinal (2mm ≤ thickness < 5mm) (Thickness ≥ 5mm) Transverse (2mm ≤ thickness < 5mm) (Thickness ≥ 5mm)	EN438:2005-2-17	%	≤ 0.55 / / ≤ 1.05 / /
Resistance to Climatic Shock	Appearance Flexural Strength Index Flexural Modulus Index	EN438:2005-2-19	Class Ds Dm	/ / /
Impact Resistance (Small Ball)		EN438:2005-2-20	N	≥ 20
Impact Resistance (Large Ball)	Height of Fall (2mm ≤ thickness < 6mm) Height of Fall (thickness ≥ 5mm) Diameter of Imprint	EN438:2005-2-21	mm mm mm	/ / /
Resistance to Cracking		EN438:2005-2-23	Class	4
Resistance to Crazing		EN438:2005-2-24	Class	/
Scratch Resistance	Gloss Other	EN438:2005-2-25	Class	3 3
Stain Resistance	Group 1 & 2 Group 3	EN438:2005-2-26	Class	5 4
Light Fastness		EN438:2005-2-27	Grey Scale	4 to 5
Resistance to UV	Contrast (1500hr) Appearance (1500hr)	EN438:2005-2-28	Grey Scale Class	/ /
Resistance to Artificial Weathering	Contrast (335 MJ/m <sup>2</sup> ) Contrast (650 MJ/m <sup>2</sup> ) Appearance (325 MJ/m <sup>2</sup> ) Appearance (650 MJ/m <sup>2</sup> )	EN438:2005-2-29	Class	/ / / /
Resistance to Cigarette Burns		EN438:2005-2-30	Class	3
Postforming Radius		EN438:2005-2-31	Minimum Radius mm	/
Resistance to Blistering		EN438:2005-2-33	Class	/
Density			g/cm <sup>3</sup>	≥ 1.35
Fire Rating	(4mm ≤ thickness < 6mm) (thickness ≥ 6mm)			D,s2-d0 / /

EN438 Class Definitions - Class 5 No visible change  
Class 2 Marked loss of gloss and or colour

Class 4 Slight loss of gloss and or colour  
Class 1 Blisters and or delamination

Class 3 Moderate loss of gloss and or colour



Nominal Thickness			mm	0.7
Surface Defects	Dirt/Spots Fibres/Hairs/Scratches	EN438:2005-2-4	mm <sup>2</sup> /m <sup>2</sup> mm/m <sup>2</sup>	≤ 1 ≤ 10
Thickness		EN438:2005-2-5	mm	± 0.1
Length & Width		EN438:2005-2-6	mm	-0 / +10
Squareness		EN438:2005-2-7	mm/m	≤ 1.5
Edge Straightness		EN438:2005-2-8	mm/m	≤ 1.5
Flatness		EN438:2005-2-9	mm/m	≤ 60
Surface Wear Resistance		EN438:2005-2-10	revolutions	≥ 350
Immersion in Boiling Water	Gloss Other Mass Increase (2mm ≤ thickness < 5mm) Mass Increase (thickness ≥ 5mm) Mass Increase (2mm ≤ thickness < 5mm) Mass Increase (thickness ≥ 5mm)	EN438:2005-2-12	Class  % % % %	3 4 / / / /
Resistance to Water Vapour	Gloss Other	EN438:2005-2-14	Class	3 4
Resistance to Wet Conditions	Appearance Mass Increase (2mm ≤ thickness < 5mm) Mass Increase (thickness ≥ 5mm)	EN438:2005-2-15	Class	/ / /
Resistance to Dry Heat (180°C)	Gloss Other	EN438:2005-2-16	Class	3 4
Dimensional Stability	Longitudinal (2mm ≤ thickness < 5mm) (Thickness ≥ 5mm) Transverse (2mm ≤ thickness < 5mm) (Thickness ≥ 5mm)	EN438:2005-2-17	%	≤ 0.75 / / ≤ 1.25 / /
Resistance to Climatic Shock	Appearance Flexural Strength Index Flexural Modulus Index	EN438:2005-2-19	Class Ds Dm	/ / /
Impact Resistance (Small Ball)		EN438:2005-2-20	N	≥ 15
Impact Resistance (Large Ball)	Height of Fall (2mm ≤ thickness < 6mm) Height of Fall (thickness ≥ 5mm) Diameter of Imprint	EN438:2005-2-21	mm mm mm	/ / /
Resistance to Cracking		EN438:2005-2-23	Class	4
Resistance to Crazeing		EN438:2005-2-24	Class	/
Scratch Resistance	Gloss Other	EN438:2005-2-25	Class	3 3
Stain Resistance	Group 1 & 2 Group 3	EN438:2005-2-26	Class	5 4
Light Fastness		EN438:2005-2-27	Grey Scale	4 to 5
Resistance to UV	Contrast (1500hr) Appearance (1500hr)	EN438:2005-2-28	Grey Scale Class	/ /
Resistance to Artificial Weathering	Contrast (335 MJ/m <sup>2</sup> ) Contrast (650 MJ/m <sup>2</sup> ) Appearance (325 MJ/m <sup>2</sup> ) Appearance (650 MJ/m <sup>2</sup> )	EN438:2005-2-29	Class	/ / / /
Resistance to Cigarette Burns		EN438:2005-2-30	Class	3
Postforming Radius		EN438:2005-2-31	Minimum Radius mm	15
Resistance to Blistering		EN438:2005-2-33	Class	15
Density			g/cm <sup>3</sup>	≥ 1.35
Fire Rating	(4mm ≤ thickness < 6mm) (thickness ≥ 6mm)			B,s2-d0 / /

EN438 Class Definitions - Class 5 No visible change  
Class 2 Marked loss of gloss and or colour

Class 4 Slight loss of gloss and or colour  
Class 1 Blisters and or delamination

Class 3 Moderate loss of gloss and or colour



Nominal Thickness			mm	1.2
Surface Defects	Dirt/Spots Fibres/Hairs/Scratches	EN438:2005-2-4	mm <sup>2</sup> /m <sup>2</sup> mm/m <sup>2</sup>	≤ 1 ≤ 10
Thickness		EN438:2005-2-5	mm	± 0.15
Length & Width		EN438:2005-2-6	mm	-0 / +10
Squareness		EN438:2005-2-7	mm/m	≤ 1.5
Edge Straightness		EN438:2005-2-8	mm/m	≤ 1.5
Flatness		EN438:2005-2-9	mm/m	≤ 60
Surface Wear Resistance		EN438:2005-2-10	revolutions	≥ 350
Immersion in Boiling Water	Gloss Other Mass Increase (2mm ≤ thickness < 5mm) Mass Increase (thickness ≥ 5mm) Mass Increase (2mm ≤ thickness < 5mm) Mass Increase (thickness ≥ 5mm)	EN438:2005-2-12	Class  % % % %	3 4 / / / /
Resistance to Water Vapour	Gloss Other	EN438:2005-2-14	Class	3 4
Resistance to Wet Conditions	Appearance Mass Increase (2mm ≤ thickness < 5mm) Mass Increase (thickness ≥ 5mm)	EN438:2005-2-15	Class	/ / /
Resistance to Dry Heat (180°C)	Gloss Other	EN438:2005-2-16	Class	3 4
Dimensional Stability	Longitudinal (2mm ≤ thickness < 5mm) (Thickness ≥ 5mm) Transverse (2mm ≤ thickness < 5mm) (Thickness ≥ 5mm)	EN438:2005-2-17	%	≤ 0.55 / / ≤ 1.05 / /
Resistance to Climatic Shock	Appearance Flexural Strength Index Flexural Modulus Index	EN438:2005-2-19	Class Ds Dm	/ / /
Impact Resistance (Small Ball)		EN438:2005-2-20	N	≥ 20
Impact Resistance (Large Ball)	Height of Fall (2mm ≤ thickness < 6mm) Height of Fall (thickness ≥ 5mm) Diameter of Imprint	EN438:2005-2-21	mm mm mm	/ / /
Resistance to Cracking		EN438:2005-2-23	Class	4
Resistance to Crazing		EN438:2005-2-24	Class	/
Scratch Resistance	Gloss Other	EN438:2005-2-25	Class	3 3
Stain Resistance	Group 1 & 2 Group 3	EN438:2005-2-26	Class	5 4
Light Fastness		EN438:2005-2-27	Grey Scale	4 to 5
Resistance to UV	Contrast (1500hr) Appearance (1500hr)	EN438:2005-2-28	Grey Scale Class	/ /
Resistance to Artificial Weathering	Contrast (335 MJ/m <sup>2</sup> ) Contrast (650 MJ/m <sup>2</sup> ) Appearance (325 MJ/m <sup>2</sup> ) Appearance (650 MJ/m <sup>2</sup> )	EN438:2005-2-29	Class	/ / / /
Resistance to Cigarette Burns		EN438:2005-2-30	Class	3
Postforming Radius		EN438:2005-2-31	Minimum Radius mm	/
Resistance to Blistering		EN438:2005-2-33	Class	/
Density			g/cm <sup>3</sup>	≥ 1.35
Fire Rating	(4mm ≤ thickness < 6mm) (thickness ≥ 6mm)			B,s1-d0 / /

EN438 Class Definitions - Class 5 No visible change  
Class 2 Marked loss of gloss and or colour

Class 4 Slight loss of gloss and or colour  
Class 1 Blisters and or delamination

Class 3 Moderate loss of gloss and or colour

Nominal Thickness			mm	0.7
Surface Defects	Dirt/Spots Fibres/Hairs/Scratches	EN438:2005-2-4	mm <sup>2</sup> /m <sup>2</sup> mm/m <sup>2</sup>	≤ 1 ≤ 10
Thickness		EN438:2005-2-5	mm	± 0.1
Length & Width		EN438:2005-2-6	mm	-0 / +10
Squareness		EN438:2005-2-7	mm/m	≤ 1.5
Edge Straightness		EN438:2005-2-8	mm/m	≤ 1.5
Flatness		EN438:2005-2-9	mm/m	≤ 60
Surface Wear Resistance		EN438:2005-2-10	revolutions	/
Immersion in Boiling Water	Gloss Other Mass Increase (2mm ≤ thickness < 5mm) Mass Increase (thickness ≥ 5mm) Mass Increase (2mm ≤ thickness < 5mm) Mass Increase (thickness ≥ 5mm)	EN438:2005-2-12	Class  % % % %	3 4 / / / /
Resistance to Water Vapour	Gloss Other	EN438:2005-2-14	Class	3 3
Resistance to Wet Conditions	Appearance Mass Increase (2mm ≤ thickness < 5mm) Mass Increase (thickness ≥ 5mm)	EN438:2005-2-15	Class	/ / /
Resistance to Dry Heat (180°C)	Gloss Other	EN438:2005-2-16	Class	/ /
Dimensional Stability	Longitudinal (2mm ≤ thickness < 5mm) (Thickness ≥ 5mm) Transverse (2mm ≤ thickness < 5mm) (Thickness ≥ 5mm)	EN438:2005-2-17	%	≤ 0.75 / / ≤ 1.25 / /
Resistance to Climatic Shock	Appearance Flexural Strength Index Flexural Modulus Index	EN438:2005-2-19	Class Ds Dm	/ / /
Impact Resistance (Small Ball)		EN438:2005-2-20	N	≥ 15
Impact Resistance (Large Ball)	Height of Fall (2mm ≤ thickness < 6mm) Height of Fall (thickness ≥ 5mm) Diameter of Imprint	EN438:2005-2-21	mm mm mm	/ / /
Resistance to Cracking		EN438:2005-2-23	Class	4
Resistance to Crazeing		EN438:2005-2-24	Class	/
Scratch Resistance	Gloss Other	EN438:2005-2-25	Class	2 3
Stain Resistance	Group 1 & 2 Group 3	EN438:2005-2-26	Class	5 4
Light Fastness		EN438:2005-2-27	Grey Scale	4
Resistance to UV	Contrast (1500hr) Appearance (1500hr)	EN438:2005-2-28	Grey Scale Class	/ /
Resistance to Artificial Weathering	Contrast (335 MJ/m <sup>2</sup> ) Contrast (650 MJ/m <sup>2</sup> ) Appearance (325 MJ/m <sup>2</sup> ) Appearance (650 MJ/m <sup>2</sup> )	EN438:2005-2-29	Class	/ / / /
Resistance to Cigarette Burns		EN438:2005-2-30	Class	/
Postforming Radius		EN438:2005-2-31	Minimum Radius mm	7
Resistance to Blistering		EN438:2005-2-33	Class	≥ 10
Density			g/cm <sup>3</sup>	≥ 1.35
Fire Rating	(4mm ≤ thickness < 6mm) (thickness ≥ 6mm)			IMO / /

EN438 Class Definitions - Class 5 No visible change  
Class 2 Marked loss of gloss and or colour

Class 4 Slight loss of gloss and or colour  
Class 1 Blisters and or delamination

Class 3 Moderate loss of gloss and or colour

Nominal Thickness			mm	0.8
Surface Defects	Dirt/Spots Fibres/Hairs/Scratches	EN438:2005-2-4	mm <sup>2</sup> /m <sup>2</sup> mm/m <sup>2</sup>	≤ 1 ≤ 10
Thickness		EN438:2005-2-5	mm	± 0.15
Length & Width		EN438:2005-2-6	mm	-0 / +10
Squareness		EN438:2005-2-7	mm/m	≤ 1.5
Edge Straightness		EN438:2005-2-8	mm/m	≤ 1.5
Flatness		EN438:2005-2-9	mm/m	≤ 100
Surface Wear Resistance		EN438:2005-2-10	revolutions	/
Immersion in Boiling Water	Gloss Other Mass Increase (2mm ≤ thickness < 5mm) Mass Increase (thickness ≥ 5mm) Mass Increase (2mm ≤ thickness < 5mm) Mass Increase (thickness ≥ 5mm)	EN438:2005-2-12	Class  % % % %	No Core Delamination / / / /
Resistance to Water Vapour	Gloss Other	EN438:2005-2-14	Class	3 3
Resistance to Wet Conditions	Appearance Mass Increase (2mm ≤ thickness < 5mm) Mass Increase (thickness ≥ 5mm)	EN438:2005-2-15	Class	/ / /
Resistance to Dry Heat (180°C)	Gloss Other	EN438:2005-2-16	Class	/ /
Dimensional Stability	Longitudinal (2mm ≤ thickness < 5mm) (Thickness ≥ 5mm) Transverse (2mm ≤ thickness < 5mm) (Thickness ≥ 5mm)	EN438:2005-2-17	%	≤ 0.75 / / ≤ 1.25 / /
Resistance to Climatic Shock	Appearance Flexural Strength Index Flexural Modulus Index	EN438:2005-2-19	Class Ds Dm	/ / /
Impact Resistance (Small Ball)		EN438:2005-2-20	N	/
Impact Resistance (Large Ball)	Height of Fall (2mm ≤ thickness < 6mm) Height of Fall (thickness ≥ 5mm) Diameter of Imprint	EN438:2005-2-21	mm mm mm	/ / /
Resistance to Cracking		EN438:2005-2-23	Class	4
Resistance to Crazeing		EN438:2005-2-24	Class	/
Scratch Resistance	Gloss Other	EN438:2005-2-25	Class	1 1
Stain Resistance	Group 1 & 2 Group 3	EN438:2005-2-26	Class	4 4
Light Fastness		EN438:2005-2-27	Grey Scale	4
Resistance to UV	Contrast (1500hr) Appearance (1500hr)	EN438:2005-2-28	Grey Scale Class	/ /
Resistance to Artificial Weathering	Contrast (335 MJ/m <sup>2</sup> ) Contrast (650 MJ/m <sup>2</sup> ) Appearance (325 MJ/m <sup>2</sup> ) Appearance (650 MJ/m <sup>2</sup> )	EN438:2005-2-29	Class	/ / / /
Resistance to Cigarette Burns		EN438:2005-2-30	Class	/
Postforming Radius		EN438:2005-2-31	Minimum Radius mm	8
Resistance to Blistering		EN438:2005-2-33	Class	≥ 15
Density			g/cm <sup>3</sup>	≥ 1.35
Fire Rating	(4mm ≤ thickness < 6mm) (thickness ≥ 6mm)			D,s2-d0 / /

EN438 Class Definitions - Class 5 No visible change  
Class 2 Marked loss of gloss and or colour

Class 4 Slight loss of gloss and or colour  
Class 1 Blisters and or delamination

Class 3 Moderate loss of gloss and or colour

Characteristic	Method	Unit of Measure	MTF
Nominal Thickness		mm	0.8
Surface Defects	EN438:2005-2-4 Dirt/Spots Fibres/Hairs/Scratches	mm <sup>2</sup> /m <sup>2</sup> mm/m <sup>2</sup>	≤ 1 ≤ 10
Thickness	EN438:2005-2-5	mm	± 0.15
Length & Width	EN438:2005-2-6	mm	-0 / +10
Squareness	EN438:2005-2-7	mm/m	≤ 1.5
Edge Straightness	EN438:2005-2-8	mm/m	≤ 1.5
Flatness	EN438:2005-2-9	mm/m	≤ 100
Surface Wear Resistance	EN438:2005-2-10	revolutions	/
Immersion in Boiling Water	EN438:2005-2-12 Gloss Other Mass Increase (2mm ≤ thickness < 5mm) Mass Increase (thickness ≥ 5mm) Mass Increase (2mm ≤ thickness < 5mm) Mass Increase (thickness ≥ 5mm)	Class  % % % %	No Core Delamination / / / /
Resistance to Water Vapour	EN438:2005-2-14 Gloss Other	Class	3 3
Resistance to Wet Conditions	EN438:2005-2-15 Appearance Mass Increase (2mm ≤ thickness < 5mm) Mass Increase (thickness ≥ 5mm)	Class	/ / /
Resistance to Dry Heat (180°C)	EN438:2005-2-16 Gloss Other	Class	/ /
Dimensional Stability	EN438:2005-2-17 Longitudinal (2mm ≤ thickness < 5mm) (Thickness ≥ 5mm) Transverse (2mm ≤ thickness < 5mm) (Thickness ≥ 5mm)	%	≤ 0.75 / / ≤ 1.25 / /
Resistance to Climatic Shock	EN438:2005-2-19 Appearance Flexural Strength Index Flexural Modulus Index	Class Ds Dm	/ / /
Impact Resistance (Small Ball)	EN438:2005-2-20	N	/
Impact Resistance (Large Ball)	EN438:2005-2-21 Height of Fall (2mm ≤ thickness < 6mm) Height of Fall (thickness ≥ 5mm) Diameter of Imprint	mm mm mm	/ / /
Resistance to Cracking	EN438:2005-2-23	Class	4
Resistance to Crazing	EN438:2005-2-24	Class	/
Scratch Resistance	EN438:2005-2-25 Gloss Other	Class	1 1
Stain Resistance	EN438:2005-2-26 Group 1 & 2 Group 3	Class	4 4
Light Fastness	EN438:2005-2-27	Grey Scale	4
Resistance to UV	EN438:2005-2-28 Contrast (1500hr) Appearance (1500hr)	Grey Scale Class	/ /
Resistance to Artificial Weathering	EN438:2005-2-29 Contrast (335 MJ/m <sup>2</sup> ) Contrast (650 MJ/m <sup>2</sup> ) Appearance (325 MJ/m <sup>2</sup> ) Appearance (650 MJ/m <sup>2</sup> )	Class	/ / / /
Resistance to Cigarette Burns	EN438:2005-2-30	Class	/
Postforming Radius	EN438:2005-2-31	Minimum Radius mm	8
Resistance to Blistering	EN438:2005-2-33	Class	≥ 15
Density		g/cm <sup>3</sup>	≥ 1.35
Fire Rating	(4mm ≤ thickness < 6mm) (thickness ≥ 6mm)		IMO / /

EN438 Class Definitions - Class 5 No visible change  
Class 2 Marked loss of gloss and or colour

Class 4 Slight loss of gloss and or colour  
Class 1 Blisters and or delamination

Class 3 Moderate loss of gloss and or colour

Nominal Thickness		mm	1.3
Surface Defects	EN438:2005-2-4 Dirt/Spots Fibres/Hairs/Scratches	mm <sup>2</sup> /m <sup>2</sup> mm/m <sup>2</sup>	≤ 1 ≤ 10
Thickness	EN438:2005-2-5	mm	± 0.18
Length & Width	EN438:2005-2-6	mm	-0 / +10
Squareness	EN438:2005-2-7	mm/m	≤ 1.5
Edge Straightness	EN438:2005-2-8	mm/m	≤ 1.5
Flatness	EN438:2005-2-9	mm/m	≤ 100
Surface Wear Resistance	EN438:2005-2-10	revolutions	/
Immersion in Boiling Water	EN438:2005-2-12 Gloss Other Mass Increase (2mm ≤ thickness < 5mm) Mass Increase (thickness ≥ 5mm) Mass Increase (2mm ≤ thickness < 5mm) Mass Increase (thickness ≥ 5mm)	Class  % % % %	3 4 / / / /
Resistance to Water Vapour	EN438:2005-2-14 Gloss Other	Class	3 4
Resistance to Wet Conditions	EN438:2005-2-15 Appearance Mass Increase (2mm ≤ thickness < 5mm) Mass Increase (thickness ≥ 5mm)	Class	/ / /
Resistance to Dry Heat (180°C)	EN438:2005-2-16 Gloss Other	Class	3 4
Dimensional Stability	EN438:2005-2-17 Longitudinal (2mm ≤ thickness < 5mm) (Thickness ≥ 5mm) Transverse (2mm ≤ thickness < 5mm) (Thickness ≥ 5mm)	%	≤ 0.8 / / ≤ 1.4 / /
Resistance to Climatic Shock	EN438:2005-2-19 Appearance Flexural Strength Index Flexural Modulus Index	Class Ds Dm	/ / /
Impact Resistance (Small Ball)	EN438:2005-2-20	N	/
Impact Resistance (Large Ball)	EN438:2005-2-21 Height of Fall (2mm ≤ thickness < 6mm) Height of Fall (thickness ≥ 5mm) Diameter of Imprint	mm mm mm	/ / /
Resistance to Cracking	EN438:2005-2-23	Class	/
Resistance to Crazing	EN438:2005-2-24	Class	/
Scratch Resistance	EN438:2005-2-25 Gloss Other	Class	2 3
Stain Resistance	EN438:2005-2-26 Group 1 & 2 Group 3	Class	5 4
Light Fastness	EN438:2005-2-27	Grey Scale	4
Resistance to UV	EN438:2005-2-28 Contrast (1500hr) Appearance (1500hr)	Grey Scale Class	/ /
Resistance to Artificial Weathering	EN438:2005-2-29 Contrast (335 MJ/m <sup>2</sup> ) Contrast (650 MJ/m <sup>2</sup> ) Appearance (325 MJ/m <sup>2</sup> ) Appearance (650 MJ/m <sup>2</sup> )	Class	/ / / /
Resistance to Cigarette Burns	EN438:2005-2-30	Class	3
Postforming Radius	EN438:2005-2-31	Minimum Radius mm	/
Resistance to Blistering	EN438:2005-2-33	Class	/
Density		g/cm <sup>3</sup>	≥ 4
Fire Rating	(4mm ≤ thickness < 6mm) (thickness ≥ 6mm)		/ / /

EN438 Class Definitions - Class 5 No visible change  
Class 2 Marked loss of gloss and or colour

Class 4 Slight loss of gloss and or colour  
Class 1 Blisters and or delamination

Class 3 Moderate loss of gloss and or colour

Nominal Thickness		mm	2-20
Surface Defects	EN438:2005-2-4 Dirt/Spots Fibres/Hairs/Scratches	mm <sup>2</sup> /m <sup>2</sup> mm/m <sup>2</sup>	≤ 1 ≤ 10
Thickness	EN438:2005-2-5	mm	# 1
Length & Width	EN438:2005-2-6	mm	-0 / +10
Squareness	EN438:2005-2-7	mm/m	≤ 1.5
Edge Straightness	EN438:2005-2-8	mm/m	≤ 1.5
Flatness	EN438:2005-2-9	mm/m	# 2
Surface Wear Resistance	EN438:2005-2-10	revolutions	≥ 350
Immersion in Boiling Water	EN438:2005-2-12 Gloss Other Mass Increase (2mm ≤ thickness < 5mm) Mass Increase (thickness ≥ 5mm) Mass Increase (2mm ≤ thickness < 5mm) Mass Increase (thickness ≥ 5mm)	Class  % % % %	3 4 5 2 6 2
Resistance to Water Vapour	EN438:2005-2-14 Gloss Other	Class	3 4
Resistance to Wet Conditions	EN438:2005-2-15 Appearance Mass Increase (2mm ≤ thickness < 5mm) Mass Increase (thickness ≥ 5mm)	Class	/
Resistance to Dry Heat (180°C)	EN438:2005-2-16 Gloss Other	Class	3 4
Dimensional Stability	EN438:2005-2-17 Longitudinal (2mm ≤ thickness < 5mm) (Thickness ≥ 5mm) Transverse (2mm ≤ thickness < 5mm) (Thickness ≥ 5mm)	%	/
Resistance to Climatic Shock	EN438:2005-2-19 Appearance Flexural Strength Index Flexural Modulus Index	Class Ds Dm	/
Impact Resistance (Small Ball)	EN438:2005-2-20	N	/
Impact Resistance (Large Ball)	EN438:2005-2-21 Height of Fall (2mm ≤ thickness < 6mm) Height of Fall (thickness ≥ 5mm) Diameter of Imprint	mm mm mm	1400 1800 ≤ 10
Resistance to Cracking	EN438:2005-2-23	Class	/
Resistance to Crazing	EN438:2005-2-24	Class	4
Scratch Resistance	EN438:2005-2-25 Gloss Other	Class	2 3
Stain Resistance	EN438:2005-2-26 Group 1 & 2 Group 3	Class	5 4
Light Fastness	EN438:2005-2-27	Grey Scale	4 to 5
Resistance to UV	EN438:2005-2-28 Contrast (1500hr) Appearance (1500hr)	Grey Scale Class	/
Resistance to Artificial Weathering	EN438:2005-2-29 Contrast (335 MJ/m <sup>2</sup> ) Contrast (650 MJ/m <sup>2</sup> ) Appearance (325 MJ/m <sup>2</sup> ) Appearance (650 MJ/m <sup>2</sup> )	Class	/
Resistance to Cigarette Burns	EN438:2005-2-30	Class	3
Postforming Radius	EN438:2005-2-31	Minimum Radius mm	/
Resistance to Blistering	EN438:2005-2-33	Class	/
Density		g/cm <sup>3</sup>	≥ 1.35
Fire Rating	(4mm ≤ thickness < 6mm) (thickness ≥ 6mm)		C,s2-d0

#1 Compact Tolerance - Nominal Thickness 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0 11.0 12.0 13.0 14.0 15.0 16.0 17.0 18.0 19.0 20.0  
Tolerance ± mm 0.2 0.3 0.3 0.4 0.4 0.4 0.5 0.5 0.5 0.5 0.6 0.6 0.6 0.6 0.7 0.7 0.7 0.7 0.8

EN438 Class Definitions - Class 5 No visible change Class 4 Slight loss of gloss and or colour Class 3 Moderate loss of gloss and or colour  
Class 2 Marked loss of gloss and or colour Class 1 Blisters and or delamination

Nominal Thickness		mm	2-20
Surface Defects	EN438:2005-2-4 Dirt/Spots Fibres/Hairs/Scratches	mm <sup>2</sup> /m <sup>2</sup> mm/m <sup>2</sup>	≤ 1 ≤ 10
Thickness	EN438:2005-2-5	mm	# 1
Length & Width	EN438:2005-2-6	mm	-0 / +10
Squareness	EN438:2005-2-7	mm/m	≤ 1.5
Edge Straightness	EN438:2005-2-8	mm/m	≤ 1.5
Flatness	EN438:2005-2-9	mm/m	# 2
Surface Wear Resistance	EN438:2005-2-10	revolutions	≥ 350
Immersion in Boiling Water	EN438:2005-2-12 Gloss Other Mass Increase (2mm ≤ thickness < 5mm) Mass Increase (thickness ≥ 5mm) Mass Increase (2mm ≤ thickness < 5mm) Mass Increase (thickness ≥ 5mm)	Class  % % % %	3 4 7 3 9 6
Resistance to Water Vapour	EN438:2005-2-14 Gloss Other	Class	3 4
Resistance to Wet Conditions	EN438:2005-2-15 Appearance Mass Increase (2mm ≤ thickness < 5mm) Mass Increase (thickness ≥ 5mm)	Class	/
Resistance to Dry Heat (180°C)	EN438:2005-2-16 Gloss Other	Class	3 4
Dimensional Stability	EN438:2005-2-17 Longitudinal (2mm ≤ thickness < 5mm) (Thickness ≥ 5mm) Transverse (2mm ≤ thickness < 5mm) (Thickness ≥ 5mm)	%	/
Resistance to Climatic Shock	EN438:2005-2-19 Appearance Flexural Strength Index Flexural Modulus Index	Class Ds Dm	/
Impact Resistance (Small Ball)	EN438:2005-2-20	N	/
Impact Resistance (Large Ball)	EN438:2005-2-21 Height of Fall (2mm ≤ thickness < 6mm) Height of Fall (thickness ≥ 5mm) Diameter of Imprint	mm mm mm	1400 1800 ≤ 10
Resistance to Cracking	EN438:2005-2-23	Class	/
Resistance to Crazing	EN438:2005-2-24	Class	4
Scratch Resistance	EN438:2005-2-25 Gloss Other	Class	2 3
Stain Resistance	EN438:2005-2-26 Group 1 & 2 Group 3	Class	5 4
Light Fastness	EN438:2005-2-27	Grey Scale	4 to 5
Resistance to UV	EN438:2005-2-28 Contrast (1500hr) Appearance (1500hr)	Grey Scale Class	/
Resistance to Artificial Weathering	EN438:2005-2-29 Contrast (335 MJ/m <sup>2</sup> ) Contrast (650 MJ/m <sup>2</sup> ) Appearance (325 MJ/m <sup>2</sup> ) Appearance (650 MJ/m <sup>2</sup> )	Class	/
Resistance to Cigarette Burns	EN438:2005-2-30	Class	3
Postforming Radius	EN438:2005-2-31	Minimum Radius mm	/
Resistance to Blistering	EN438:2005-2-33	Class	/
Density		g/cm <sup>3</sup>	≥ 1.35
Fire Rating	(4mm ≤ thickness < 6mm) (thickness ≥ 6mm)		/

#1 Compact Tolerance - Nominal Thickness 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0 11.0 12.0 13.0 14.0 15.0 16.0 17.0 18.0 19.0 20.0  
Tolerance ± mm 0.2 0.3 0.3 0.4 0.4 0.4 0.5 0.5 0.5 0.5 0.6 0.6 0.6 0.6 0.7 0.7 0.7 0.7 0.8

EN438 Class Definitions - Class 5 No visible change Class 4 Slight loss of gloss and or colour Class 3 Moderate loss of gloss and or colour  
Class 2 Marked loss of gloss and or colour Class 1 Blisters and or delamination



Nominal Thickness		mm	2-20
Surface Defects	EN438:2005-2-4 Dirt/Spots Fibres/Hairs/Scratches	mm <sup>2</sup> /m <sup>2</sup> mm/m <sup>2</sup>	≤ 1 ≤ 10
Thickness	EN438:2005-2-5	mm	# 1
Length & Width	EN438:2005-2-6	mm	-0 / +10
Squareness	EN438:2005-2-7	mm/m	≤ 1.5
Edge Straightness	EN438:2005-2-8	mm/m	≤ 1.5
Flatness	EN438:2005-2-9	mm/m	# 2
Surface Wear Resistance	EN438:2005-2-10	revolutions	≥ 350
Immersion in Boiling Water	EN438:2005-2-12 Gloss Other Mass Increase (2mm ≤ thickness < 5mm) Mass Increase (thickness ≥ 5mm) Mass Increase (2mm ≤ thickness < 5mm) Mass Increase (thickness ≥ 5mm)	Class  % % % %	3 4 5 2 6 2
Resistance to Water Vapour	EN438:2005-2-14 Gloss Other	Class	3 4
Resistance to Wet Conditions	EN438:2005-2-15 Appearance Mass Increase (2mm ≤ thickness < 5mm) Mass Increase (thickness ≥ 5mm)	Class	4 7 5
Resistance to Dry Heat (180°C)	EN438:2005-2-16 Gloss Other	Class	3 4
Dimensional Stability	EN438:2005-2-17 Longitudinal (2mm ≤ thickness < 5mm) (Thickness ≥ 5mm) Transverse (2mm ≤ thickness < 5mm) (Thickness ≥ 5mm)	%	/
Resistance to Climatic Shock	EN438:2005-2-19 Appearance Flexural Strength Index Flexural Modulus Index	Class Ds Dm	4 0.95 0.95
Impact Resistance (Small Ball)	EN438:2005-2-20	N	/
Impact Resistance (Large Ball)	EN438:2005-2-21 Height of Fall (2mm ≤ thickness < 6mm) Height of Fall (thickness ≥ 5mm) Diameter of Imprint	mm mm mm	1400 1800 ≤ 10
Resistance to Cracking	EN438:2005-2-23	Class	/
Resistance to Crazing	EN438:2005-2-24	Class	/
Scratch Resistance	EN438:2005-2-25 Gloss Other	Class	/
Stain Resistance	EN438:2005-2-26 Group 1 & 2 Group 3	Class	/
Light Fastness	EN438:2005-2-27	Grey Scale	4 to 5
Resistance to UV	EN438:2005-2-28 Contrast (1500hr) Appearance (1500hr)	Grey Scale Class	/
Resistance to Artificial Weathering	EN438:2005-2-29 Contrast (335 MJ/m <sup>2</sup> ) Contrast (650 MJ/m <sup>2</sup> ) Appearance (325 MJ/m <sup>2</sup> ) Appearance (650 MJ/m <sup>2</sup> )	Class	3 /
Resistance to Cigarette Burns	EN438:2005-2-30	Class	/
Postforming Radius	EN438:2005-2-31	Minimum Radius mm	/
Resistance to Blistering	EN438:2005-2-33	Class	/
Density		g/cm <sup>3</sup>	≥ 1.35
Fire Rating	(4mm ≤ thickness < 6mm) (thickness ≥ 6mm)		C,s2-d0 /

#1 Compact Tolerance - Nominal Thickness 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0 11.0 12.0 13.0 14.0 15.0 16.0 17.0 18.0 19.0 20.0  
Tolerance ± mm 0.2 0.3 0.3 0.4 0.4 0.4 0.5 0.5 0.5 0.5 0.6 0.6 0.6 0.6 0.7 0.7 0.7 0.7 0.8

EN438 Class Definitions - Class 5 No visible change Class 4 Slight loss of gloss and or colour Class 3 Moderate loss of gloss and or colour  
Class 2 Marked loss of gloss and or colour Class 1 Blisters and or delamination

Nominal Thickness		mm	2-20
Surface Defects	EN438:2005-2-4 Dirt/Spots Fibres/Hairs/Scratches	mm <sup>2</sup> /m <sup>2</sup> mm/m <sup>2</sup>	≤ 1 ≤ 10
Thickness	EN438:2005-2-5	mm	# 1
Length & Width	EN438:2005-2-6	mm	-0 / +10
Squareness	EN438:2005-2-7	mm/m	≤ 1.5
Edge Straightness	EN438:2005-2-8	mm/m	≤ 1.5
Flatness	EN438:2005-2-9	mm/m	# 2
Surface Wear Resistance	EN438:2005-2-10	revolutions	≥ 350
Immersion in Boiling Water	EN438:2005-2-12 Gloss Other Mass Increase (2mm ≤ thickness < 5mm) Mass Increase (thickness ≥ 5mm) Mass Increase (2mm ≤ thickness < 5mm) Mass Increase (thickness ≥ 5mm)	Class  % % % %	3 4 5 2 6 2
Resistance to Water Vapour	EN438:2005-2-14 Gloss Other	Class	3 4
Resistance to Wet Conditions	EN438:2005-2-15 Appearance Mass Increase (2mm ≤ thickness < 5mm) Mass Increase (thickness ≥ 5mm)	Class	4 7 5
Resistance to Dry Heat (180°C)	EN438:2005-2-16 Gloss Other	Class	3 4
Dimensional Stability	EN438:2005-2-17 Longitudinal (2mm ≤ thickness < 5mm) (Thickness ≥ 5mm) Transverse (2mm ≤ thickness < 5mm) (Thickness ≥ 5mm)	%	/ 0.4 0.3 / 0.8 0.6
Resistance to Climatic Shock	EN438:2005-2-19 Appearance Flexural Strength Index Flexural Modulus Index	Class Ds Dm	4 0.95 0.95
Impact Resistance (Small Ball)	EN438:2005-2-20	N	/
Impact Resistance (Large Ball)	EN438:2005-2-21 Height of Fall (2mm ≤ thickness < 6mm) Height of Fall (thickness ≥ 5mm) Diameter of Imprint	mm mm mm	1400 1800 ≤ 10
Resistance to Cracking	EN438:2005-2-23	Class	/
Resistance to Crazing	EN438:2005-2-24	Class	/
Scratch Resistance	EN438:2005-2-25 Gloss Other	Class	/ /
Stain Resistance	EN438:2005-2-26 Group 1 & 2 Group 3	Class	/ /
Light Fastness	EN438:2005-2-27	Grey Scale	4 to 5
Resistance to UV	EN438:2005-2-28 Contrast (1500hr) Appearance (1500hr)	Grey Scale Class	3 4
Resistance to Artificial Weathering	EN438:2005-2-29 Contrast (335 MJ/m <sup>2</sup> ) Contrast (650 MJ/m <sup>2</sup> ) Appearance (325 MJ/m <sup>2</sup> ) Appearance (650 MJ/m <sup>2</sup> )	Class	/ 3 / 4
Resistance to Cigarette Burns	EN438:2005-2-30	Class	/
Postforming Radius	EN438:2005-2-31	Minimum Radius mm	/
Resistance to Blistering	EN438:2005-2-33	Class	/
Density		g/cm <sup>3</sup>	≥ 1.35
Fire Rating	(4mm ≤ thickness < 6mm) (thickness ≥ 6mm)		C,s2-d0 / /

#1 Compact Tolerance - Nominal Thickness 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0 11.0 12.0 13.0 14.0 15.0 16.0 17.0 18.0 19.0 20.0  
Tolerance ± mm 0.2 0.3 0.3 0.4 0.4 0.4 0.5 0.5 0.5 0.5 0.6 0.6 0.6 0.6 0.7 0.7 0.7 0.7 0.8

EN438 Class Definitions - Class 5 No visible change Class 4 Slight loss of gloss and or colour Class 3 Moderate loss of gloss and or colour  
Class 2 Marked loss of gloss and or colour Class 1 Blisters and or delamination

Nominal Thickness		mm	2-20
Surface Defects	EN438:2005-2-4 Dirt/Spots Fibres/Hairs/Scratches	mm <sup>2</sup> /m <sup>2</sup> mm/m <sup>2</sup>	≤ 1 ≤ 10
Thickness	EN438:2005-2-5	mm	# 1
Length & Width	EN438:2005-2-6	mm	-0 / +10
Squareness	EN438:2005-2-7	mm/m	≤ 1.5
Edge Straightness	EN438:2005-2-8	mm/m	≤ 1.5
Flatness	EN438:2005-2-9	mm/m	# 2
Surface Wear Resistance	EN438:2005-2-10	revolutions	≥ 350
Immersion in Boiling Water	EN438:2005-2-12 Gloss Other Mass Increase (2mm ≤ thickness < 5mm) Mass Increase (thickness ≥ 5mm) Mass Increase (2mm ≤ thickness < 5mm) Mass Increase (thickness ≥ 5mm)	Class  % % % %	3 4 7 3 9 6
Resistance to Water Vapour	EN438:2005-2-14 Gloss Other	Class	3 4
Resistance to Wet Conditions	EN438:2005-2-15 Appearance Mass Increase (2mm ≤ thickness < 5mm) Mass Increase (thickness ≥ 5mm)	Class	4 10 8
Resistance to Dry Heat (180°C)	EN438:2005-2-16 Gloss Other	Class	3 4
Dimensional Stability	EN438:2005-2-17 Longitudinal (2mm ≤ thickness < 5mm) (Thickness ≥ 5mm) Transverse (2mm ≤ thickness < 5mm) (Thickness ≥ 5mm)	%	/
Resistance to Climatic Shock	EN438:2005-2-19 Appearance Flexural Strength Index Flexural Modulus Index	Class Ds Dm	4 0.95 0.95
Impact Resistance (Small Ball)	EN438:2005-2-20	N	/
Impact Resistance (Large Ball)	EN438:2005-2-21 Height of Fall (2mm ≤ thickness < 6mm) Height of Fall (thickness ≥ 5mm) Diameter of Imprint	mm mm mm	1400 1800 ≤ 10
Resistance to Cracking	EN438:2005-2-23	Class	/
Resistance to Crazing	EN438:2005-2-24	Class	/
Scratch Resistance	EN438:2005-2-25 Gloss Other	Class	/
Stain Resistance	EN438:2005-2-26 Group 1 & 2 Group 3	Class	/
Light Fastness	EN438:2005-2-27	Grey Scale	4 to 5
Resistance to UV	EN438:2005-2-28 Contrast (1500hr) Appearance (1500hr)	Grey Scale Class	/
Resistance to Artificial Weathering	EN438:2005-2-29 Contrast (335 MJ/m <sup>2</sup> ) Contrast (650 MJ/m <sup>2</sup> ) Appearance (325 MJ/m <sup>2</sup> ) Appearance (650 MJ/m <sup>2</sup> )	Class	3 /
Resistance to Cigarette Burns	EN438:2005-2-30	Class	/
Postforming Radius	EN438:2005-2-31	Minimum Radius mm	/
Resistance to Blistering	EN438:2005-2-33	Class	/
Density		g/cm <sup>3</sup>	≥ 1.35
Fire Rating	(4mm ≤ thickness < 6mm) (thickness ≥ 6mm)		/

#1 Compact Tolerance - Nominal Thickness 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0 11.0 12.0 13.0 14.0 15.0 16.0 17.0 18.0 19.0 20.0  
Tolerance ± mm 0.2 0.3 0.3 0.4 0.4 0.4 0.5 0.5 0.5 0.5 0.6 0.6 0.6 0.6 0.7 0.7 0.7 0.7 0.8

EN438 Class Definitions - Class 5 No visible change Class 4 Slight loss of gloss and or colour Class 3 Moderate loss of gloss and or colour  
Class 2 Marked loss of gloss and or colour Class 1 Blisters and or delamination

Nominal Thickness		mm	2-20
Surface Defects	EN438:2005-2-4 Dirt/Spots Fibres/Hairs/Scratches	mm <sup>2</sup> /m <sup>2</sup> mm/m <sup>2</sup>	≤ 1 ≤ 10
Thickness	EN438:2005-2-5	mm	# 1
Length & Width	EN438:2005-2-6	mm	-0 / +10
Squareness	EN438:2005-2-7	mm/m	≤ 1.5
Edge Straightness	EN438:2005-2-8	mm/m	≤ 1.5
Flatness	EN438:2005-2-9	mm/m	# 2
Surface Wear Resistance	EN438:2005-2-10	revolutions	≥ 350
Immersion in Boiling Water	EN438:2005-2-12 Gloss Other Mass Increase (2mm ≤ thickness < 5mm) Mass Increase (thickness ≥ 5mm) Mass Increase (2mm ≤ thickness < 5mm) Mass Increase (thickness ≥ 5mm)	Class  % % % %	3 4 7 3 9 6
Resistance to Water Vapour	EN438:2005-2-14 Gloss Other	Class	3 4
Resistance to Wet Conditions	EN438:2005-2-15 Appearance Mass Increase (2mm ≤ thickness < 5mm) Mass Increase (thickness ≥ 5mm)	Class	4 10 8
Resistance to Dry Heat (180°C)	EN438:2005-2-16 Gloss Other	Class	3 4
Dimensional Stability	EN438:2005-2-17 Longitudinal (2mm ≤ thickness < 5mm) (Thickness ≥ 5mm) Transverse (2mm ≤ thickness < 5mm) (Thickness ≥ 5mm)	%	/ 0.4 0.3 / 0.8 0.6
Resistance to Climatic Shock	EN438:2005-2-19 Appearance Flexural Strength Index Flexural Modulus Index	Class Ds Dm	4 0.95 0.95
Impact Resistance (Small Ball)	EN438:2005-2-20	N	/
Impact Resistance (Large Ball)	EN438:2005-2-21 Height of Fall (2mm ≤ thickness < 6mm) Height of Fall (thickness ≥ 5mm) Diameter of Imprint	mm mm mm	1400 1800 ≤ 10
Resistance to Cracking	EN438:2005-2-23	Class	/
Resistance to Crazing	EN438:2005-2-24	Class	/
Scratch Resistance	EN438:2005-2-25 Gloss Other	Class	/ /
Stain Resistance	EN438:2005-2-26 Group 1 & 2 Group 3	Class	/ /
Light Fastness	EN438:2005-2-27	Grey Scale	4 to 5
Resistance to UV	EN438:2005-2-28 Contrast (1500hr) Appearance (1500hr)	Grey Scale Class	3 4
Resistance to Artificial Weathering	EN438:2005-2-29 Contrast (335 MJ/m <sup>2</sup> ) Contrast (650 MJ/m <sup>2</sup> ) Appearance (325 MJ/m <sup>2</sup> ) Appearance (650 MJ/m <sup>2</sup> )	Class	/ 3 / 4
Resistance to Cigarette Burns	EN438:2005-2-30	Class	/
Postforming Radius	EN438:2005-2-31	Minimum Radius mm	/
Resistance to Blistering	EN438:2005-2-33	Class	/
Density		g/cm <sup>3</sup>	≥ 1.35
Fire Rating	(4mm ≤ thickness < 6mm) (thickness ≥ 6mm)		/ B,s2-d0 B,s1-d0

#1 Compact Tolerance - Nominal Thickness 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0 11.0 12.0 13.0 14.0 15.0 16.0 17.0 18.0 19.0 20.0  
Tolerance ± mm 0.2 0.3 0.3 0.4 0.4 0.4 0.5 0.5 0.5 0.5 0.6 0.6 0.6 0.6 0.7 0.7 0.7 0.7 0.8

EN438 Class Definitions - Class 5 No visible change Class 4 Slight loss of gloss and or colour Class 3 Moderate loss of gloss and or colour  
Class 2 Marked loss of gloss and or colour Class 1 Blisters and or delamination

# SURFACE FINISH

## **GENERAL**

Formica® decorative laminates are available in a variety of different surface textures and finishes. Some of these are available over a number of ranges, whilst others are integral to particular designs and patterns.

Choice of surface finish is important from a functional as well as an aesthetic point of view. In general, textured surfaces and light colours have a better scuff and scratch resistance than plane surfaces and dark colours. For this reason, glossy laminates and dark plain colours are not recommended for heavy duty working surfaces. On the other hand, plane and lightly textured surfaces are more easily cleaned than deeply textured finishes.

## **FORMICA® DECOMETAL**

Polished aluminium items have anodised surfaces for improved resistance to oxidation, scratches, staining, etc.

Other aluminium items have an epoxy coating, and copper finishes are protected with polyurethane lacquer.

Under certain fluorescent lighting conditions the polished finishes may show an iridescent effect.