



Screenprinted Coils & Sheets

For Whiteboards and Chalkboards

Screenprinting on the CeramicSteel Surface

As long as the high-quality CeramicSteel has been used as a writing surface, the option to order it with a screenprinted pattern or decoration has been available.

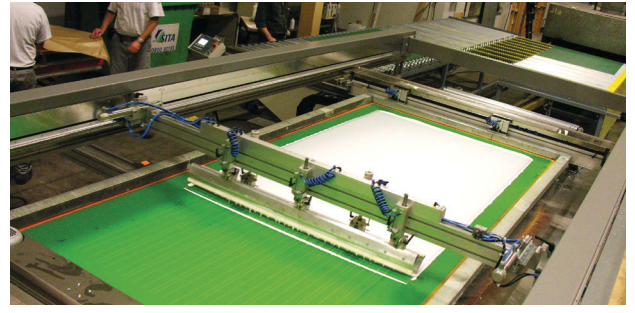
Often an educational pattern was selected in combination with the chalkboard or whiteboard writing surface as an aid for the normal use of the finished product. Sometimes this resulted in spectacular productions that were intended for decorative purposes.

In all cases, the unique features of the CeramicSteel surface are incorporated in the screenprinted graphics as well. Fired in the range of 700° - 900 °C (1292° - 1652 °F), the top enamel coating provides an everlasting surface that is scratch and fire resistant, weather and UV resistant so that colors will never fade, and includes a forever warranty on its properties, such as the surface itself.

Polyvision CeramicSteel Advantages

- Ultra-smooth writing surface
- Improved erasability
- Greater color contrast
- Significantly less surface/light distortion
- Optimum eye comfort
- Enhanced visibility
- Reduced chalk pressure, greater adherence
- Increased chalk or marker/surface contrast





High-tech screenprinting on coils and sheets

Based on Polyvision's commitment to continuously search for product improvements, we made some fundamental changes in our production process that create advantages for our customers and end users.

Continuous printing

With our latest technology, we can print CeramicSteel coils and sheets in a continuous process. The major advantages for our customers include:

- Availability of a wide range of educational patterns as coils
- A wider flexibility when cutting to size
- Less scrap and loss of material
- Less stock and storage space
- Cost reduction transferred in more competitive pricing

Improved end-user performance

Our effort to improve the characteristics of the screenprinted CeramicSteel also resulted in major advantages for the end user. The new ceramic frit-based paste is fired in the range of 700° - 900 °C (1292° - 1652 °F) and is integrated in the top ceramic coating. This means that the pattern remains perfectly visible (we offer both a high-contrast as well as a low-contrast, "tone-in-tone" type as an option) but can't be felt. It's an ideal fusion of two ceramic layers.

This means that the printed pattern will not interfere when writing or erasing on a chalkboard or whiteboard surface.

Environmentally friendly

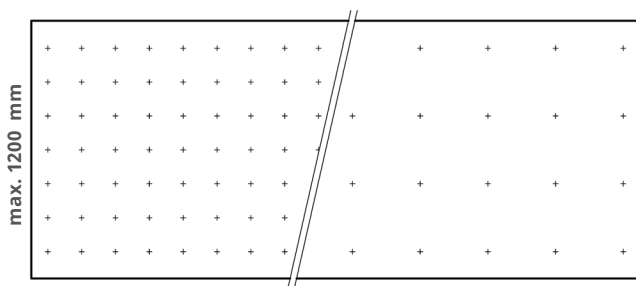
Linked to Polyvision's efforts to reduce the ecological footprint that we leave on the environment, we also developed a new paste that adheres to the highest environmental standards.

In combination with the e³™ CeramicSteel writing surface, we can offer a writing surface that meets the most stringent environmental requirements. This, together with the forever warranty on the surface and the screenprinted pattern, means that the functionality of the product remains secured throughout its complete life cycle.

Description of the Print

Polyvision offers a wide range of standard educational patterns to enhance the functionality of your writing surface. All standard patterns are available in coils as well as cut-to-size sheets. In addition, custom-made patterns can be produced in single or multiple colors and in small or large quantities for planning, decorative or publicity purposes.

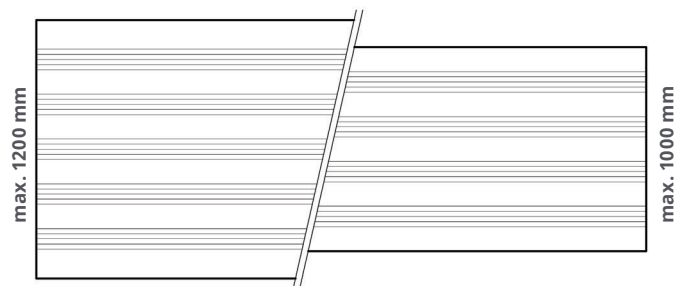
AG 5804: **Cross 50 mm**
AG 6564: **Cross 100 mm**



Cross 50 mm
 Ref. AG 5804
 Line thickness: 1 mm

Cross 100 mm
 Ref. AG 6564
 Line thickness: 1 mm

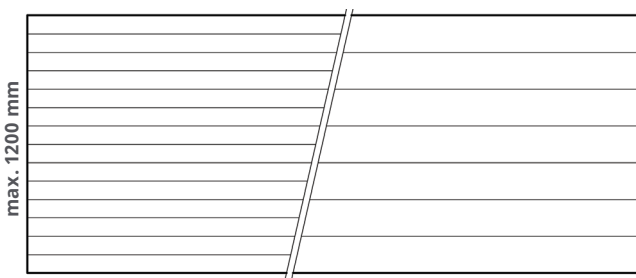
AG 5805: **Music lines**
AG 5806: **Music lines**



Music lines 5 staves
 Ref. AG 5805
 Line thickness: 1,25 mm

Music lines 4 staves
 Ref. AG 5806
 Line thickness: 1,25 mm

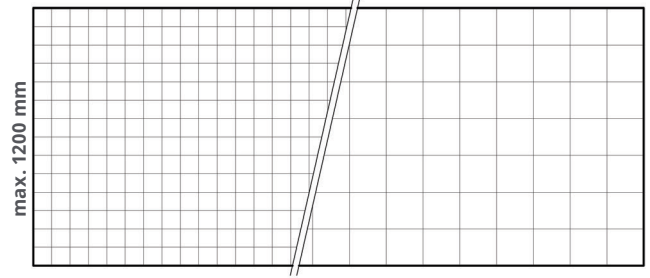
AG 5819: **Lines 50 mm**
AG 5820: **Lines 100 mm**



Lines 50 mm
 Ref. AG 5819
 Line thickness: 1 mm

Lines 100 mm
 Ref. AG 5820
 Line thickness: 1 mm

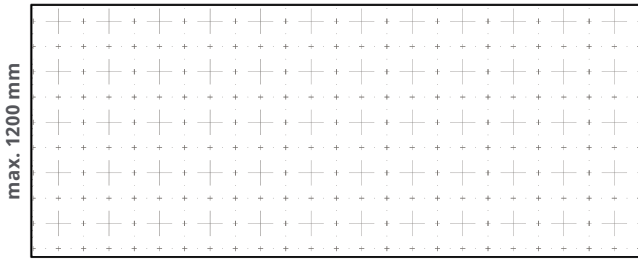
AG 5818: **Grid 50 mm**
AG 6486: **Grid 100 mm**



Grid 50 mm
 Ref. AG 5818
 Line thickness: 1 mm

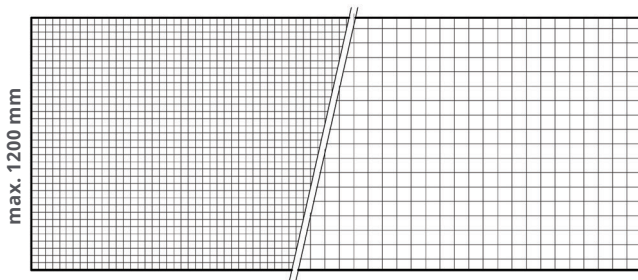
Grid 100 mm
 Ref. AG 6486
 Line thickness: 1 mm

AG 4904: Cross Cross Grid



Cross 50 by 50 mm
Ref: AG 4904
Line thickness 0,8+/-0,1mm

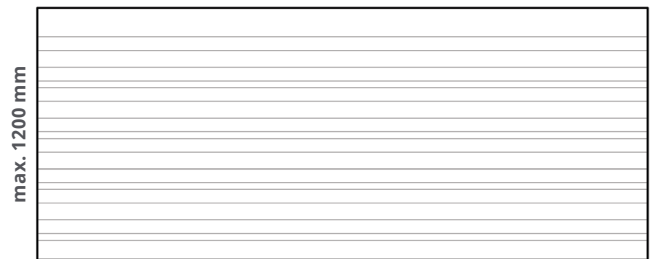
AG 5822: Double Grid 10/50 mm AG 7103: Double Grid 20/100 mm



Double Grid 10/50 mm
Ref. AG 5822
Line thickness: 0,75/1,25 mm

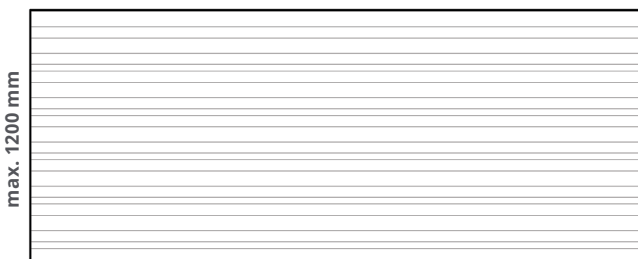
Double Grid 20/100 mm
Ref. AG 7103
Line thickness: 0,35/0,50 mm

AG 6560: 1st school year



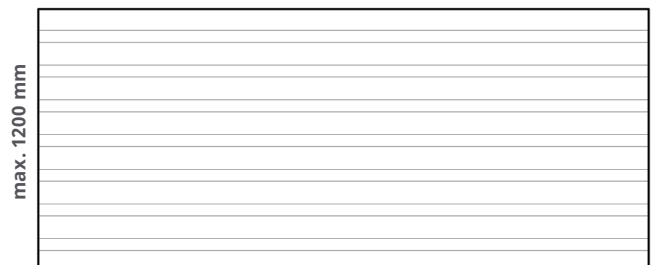
1st School Year 20/40/50/40 mm
Ref. AG 6560
Line thickness: 1 mm

AG 6561: 2nd school year



2nd School Year 20/30/40/30 mm
Ref. AG 6561
Line thickness: 1 mm

AG 6562: 3rd school year



3rd School Year 80/35 mm
Ref. AG 6562
Line thickness: 1 mm

Description of the Print

AG 4904:	Cross Cross Grid 50 mm
AG 5804:	Cross 50 mm
AG 5805:	Music lines 5 staves 1200 mm
AG 5806:	Music lines 4 staves 1000 mm
AG 5818:	Grid 50 mm
AG 5819:	Lines 50 mm
AG 5820:	Lines 100 mm
AG 5822:	Double Grid 10/50 mm
AG 6486:	Grid 100 mm
AG 6560:	1st School Year 20/40/50/40 mm
AG 6561:	2nd School Year 20/30/40/30 mm
AG 6562:	3rd School Year 80/35 mm
AG 6564:	Cross 100 mm
AG 7103:	Double Grid 20/100 mm

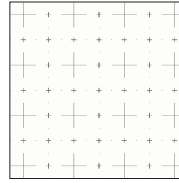
e³Surface Types

6100	U or H	white
6100	L or S	white
6101	U or H	light gray
6101	L or S	light gray
6102	U or H	beige
6102	L or S	beige
6500	C	green
6501	C	black
6502	C	gray
6503	C	blue

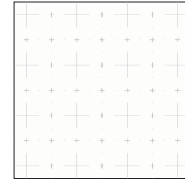
Type	Screenprinted Color	Approximate RAL Reference
E	01 = Dark Gray	RAL 7026 on green chalk RAL 7010 on white drymarker
E	10 = Light Gray	RAL 7038
E	11 = Green on Green	RAL 6021
C	03 = Yellow	RAL 1018
C	05 = Red	RAL 3011
E	04 = White	RAL 9003
E	05 = Blue	RAL 5017

E = Eco screenpaste
C = Standard screenpaste

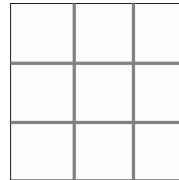
Note: Other colors and/or combinations are available on request and if possible to produce.



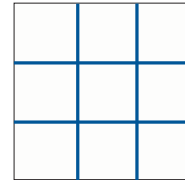
6100 U or H
6100 L or S



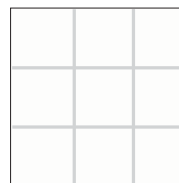
6100 U or H
6100 L or S



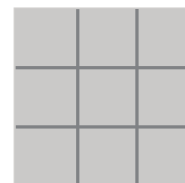
6100 U or H
6100 L or S



6100 U or H
6100 L or S



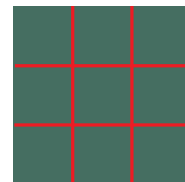
6100 U or H
6100 L or S



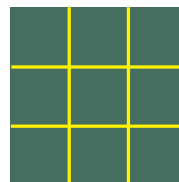
6101 U or H
6101 L or S



6500 C



6500 C



6500 C



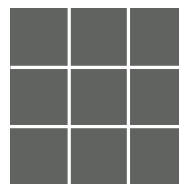
6500 C



6500 C



6501 C



6502 C



6503 C

The colors shown on this brochure are only a representation. Actual samples will be provided upon request.

Technical Information

Remark

- Line thicknesses tolerance is approximately 0,1 mm.
- Printing is always central on the horizontal axis.



Defect deduction for coil printing

- With modular printing (e.g., Grid), 1 DEFECT = 1 meter deducted* (length module 3000 mm) max. 10% deduction, unless agreed otherwise.
- With continuous print (e.g., Crosses), 1 DEFECT = 0,25 meter deducted* max. 1 defect per 10 running meters or max. 10% deduction.

Modular printing

Due to the specific characteristics of the pattern and our production process, an interruption is required. The maximum printing run of the screenprinting installation is 3000 mm. Continuous patterns will be printed with a length of 2996 mm and a gap of 4 mm.

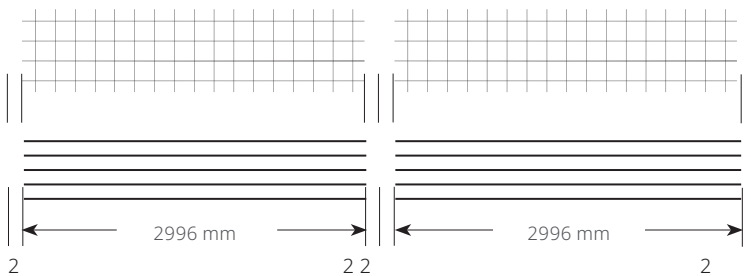


Table 1

Available Steel Widths and Thicknesses						Regional Availability		
Width (mm)	Width (in)	Thickness (mm)	Thickness (in)	Total Thickness o/t e ³ CeramicSteel (mm)	Total Thickness o/t e ³ CeramicSteel (in)	EMEA	APAC	AMERICAS
874 +2/-0	34.4 +0.08/-0	0.32 ± 0.03	0.0126 ± 0.001	0.4 - 0.51	0.0157 - 0.0200	x	x	
888 +2/-0	35 +0.08/-0	0.32 ± 0.03	0.0126 ± 0.001	0.4 - 0.51	0.0157 - 0.0201		x	
974 +2/-0	38.3 +0.08/-0	0.32 ± 0.03	0.0126 ± 0.001	0.4 - 0.51	0.0157 - 0.0202	x	x	
999 +2/-0	39.3 +0.08/-0	0.32 ± 0.03	0.0126 ± 0.001	0.4 - 0.51	0.0157 - 0.0203	x	x	
1174 +2/-0	46.2 +0.08/-0	0.35 ± 0.03	0.0138 ± 0.001	0.43 - 0.54	0.0169 - 0.0212	x	x	
1188 +2/-0	46.8 +0.08/-0	0.35 ± 0.03	0.0138 ± 0.002	0.43 - 0.54	0.0169 - 0.0213		x	
1199 +2/-0	47.2 +0.08/-0	0.35 ± 0.03	0.0138 ± 0.003	0.43 - 0.54	0.0169 - 0.0214	x	x	
1216 +2/-0	47.9 +0.08/-0	0.35 ± 0.03	0.0138 ± 0.004	0.43 - 0.54	0.0169 - 0.0215	x	x	
838.2 +3/-0	33 (-0 +1/8)	0.33 ± 0.03	0.013 (± 0.001)	0.43 - 0.55	0.017 - 0.0215			x
877.9 +3/-0	34-9/16 (-0 +1/8)	0.33 ± 0.03	0.013 (± 0.001)	0.43 - 0.55	0.017 - 0.0215			x
911.2 +3/-0	35-7/8 (-0 +1/8)	0.33 ± 0.03	0.013 (± 0.001)	0.43 - 0.55	0.017 - 0.0215			x
1179.5 +3/-0	46-7/16 (-0 +1/8)	0.33 ± 0.03	0.013 (± 0.001)	0.43 - 0.55	0.017 - 0.0215			x
1216 +3/-0	47-7/8 (-0 +1/8)	0.33 ± 0.03	0.013 (± 0.001)	0.43 - 0.55	0.017 - 0.0215			x
1216 +3/-0	47-7/8 (-0 +1/8)	0.48 ± 0.03	0.019 (± 0.001)	0.58 - 0.68	0.023 - 0.027			x
1520.8 +3/-0	59-7/8 (-0 +1/8)	0.48 ± 0.03	0.019 (± 0.001)	0.58 - 0.68	0.0253 - 0.0293	x	x	x

Table 2

Color	Description	ISO 7724				Regional Availability		
		L*	a*	b*	ΔE ⁹⁴ vs standard	EMEA	APAC	AMERICAS
6500 C	Green	36.7	-15.7	4.7	< 1.5	x	x	x
6501 C	Black	23.7	-15.7	4.7	< 1.5	x	x	x
6502 C	Slate	36.5	0.6	0.2	< 1.5	x	x	x
6503 C	Blue	34.7	-6.0	-26.5	< 1.5	x	x	
6505 C	Green	36.7	-15.7	4.7	< 1.5		x	
6100 L/S/H/U	White	90.0	-0.4	2.9	< 1.5	x	x	x
6101 L/S/H/U	Gray	79.1	0.1	2.9	< 1.5	x	x	x
6102 L/S/H/U	Beige	87.4	1.6	14.3	< 1.5	x	x	x
6104 L/S/H/U	Pastel yellow-greenish	79.6	-3.4	15.3	< 1.5		x	
5650 P	White	88.3	-1.1	3.5	< 1.5	x	x	x

indicative values only

Ultra High-Gloss Writing Surfaces - U

An ultra-smooth surface with significantly less distortion from light reflection than other surfaces for better visibility and dry erase-ability. Type U is ideal for magnet-retaining applications and easy to maintain. This is one of our most commonly used surfaces for general purposes.



Property	Ref. in Doc. n° 41.822	Specification	Whiteboard e ³ U
Total thickness enamel top coatings	1	ISO 2178 / ASTM B499	85 - 120 µm / 3.35 - 4.72 mills
Steel thickness	2		See sizing, page 8
Thickness back-side enamel coating	3	ISO 2178 / ASTM B499	Type A: 25 - 50 µm / 0.98 - 1.97 mills Type B: 35 - 50 µm / 1.38 - 1.97 mills
Total thickness	4		See sizing, page 8
Available standard widths	5		See sizing, page 8
Available standard colors	6		See standard colors, page 8
Weight (typical)	7	-	2.9 - 3.2 kg/m ²
Color deviation from standard	8	ISO 7724 / ASTM D2244-02	ΔE ⁹⁴ = 1.5 max
Gloss	9	ISO 2813 / ASTM D523 60° ISO 2813 / ASTM D523 20°	(Indicative: 97 GU) 70 (+10/-5) GU
Mohs surface hardness	11	EN 15771	Min. 5
Scratch resistance	12	ISO 15695	Min. 7 N
Pencil hardness	13	ASTM D-3363	> 9H
Wear resistance	14	ASTM C 501 (Abrasive S 33/1 kg/1000 revs.)	Max. 0.1 g
Impact resistance	15	ISO 4532 (20N - 24h)	< 2 mm
Cold acid resistance	16	EN 14483-1-9 / ISO 28706-1-9	Min. A
Solvent resistance	17	PVNV 41.822	No change
Fire resistance	18	EN 13501-1 +A1	Incombustible - Class A1
Color stability	19	ASTM C 538	ΔE ⁹⁴ ≤ 5
Dry-erasability of drymarkers	24	PVNV 41.803	Excellent (ΔE ⁹⁴ ≤ 1.5)
Erasability of water-based markers with water	25	PVNV 41.822	Excellent (ΔE ⁹⁴ ≤ 1.5)
Erasability of permanent markers with alcohol	26	PVNV 41.822	Excellent (ΔE ⁹⁴ ≤ 1.5)
Durability	27	PVNV 41.809	RG < 30%
Erasability of an aged surface	28	PVNV 41.809	Excellent (ΔE ⁹⁴ ≤ 1.5)
EN ISO 28762	29	EN ISO 28762	Fulfilled
European Enamel Authority	30	EEA Quality Requirements	EEA 7.17: Fulfilled
MBDC Cradle to Cradle Certified	31	Cradle to Cradle Bronze	Certified
PEI 1002 compliant	32	PEI 1002	Fulfilled
ISO 9001, ISO 14001 compliant	33	ISO 9001	Certified

High-Gloss Writing Surfaces - H

High gloss features less reflection than the Type U, while maintaining a smooth surface. It is ideal for magnet-retaining applications and easy to maintain. This is one of our most commonly used surfaces for general purposes.



Property	Ref. in Doc. n° 41.822	Specification	Whiteboard e ³ H
Total thickness enamel top coatings	1	ISO 2178 / ASTM B499	85 - 120 µm / 3.35 - 4.72 mills
Steel thickness	2		See sizing, page 8
Thickness back-side enamel coating	3	ISO 2178 / ASTM B499	Type A: 25 - 50 µm / 0.98 - 1.97 mills Type B: 35 - 50 µm / 1.38 - 1.97 mills
Total thickness	4		See sizing, page 8
Available standard widths	5		See sizing, page 8
Available standard colors	6		See standard colors, page 8
Weight (typical)	7	-	2.9 - 3.2 kg/m ²
Color deviation from standard	8	ISO 7724 / ASTM D2244-02	ΔE ⁹⁴ = 1.5 max.
Gloss	9	ISO 2813 / ASTM D523 60° ISO 2813 / ASTM D523 20°	(Indicative: 92 GU) 55 (+10/-5) GU
Mohs surface hardness	11	EN 15771	Min. 5
Scratch resistance	12	ISO 15695	Min. 7 N
Pencil hardness	13	ASTM D-3363	> 9H
Wear resistance	14	ASTM C 501 (Abrasive S 33/1 kg/1000 revs.)	Max. 0.1 g
Impact resistance	15	ISO 4532 (20N - 24h)	< 2 mm
Cold acid resistance	16	EN 14483-1-9 / ISO 28706-1-9	Min. A
Solvent resistance	17	PVNV 41.822	No change
Fire resistance	18	EN 13501-1 +A1	Incombustible - Class A1
Color stability	19	ASTM C 538	ΔE ⁹⁴ ≤ 5
Dry-erasability of drymarkers	24	PVNV 41.803	Excellent (ΔE ⁹⁴ ≤ 1.5)
Erasability of water-based markers with water	25	PVNV 41.822	Excellent (ΔE ⁹⁴ ≤ 1.5)
Erasability of permanent markers with alcohol	26	PVNV 41.822	Excellent (ΔE ⁹⁴ ≤ 1.5)
Durability	27	PVNV 41.809	RG < 30%
Erasability of an aged surface	28	PVNV 41.809	Excellent (ΔE ⁹⁴ ≤ 1.5)
EN ISO 28762	29	EN ISO 28762	Fulfilled
European Enamel Authority	30	EEA Quality Requirements	EEA 7.17: Fulfilled
MBDC Cradle to Cradle Certified	31	Cradle to Cradle Bronze	Certified
PEI 1002 compliant	32	PEI 1002	Fulfilled
ISO 9001, ISO 14001 compliant	33	ISO 9001	Certified

Satin

Writing Surfaces - S

Satin Gloss finish has less light reflection than Type U and Type H, but still offers a smooth surface that is easy to write on and erase. A great option for spaces that use projectors.



Property	Ref. in Doc. n° 41.822	Specification	Whiteboard e ³ S
Total thickness enamel top coatings	1	ISO 2178 / ASTM B499	85 - 120 µm / 3.35 - 4.72 mills
Steel thickness	2		See sizing, page 8
Thickness back-side enamel coating	3	ISO 2178 / ASTM B499	Type A: 25 - 50 µm / 0.98 - 1.97 mills Type B: 35 - 50 µm / 1.38 - 1.97 mills
Total thickness	4		See sizing, page 8
Available standard widths	5		See sizing, page 8
Available standard colors	6		See standard colors, page 8
Weight (typical)	7	-	2.9 - 3.2 kg/m ²
Color deviation from standard	8	ISO 7724 / ASTM D2244-02	ΔE ⁹⁴ = 1.5 max
Gloss	9	ISO 2813 / ASTM D523 60° ISO 2813 / ASTM D523 20°	(Indicative: 83 GU) 40 (+10/-5) GU
Mohs surface hardness	11	EN 15771	Min. 5
Scratch resistance	12	ISO 15695	Min. 7 N
Pencil hardness	13	ASTM D-3363	> 9H
Wear resistance	14	ASTM C 501 (Abrasive S 33/1 kg/1000 revs.)	Max. 0.1 g
Impact resistance	15	ISO 4532 (20N - 24h)	< 2 mm
Cold acid resistance	16	EN 14483-1-9 / ISO 28706-1-9	Min. A
Solvent resistance	17	PVNV 41.822	No change
Fire resistance	18	EN 13501-1 +A1	Incombustible - Class A1
Color stability	19	ASTM C 538	ΔE ⁹⁴ ≤ 5
Dry-erasability of drymarkers	24	PVNV 41.803	Good (ΔE ⁹⁴ ≤ 4.5)
Erasability of water-based markers with water	25	PVNV 41.822	Excellent (ΔE ⁹⁴ ≤ 1.5)
Erasability of permanent markers with alcohol	26	PVNV 41.822	Excellent (ΔE ⁹⁴ ≤ 1.5)
Durability	27	PVNV 41.809	RG<30%
Erasability of an aged surface	28	PVNV 41.809	Good (ΔE ⁹⁴ ≤ 4.5)
EN ISO 28762	29	EN ISO 28762	Fulfilled
European Enamel Authority	30	EEA Quality Requirements	EEA 7.17: Fulfilled
MBDC Cradle to Cradle Certified	31	Cradle to Cradle Bronze	Certified
PEI 1002 compliant	32	PEI 1002	Fulfilled
ISO 9001, ISO 14001 compliant	33	ISO 9001	Certified

Low-Gloss Writing Surfaces - L

Low Gloss finish has less light reflection than Type U and Type H, but still offers a smooth surface that is easy to write on and erase. A great option for spaces that use projectors.



Property	Ref. in Doc. n° 41.822	Specification	Whiteboard e³ L
Total thickness enamel top coatings	1	ISO 2178 / ASTM B499	85 - 120 µm / 3.35 - 4.72 mills
Steel thickness	2		See sizing, page 8
Thickness back-side enamel coating	3	ISO 2178 / ASTM B499	Type A: 25 - 50 µm / 0.98 - 1.97 mills Type B: 35 - 50 µm / 1.38 - 1.97 mills
Total thickness	4		See sizing, page 8
Available standard widths	5		See sizing, page 8
Available standard colors	6		See standard colors, page 8
Weight (typical)	7	-	2.9 - 3.2 kg/m²
Color deviation from standard	8	ISO 7724 / ASTM D2244-02	$\Delta E^{94} = 1.5$ max
Gloss	9	ISO 2813 / ASTM D523 60° ISO 2813 / ASTM D523 20°	(Indicative: 70 GU) 25 (+10/-5) GU
Mohs surface hardness	11	EN 15771	Min. 5
Scratch resistance	12	ISO 15695	Min. 7 N
Pencil hardness	13	ASTM D-3363	> 9H
Wear resistance	14	ASTM C 501 (Abrasive S 33/1 kg/1000 revs.)	Max. 0.1 g
Impact resistance	15	ISO 4532 (20N - 24h)	< 2 mm
Cold acid resistance	16	EN 14483-1-9 / ISO 28706-1-9	Min. A
Solvent resistance	17	PVNV 41.822	No change
Fire resistance	18	EN 13501-1 +A1	Incombustible - Class A1
Color stability	19	ASTM C 538	$\Delta E^{94} \leq 5$
Dry-erasability of drymarkers	24	PVNV 41.803	Good ($\Delta E^{94} \leq 4.5$)
Erasability of water-based markers with water	25	PVNV 41.822	Excellent ($\Delta E^{94} \leq 1.5$)
Erasability of permanent markers with alcohol	26	PVNV 41.822	Excellent ($\Delta E^{94} \leq 1.5$)
Durability	27	PVNV 41.809	RG<30%
Erasability of an aged surface	28	PVNV 41.809	Good ($\Delta E^{94} \leq 4.5$)
EN ISO 28762	29	EN ISO 28762	Fulfilled
European Enamel Authority	30	EEA Quality Requirements	EEA 7.17: Fulfilled
MBDC Cradle to Cradle Certified	31	Cradle to Cradle Bronze	Certified
PEI 1002 compliant	32	PEI 1002	Fulfilled
ISO 9001, ISO 14001 compliant	33	ISO 9001	Certified

Corporate Responsibility

Polyvision believes that sustainability is an important business practice in today's global economy. In line with this belief, we strive for continuous improvement in all areas of environmental stewardship — responsible use of raw materials and natural resources, manufacturing processes and operation of all facilities — to reduce the impact of our activities on the environment. In the end, we believe we are all in this together, working to protect and cultivate the world we live in to make more sustainable choices.



Manufacturing Excellence

All Polyvision facilities are compliant with international standards and certified for Quality, Environment, Health and Safety. Our environmental goals aim to reduce and manage our global environment footprint in the areas of VOC emission, water use, waste output and CO₂ emission.



- ISO 9001 Quality Management Systems Certification
- ISO 45001 Occupational Health & Safety Management Certification



Ensuring A Sustainable Future

In addition to safe and sustainable manufacturing processes, Polyvision holds our products to the highest standards. We are third-party certified for our CeramicSteel surface by:

- Cradle to Cradle Certified — releases no harmful chemicals into the environment, safeguards clean water, materials are safe for humans and the environment
- Indoor Air Quality Certified to SCS.EC10.3-2014 v4.0
- ISO 14001 Environmental Management Certification



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SURFACEMATTERS™

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