

THIN | STANDARD



High pressure decorative laminates (HPL), less than 2 mm thick, according to EN 438-3:2005 or EN 438-8:2005, consisting of a surface of decorative paper(s) impregnated with aminoplastic resins and a core made of layers of kraft paper impregnated with phenolic thermosetting resins. All the layers are bonded together with simultaneous application of heat (approximately 150°C) and high specific pressure (> 7 MPa) to obtain a homogeneous non-porous material with increased density. These thin laminates are normally intended for bonding to supporting substrates, normally wood based, to produce panels by the composite manufacturers. They are available in the standard HGS, ATS and VGS types and in the flame retardant HGF, ATF and VGF types.

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|-------|-----------------------|----------|---------------|----------------|--------------------|-----------|
| Decor | EN 438 classification | Standard | Plain colours | Printed decors | Iridescent colours | Vertical |
| | | | HGS - HGF | HGS - HGF | ATS - ATF | VGS - VGF |
| | | | EN 438-3 | EN 438-3 | EN 438-8 | EN 438-3 |

| PROPERTIES | TEST METHOD | PROPERTY OR ATTRIBUTE | UNIT | VALUES |
|------------|-------------|-----------------------|------|--------|
|------------|-------------|-----------------------|------|--------|

SURFACE QUALITY

| | | | | |
|-----------------|------------|---|---------------------------------|------|
| Surface quality | EN 438-2.4 | Spots, dirt and similar surface defects | mm ² /m ² | ≤ 1 |
| | | Fibres, hairs and scratches | mm/m ² | ≤ 10 |

DIMENSIONAL TOLERANCES

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|------------------------|------------|--|------|------------------------------------|
| Dimensional tolerances | EN 438-2.5 | Thickness tolerance | mm | ± 0,10 for thickness 0,5 ≤ t ≤ 1,0 |
| | | | mm | ± 0,15 for thickness 1,0 < t < 2,0 |
| | EN 438-2.6 | Length and width | mm | + 10 / - 0 |
| | EN 438-2.7 | Straightness of edges | mm/m | ≤ 1,5 |
| | EN 438-2.8 | Squareness | mm/m | ≤ 1,5 |
| | EN 438-2.9 | Flatness (measured on full-size sheet) | mm/m | ≤ 60 |

GENERAL PROPERTIES

| | | | | | | | |
|--|---------------|--|---------------------------------|------------------|----------------|--------------|------------------|
| Resistance to surface wear | EN 438-2.10 | Initial Point Wear value | Revolutions Revolutions | ≥ 150 ≥ 350 | ≥ 100 ≥ 200 | n.a. n.a. | ≥ 50 ≥ 150 |
| Resistance to immersion in boiling water | EN 438-2.12 | Appearance - Gloss finish Appearance - Other finish | Rating Rating | ≥ 3 ≥ 4 | | | |
| Resistance to water vapour | EN 438-2.14 | Appearance - Gloss finish Appearance - Other finish | Rating Rating | ≥ 3 ≥ 4 | | | |
| Resistance to dry heat (180°C/20') | EN 438-2.16 | Appearance - Gloss finish Appearance - Other finish | Rating Rating | ≥ 3 ≥ 4 | | n.a. n.a. | ≥ 3 ≥ 4 |
| Resistance to wet heat (100') | EN 12721:1997 | Appearance - Gloss finish Appearance - Other finish | Rating Rating | ≥ 3 ≥ 4 | | n.a. n.a. | ≥ 3 ≥ 4 |
| Dimensional stability at elevated temperatures | EN 438-2.17 | Cumulative dimensional change | Longitudinal % Transversal % | ≤ 0,55 ≤ 1,05 | | | ≤ 0,75 ≤ 1,25 |
| Resistance to impact with small diameter ball | EN 438-2.20 | Spring force | N | ≥ 20 | | | ≥ 15 |
| Resistance to impact with large diameter ball | EN 438-2.21 | Drop height Indentation diameter | mm mm | ≥ 800 ≤ 10 | | n.a. | ≥ 600 ≤ 10 |
| Resistance to cracking under stress | EN 438-2.23 | Appearance | Rating | ≥ 4 | | | |
| Resistance to scratching | EN 438-2.25 | Appearance | Rating | ≥ 3 | | | ≥ 2 |
| Resistance to staining | EN 438-2.26 | Appearance - Group 1 & 2 Appearance - Group 3 | Rating Rating | ≥ 5 ≥ 4 | | | |
| Light fastness (Xenon-arc) | EN 438-2.27 | Contrast | Grey scale rating | ≥ 4 | | | |
| Resistance to cigarette burns | EN 438-2.30 | Appearance | Rating | ≥ 3 | | n.a. | ≥ 3 |
| Density | EN ISO 1183 | Density | g/cm ³ | ≥ 1,35 | | | |

FIRE PERFORMANCES

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|------------------|--|--|--|--|--|--|--|
| Reaction to fire | The Reaction to Fire of applied laminate is related to the final composite panel where the laminate is bonded to a substrate. The results may be different depending on the substrates, the glue and the bonding techniques applied. The Reaction to Fire testing of the composite panel is under the responsibility of the panel manufacturer. For its own laminates, Arpa has some testing reports available in relation to specific applications and markets. | | | | | | |
|------------------|--|--|--|--|--|--|--|

OTHER PROPERTIES

| | | | | |
|---|---|------------------------------------|--------------------------|--------------------------------------|
| Thermal resistance / conductivity | EN 12664 | Thermal resistance / conductivity | W/mK | 0,2 to 0,5 |
| Hygiene | NSF | NSF/ANSI 35 | passing/not passing | pass |
| Formaldehyde emission | EN 717- 1 | Chamber method | mg/m ³ ppm | 0,020 - 0,035 0,015 - 0,030 |
| | EN 717- 2 | Gas analysis | mg/(m ² x h) | 0,2 - 0,4 |
| | EN 13986 | Classification | Rating | E1 |
| Volatile Organic Chemical Emissions | Greenguard Certification Low Chemical Emission UL 2818 according to EPA TO-17 e ASTM D 6196 EPA TO-11A e ASTM D 5197 | Individual VOCs | TLV | ≤ 0,1 |
| | | Formaldehyde | ppm | ≤ 0,025 |
| | | Total VOC | mg/m ³ | ≤ 0,25 |
| | | Total Aldehydes | ppm | ≤ 0,05 |
| | | 4-Phenylcyclohexene | mg/m ³ | ≤ 0,0033 |
| | | Total respirable particles | mg/m ³ | ≤ 0,025 |
| Contact with food - Overall migration | EN 1186-3 | 3% acetic acid 24h at 40°C | | < 10 |
| | EN 1186-3 | 50% ethanol 24h at 40°C | | < 10 |
| | EN 1186-14 | 95% ethanol 24h at 40°C | mg/dm ² | < 10 |
| | EN 1186-14 | isooctane 24h at 40°C | | < 10 |
| Contact with food - Formaldehyde specific migration | EN 13130-23 | 3% acetic acid 24h at 40°C | mg/kg | < 15 |
| Evaluation of micro-organisms action | EN ISO 846 | Microbial growth - Smooth finish | Rating | 0 - no microbial growth |
| | | Microbial growth - Textured finish | Rating | 1 - slight and slow microbial growth |

Note to laminates with adhesive protective film

The protective films are designed for temporary surface protection against dirt, scratches and tool marks; they are not designed for protection against corrosion, humidity or chemicals. The laminates covered with the protective film shall be stored in a clean, dry place at room temperature (optimum 20°C), avoiding weathering and UV exposure. The protective film must be removed from the surface of the laminates after the application and before putting into use the finite element. In any case, the removal must be made within six months from the date of shipment by Arpa Industriale. Arpa Industriale cannot be responsible for the misuse of the laminates covered with the protective film, nor for the consequences for non-recommended applications.

Note to digital printing decoratives

For the chemical-physical characteristics of digital printing, the laminates with these decors may present a limitation in the applications, such as the repeated and intense contact with water or vapour. Customers are asked to contact the Customer Service Arpa Industriale to evaluate the best solution.

Disclaimer

The Product Technical Sheets provide all the technical information relevant to the performance of the product as tested by Arpa Industriale or certified testing agencies. Arpa Industriale maintains the right to change and alter the product composition and production process and thereby the performance characteristics of the product at all times, as reported to the Arpa Industriale website. Customers and end-users of the product are requested to check for the latest technical information regarding the products performance on the website of Arpa Industriale before application. In any case, Arpa Industriale, in every contractual relationship, will refer only to the technical information published on its website. Arpa Industriale will not assume any liability if the end-user or customer refer to any other technical information of the products.