PUR METAL® - High Pressure Laminate

PRODUCT DATA SHEET

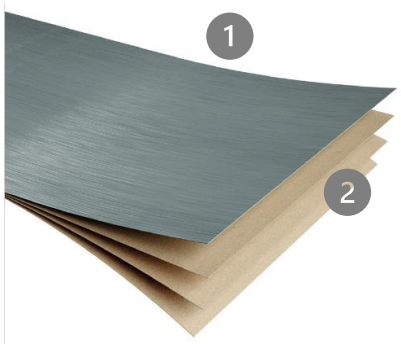
1. MATERIAL DESCRIPTION AND COMPOSITION

Pur Metal® is a decorative high-pressure laminate (HPL) according to EN 438-8 and ISO 4586.

Pur Metal® consists of layers of fibrous cellulose (usually papers) impregnated with thermosetting resins. The process, defined as a simultaneous application of heat and high specific pressure, enables flowing and subsequent curing of the thermoset resins to obtain a homogenous non-porous material with the required surface finish.

Basically, more than 60% of the POLYREY HPL consists of paper and the remaining 30 to approximately 40% consist of cured phenol-formaldehyde resin for core layers and and aluminium for the surface layer (decorative surface).
The aluminium layer is anodised or coated with a protective lacquer. This coating provides permanent protection against corrosion and oxidation.

The Metallic Touch (MTC) surface has a special radiation-cured coating, thus offering a fingerprint-resistant effect.
Due to its composition, the material is flame retardant.



1 Metallic decorative layer
2 Core paper (kraft paper), phenol resin impregnated

2. FORMATS

- 305 x 122 cm

Full details of the availability of decors in different formats are available on our website www.polyrey.com or in our infoGuide brochure.

3. AREAS OF APPLICATION

Pur Metal® HPL panels are designed for interior fittings in dry environments for vertical use (e.g. furniture, credenzas, etc.).
Pur Metal® panels are not suitable for use in areas with constantly high air humidity or direct contact with water.
The application of HPL Pur Metal® depends on a number of factors (e.g. temperature, relative humidity, changing climatic conditions, fixings, fire behaviour requirements, etc.) Therefore, the suitability of HPL Pur Metal® laminate for the application in question should be checked in advance.
In addition, HPL Pur Metal® requires special conditions of application and use. Always refer to §8 Cleaning and maintenance.

4. TECHNICAL DATA

4.1. TECHNICAL PROPERTIES ACCORDING TO EN 438-8

	QUALITY		Fire retardant by nature (standard core))
	DECORS/ surfaces		All
	THICKNESS in mm		0,8 - 0,9
	CLASSIFICATION		MTS
CARACTERISTICS	**STANDARD**	**UNITS**	
Physical properties, dimensions and tolerances			
Density	EN ISO 1183-1	g/ cm^3	≥ 1,35
Thickness	EN 438-2-5	mm	± 0,15
Length and width	EN 438-2-6	mm	- 0/ + 10
Edge straightness	EN 438-2-7	mm/ m	≤ 1,5
Edge squareness	EN 438-2-8	mm/ m	≤ 1,5
Flatness	EN 438-2-9	mm/ m	100
Dimensional stability at elevated temperature			
Longitudinal	EN 438-2-17	%	≤ 0,75
Transverse			≤ 1,25
Mechanical properties			
Resistance to immersion in boiling water (only delamination of the core is standardised)	EN 438-2-12	Pass/fail	pass
Resistance to cracking	EN 438-2-23	Rating [(a)]	4
Minimum bending radius (concave, convex)	Internal test	mm	200
Postformability	EN 438-2-31/32	mm	non postformable

Surface properties			
Surface defects according to EN 438-2-4 – test conducted at a distance of 1.50 m			
Dirt, spots etc. Fibers, hairs and scratches	EN 438-2-4	mm^2/m^2 mm/ m^2	≤ 1 ≤ 10
Resistance to surface wear	EN 438-2-10	Tours	non applicable
Resistance to water vapor	EN 438-2-14	Rating [(a)]	3
Resistance to scratching	EN 438-2-25	Degré	1 (continous scratch at 1 N)
Stain resistance			
- Group 1 & 2 - Group 3	EN 438-2-26	Rating [(a)]	4 [(b)] 4 [(c)]

MTS : Metal thin laminate standard

(a) Rating 5: no change; Rating 4: slight change visible at certain viewing angles; Rating 3: moderate change; Rating 2: marked change or surface blistering; Rating 1: Surface layers delamination

(b) Rating≥ 2 for anodized aluminium surface

(c) Not applicable for anodized aluminium surface

4.2. ADDITIONAL TECHNICAL PROPERTIES AND SAFETY INFORMATION

PROPERTY	DESCRIPTION
Physical and chemical properties	
Physical state	Solid
Solubility	Insoluble in water, oil, methanol, diethyl ether, n-octanol, acetone
Boiling point	None
Evaporation rate	None
Melting point	POLYREY Pur Metal does not melt
Calorific value	18–20 MJ/kg
Heavy metals	Pur Metal® contains no toxic compounds based on Antimony, barium, cadmium, chromium III, chromium VI, lead, mercury, selenium
Bisphenol A (BPA)	Pur Metal® contains no components
Asbestos	Pur Metal® contains no components
Pentachlorphenol (PCP)	Pur Metal® contains no components
RoHS	Pur Metal® meets the requirements of EU guidelines 2011/65, 2015/863 RoHS (Restriction of Hazardous Substances). Pur Metal® contains none of the following restricted substances: lead, mercury, cadmium, chromium, polybrominated biphenyls (PBB), polybrominated diphenyl ether (PBDE), pentabromodiphenyl ether (PentaBDE), octabromodiphenyl ether (OctaBDE); Bis(2-ethylhexyl)phthalate (DEHP) butyl benzyl phthalate (BBP) dibutyl phthalate (DBP) diisobutyl phthalate (DIBP)
Safety data sheet	Pur Metal® boards are not hazardous substances within the meaning of the Chemicals Act / no special labelling or safety data sheet is required
Stability and reactivity information	
Stability	Pur Metal® is stable and durable; it is neither reactive nor corrosive
Hazardous/dangerous reactions	None
Incompatibility	Strong acids or alkaline solutions may damage the surface
Fire and explosion protection data	
Ignition temperature	approx. 400 °C
Flashpoint	None
Thermal decomposition	Possible above 250 °C. Toxic gases (e.g., carbon monoxide, carbon dioxide, ammonia) may arise depending on the fire conditions (temperature, oxygen content, etc.)

PROPERTY	DESCRIPTION
Smoke and toxicity	HPL can be used in areas where smoke and toxicity is controlled (e.g., shipbuilding)
Flammability	Pur Metal® is classified as non-flammable. It only burns in real fires in which open flames are present.
Extiguishing agent	Class A
Explosion hazards	Dust class ST-1
Explosion limits	Maximum dust concentration 60mg/m³

5. CERTIFICATIONS AND TESTS

PROPERTY	TEST METHOD	UNIT	MTS
Fire behavior Building product	NFP 92-501 EN 13501-1	Class M Euroclass (1)	M1 B-s2,d0
Fire behavior Transportation trains	EN 45545-2	Class	Non applicable
Fire behavior Shipbuilding	IMO Resolution MSC 307(88)	Certification	Modules B & D
Emission VOC (Volatile organic compounds)	ISO 16000-9	Emission class according to French regulation (Décret no 2011-321)	A+ (scenario wall)
	UL 2818	Labelling	Non applicable
Emission formaldehyde	EN 16516	Classification	E1 (≤0.1 ppm)
Declaration of harmlessness Food Safe	EN 1186 / 13130 / CEN/TS 14234	Contact with food	No
Antibacterial effect	JIS Z 2801/ISO 22196	Reduction in %	Not aplicable
PEFC (2)		Certification	Upon request
FSC® (2)		Certification	Upon request

MTS : Metal thin laminate standard

(1) Consider details (e.g., Classification report, Official Journal of the European Union); e.g., validity in combination with substrate, adhesive system

(2) Please specify with your order

6. STORAGE AND TRANSPORT

Pur Metal® must be transported and stored flat, horizontal, with full-surface contact and on a sufficiently large pallet.

Pur Metal® panels are not dangerous goods as defined by transport regulations, therefore labeling is not required.

Panels must be stored in a closed storage area under normal indoor conditions (10–30 °C and 40–65% relative humidity), and protected against moisture, and mechanical damage, with suitable protection. The protection placed on top of the pallet must be maintained whenever panels are removed from the stack. If the panels are stored for a long period of time, ensure flat storage, and place a panel on top to weigh on the laminates, otherwise the panels may warp or deform

All the panels Pur Metal® are delivered with protective film to ensure a temporary protection during transport, storage and handling.

If the film remains on the surface during processing, it is the processor's responsibility to perform preliminary machinability and this does not in any way dispense with a systematic inspection beforehand.

The protective film must be removed no later than six months after delivery.

7. HANDLING AND MACHINING

Before processing, please check the product for damage and visual defects. In order to guarantee the final appearance of our products, it is also imperative to check the color and appearance of the panels in relation to each other (decor/texture). However, slight deviations in decor and texture are inherent to the production process and must be accepted.
Also check that the direction of production is taken into account (sanding direction). The direction of production has an influence on dimensional variation, as well as on mechanical strength and appearance due to light reflection.

The usual safety regulations regarding dust removal and fire protection must be observed when processing Pur Metal®. In particular, the necessary provisions must be made for the treatment of cut-outs in metallic material.
Due to possible sharp edges, protective gloves should always be worn when handling Pur Metal®. Contact with dust does not cause any issues; nevertheless, there are a limited number of people who may have an allergic reaction to processing dust of all kinds (and therefore also to HPL/Compact dust).

Pur Metal® is a wood-based and metallic based product, and its dimensions are constantly adapting to ambient conditions. The product can be easily process with woodworking machines. For a suitable tool recommendation of your individual machining please contact the tool manufacturer directly.

Pur Metal® panels are not postformable.
Pur Metal® panels can be cold bended at radius 20 cm.

7.1. MANUFACTURING OF BONDED BOARDS

Pur Metal® and its substrate must be stacked and conditioned together before processing (≥ 3 days). A good conditioning is achieved in a moderate interior climate (18–25 °C and 40-65% relative humidity). These conditions are also recommended for the location where the product will be later used. If the composite element to be manufactured will be exposed to consistently high or low humidity during its subsequent use, it is advisable to expose the HPL and substrate to a correspondingly high or low level of humidity or increased temperature during conditioning.

The following adhesives can be used to bond Pur Metal® to a wood substrate:

Dispersion adhesives	e.g., PVAc (polyvinyl acetate) adhesive
Condensation resin adhesives	e.g., urea resin adhesives
Melt adhesive	e.g., hot melt
Contact adhesive	

The use of the right adhesive is of particular importance from a technical point of view, but also from an allergological and health point of view. If possible, low-pollutant adhesive should be used (such as dispersion adhesives) that evaporate quickly. If technically necessary, all other adhesives can also be used, but longer evaporation times must be observed.

Adhesives require special care during processing and storage. Therefore, the guidelines and processing instructions of the adhesive manufacturer must be observed. Basically, test bonding must be out according to the respective application and requirements for the bonded board.

Tension-free composite elements are most safely produced at press temperatures of 20 °C. Higher press temperatures allow for a reduction in setting time. As the dimensional changes of POLYREY HPL compared to the substrate are temperature-dependent, press temperatures should not exceed 60 °C to avoid increased tension. To obtain optimum results, we recommend a pressure of between 0.15 and 0.2 N/mm² (1.5 - 2 bar) and the use of a soft pad between the surface of the panel and the compression device.

When selecting the right adhesive for Pur Metal®, we recommend following the technical advice of the manufacturer / processor.

7.2. BACKER

When manufacturing bonded board with Pur Metal®, it is especially important to ensure that tension is equalized in the composite element.

We always recommend a symmetrical structure with backing HPL identical to top side HPL (including protective film). This must be considered especially when using self-supporting or non-structural composite elements (e.g., furniture doors).
In addition, the HPL of both sides must be subjected to the same temperature and humidity conditions and should be cut in the same production direction (sanding direction).

In case of structural or non-self-supporting composite elements (e.g., wall cladding) in normal conditions (18-25°C and 40-65% relative humidity), asymmetrical composite elements can be produced using another HPL Polyrey backing : Z091 1,0 mm FIR or STD. It is recommended that only substrates with a thickness of ≥ 18 mm are used to produce non-symmetrical elements. The correct balancing depends even on the thickness, the usage and the mounting type of POLYREY Bonded Boards.
The production of non-symmetrical elements is the responsibility of the processor. For non-symmetrical composition, we recommend conducting preliminary tests to check feasibility regarding the respective application.

The protective film must be removed simultaneously on both sides.

More information on the handling and machining of POLYREY HPL can be found in ICDLI HPL Compendium.

8. CLEANING AND CARE

Pur Metal® panels do not require any other surface treatment (with varnish or other coatings, for example). The surfaces of Pur Metal® panels can be cleaned using a cloth or sponge soaked in a mild soap solution or ordinary glass cleaner. Do not use abrasive products, alkalis, acids or chlorinated cleaners. Drying with a soft cloth is recommended.

To preserve the visual appearance, these advices must be observed during application and cleaning.

For further information, please refer to the Care Manual available at www.polyrey.com.

9. SUSTAINABILITY AND ENVIRONMENT

Polyrey is certified according to EN ISO 14001 and EN ISO 50001.

Pur Metal® is a cured, and therefore inert, duroplast. The release of formaldehyde from POLYREY HPL panels (≤ 0.05 ppm in testing according to EN 16516) are far below the legally permissible level (≤ 0.1 ppm regard to German requirements (Chemikalienverbotsverordnung)).

Furthermore, the emissions of volatile organic compounds (VOC) are so low that, depending on the test scenario, the following classifications according to the French VOC regulation have been given by Eurofins test reports.

Class A+ (with the test scenario for small areas (e.g., doors) with a loading factor of 0.05 m² / m³)

Pur Metal® can be offered as a PEFC- or FSC®-certified product upon request. In addition, all paper used (core paper and decorative paper) comes from non-controversial or controlled sources and meets EUTR Act (EU) No. 995/2010 requirements.

Pur Metal® is a product and not a chemical substance, so the REACH ordinance is not applicable. It is, however, important to ensure information exchange between POLYREY and raw material suppliers regarding REACH-relevant components (see REACH ordinance technical data sheet for more information). We hereby confirm that no substance from the Candidate List is used in our above-mentioned products in a quantity requiring information (≤ 0,1% w/w) and that we comply with the requirements of Annexes XIV and XVII of the REACH Regulation.

10. DISPOSAL AND ENERGY RECOVERY

Pur Metal® can be disposed of at controlled waste disposal facilities (e.g., landfills) that comply with current national and regional regulations. According to the regulation on the European Waste Catalog, HPL waste is classified with the code 200301 (mixed municipal waste) or code 03 01 05 (wood waste).

Pur Metal® is particularly suitable for thermal recycling due to its high calorific value (18–20 MJ/kg). When completely combusted at 700 °C, the boards burn to water, carbon dioxide and nitrogen oxides. The conditions for good combustion are met in modern, officially approved industrial incineration facilities. The ashes from these incineration processes can be brought to controlled landfills.