

PROCESSING & CLEANING RECOMMENDATION

Duropal XTreme

Duropal XTreme is an attractive surface material, appropriate for surface and edge applications providing the high-performance features of the wellknown Duropal HPL products.

Duropal XTreme doesn't prevent scratches! Duropal XTreme allows horizontal application!

With regard to dark decors, mechanical influences on the surfaces may however have the result that contrasts may be perceived more clearly. Regardless of the decor, users should make own tests relevant to the use case before using Duropal XTreme. We definitely recommend, regardless of the decor, to use self-assessment for the respective usage purpose.

Please note that depending on the field of application, the conditions of space lighting and the corresponding decor, Duropal XTreme may lead to optical impairments due to a low surface orientation. Such impairments do not constitute defects. To avoid any possible aesthetic and optical impairments, the specified orientation of the boards on the protection film of the product must strictly be followed, especially for large-surface applications.

In order to achieve the desired results, all processing rules and safety regulations as already known from traditional Duropal products shall be followed. Identical machines and tools are also appropriate for processing Duropal XTreme. This processing recommendation documents our own experiences as well as the results of numerous production tests from the partners for industry and trade. The recommendation indicates product features and shows possibilities for short-term and at the same time aesthetically-valuable solutions for furniture and interior fittings with Duropal XTreme.

PRODUCT PROPERTIES

Optics / haptics

- Matt, reflection-poor surface
- Comfortably warm, "velvety gentle / silky haptics
- Compared to many HPL-variants improved optics with enormous colour transparency and depth

Anti-Finger-Print

- Insensitive to finger prints and traces of grease (anti-finger-print property)
- It is clean and makes a purer, cleaner impression

Applications

For high-quality, aesthetically demanding furniture and design elements in the residential and interior design sector, such as for racking and shelving, furniture fronts, door sets and table tops, trade fair systems and sales displays.

- Appropriate for horizontal and vertical applications
- Interior fitting - wall covering, door
- Furniture making / shopfitting
- Projects - Exhibition, shipbuilding

Robustness/ durability

- Resistant, robust and durable
- Duropal XTreme properties (abrasion, impact and scratch resistance) fully comply with EN438:2016
- The scratch resistance exceeds that of HPL with comparable matt surfaces.
- With regard to dark decors, mechanical influences on the surfaces may however have the result that contrasts may be perceived more clearly.
- Duropal XTreme has got a long durability, this means less waste products, a more efficient use of resources and major total energy savings

Decorative variety

- Combinable with nearly all HPL-decors of the Pfleiderer Design-collection

Cleaning properties

- Compared to other matt HPL-surfaces improved cleaning properties, especially greasy residues (for example butter) can be easily removed
- Hygienic surface
- Resistant to domestic cleaning agents
- Resistant to chemicals and solvents, disinfectants
- Cleaning with microfibre cloths – both dry and moist – possible

Disposal and recycling

- Duropal XTreme consists of paper, thermohardening resins and temperature resistant thermoplastics. At the end of its life cycle it can be added to incineration plants approved for municipal waste.

Postforming-features

- Postforming with a radius of at least 10 x thickness
- Please note that Duropal XTreme already can be postformed at much lower temperatures.
- Trials of your own are recommended to adjust your production equipment

PROCESSING RECOMMENDATION

Transport, storage and handling

For transport and storage the guidelines of the general processing recommendations for HPL may be used. Special security measures are not necessary. In connection with transport rules, HPL and therefore Duropal XTreme is not hazardous. Therefore a special marking is not required.

Duropal XTreme should always be stored horizontally, a vertical storage is not recommended because of the risk of edge damage.

Duropal XTreme must be accurately piled and must not overlap, since protrusive boards may be damaged at the edges. However, if an edge is still damaged, special care will be needed during handling, in order to avoid further demolitions of the board at these points.

The climatic conditions for storage are identical to those of traditional Duropal laminates. To prevent mechanical damages a cover plate must be used. Complete boards could best be dealt with two persons. Because of possible sharp edges, protective gloves should always be worn during the handling with laminates. To avoid eye injury we recommend wearing safety glasses.

Preconditioning

Duropal XTreme and the core board material should be conditioned in one room before lamination so that they prove an approximately equal humidity rate during the compressing process. The best conditioning is achieved in a dry storage (18 - 25°C and 50 - 65% relative humidity).

For the production of bonded elements, the front- and rear side is conditioned each against one another with the polished lower surface. The conditioning is done in one covered pile for at least three days.

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Sawing, milling

Duropal XTreme is cut with identical tools and machines as used for traditional Duropal HPL products. Saw blades must be fitted with carbide (HM), better with diamond (DIA). Please only use sharp tools! The condition of the tools is decisive for the results!

To improve the results of the cutting edge at the bottom of the plate, we recommend the use of a scoring unit. If no corresponding unit is available, an additional hard fiber element for example may be helpful to reduce the free sawing gap. Ideal is cutting to size from pre-cut parts. Don't use mechanical lateral pressure for automatic panel sizing saws!

We recommend sawing blades with alternate tooth, tripple-chip flat tooth at 4,000 rpm. Good experiences have been made with Leitz OPTICUT Z 72 for example, diameter 350 mm, blade thickness 4.4 mm, unequal tooth pitch.

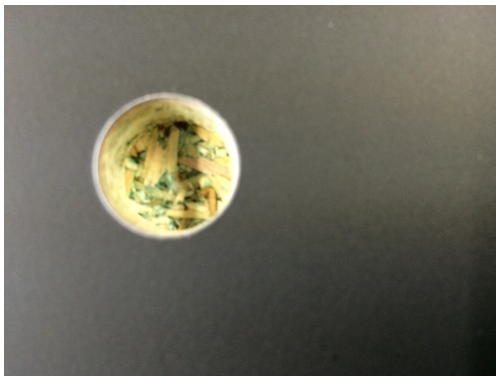
Duropal XTreme can also be processed with suitable milling tools with a high concentricity. Here too, diamond - better than carbide fitted tools. Because of the most diverse types of application of milling tools, a detailed tool recommendation is difficult. We recommend - as far as possible - milling tools with axis angles. Please follow the recommendations of the tool-producers before the use of milling tools.

Drilling

During the drilling process HM drills for plastic processing must be used with centring tip and point angle of 50 – 60°. For through holes and blind holes a low feed speed = entering speed should be chosen or, if possible, a base should be used.

For the rows of holes or drilling holes for hinges we recommend amongst others Leitz hard metal drilling pins or Leitz hard metal cylinder boring bits. Rotational and feed speeds of the producer must be observed.

Due to the material used, a flare effect is achieved at the hole wall by drilling Duropal XTreme. This property does not have any effect on the surface-properties of XTreme. The flare-effect can be reduced by the reduction of the entering speed.



Blind hole, diameter 16 mm

Perforate

A laminate punch is not suitable for the cutting of Duropal XTreme.

Finishing process

We recommend for bevelling or deburring diamond or carbide fitted conical or chamfer milling tools with a high concentricity. A follow-up manual correction with sandpaper is also possible; we recommend sandpaper > grain size 240. The use of a chisel and pulling blades is not recommended.

Interior hollows

The condition for interior hollows is a good climate control of the Duropal XTreme and the core material. Minor humidity differences can induce stresses. Even when the minimum radius is complied, this can cause cracks. Basically: The greater the cutout, the greater the risk of cracking. In order to avoid cracks, the cutouts must always be rounded to a most large radius. To achieve a notch free edge, the cut surface must be reground.

Reverse material

Pfleiderer recommends the use of identical Duropal XTreme as reverse material. It should be ensured that the running and grinding direction of the HPL are the same at the front and reverse side. For the front and reserve side of the elements, a protection foil is required.

In case of a thickness of $\geq 16\text{mm}$, an asymmetric product shape with HPL-reverse material (recommendation W10220 VV with protection foil) is available. Therefore, a protection foil on the front and reserve side of the element is necessary.

Here as well: For the final result it is of the utmost importance that the board and core board are sufficiently conditioned and that Duropal XTreme for the front and reverse side are pressed together with the core board at the same time.

Bonding and pressing

Duropal XTreme can be pressed cold and warm.

Note following items:

- Uniform glue distribution with generous application at the edges
- Approx. 3 bar uniform pressing power over the whole surface

We recommend the cold pressing with PVAc-white glue D3 / D4 with maximum press cycles in order to guarantee a sufficient hardening of the adhesive gap without the risk of distortion. Please note the bonding instructions of the producer!

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In case of warm pressing we recommend the PVAc-white glue D3 / D4 at a temperature of 70° with a press cycle of approx. 3 - 4 minutes. In particular when warm pressing is used, the temperature resistance of any used protective foils must be respected.

Edges

The approaching of ABS- and PP-edges at Duropal XTreme composite elements and furniture elements via edge-gluing machine is basically possible. Due to XTreme specific features possible additional expenditures regarding system configuration and test productions must be considered. The following information refers to production tests with the edge-gluing machine HolzHer type Arcus 1334.

All tools must be carbide (HM) fitted, if possible diamond fitted (DIA). Please only use sharp tools! Rough trimming units with milling tools and axis angles must always be used. The ideal plant feed system is according to our experiences at a speed of 10 – 12 m/min. Here we recommend the use of a release/cleaning agents unit. (Example for release agents: Riepe - LPZ/II, example for cleaning agents: Riepe – LP163/93, producer: Riepe GmbH & Co. KG, 32226 Bünde)

The radius milling must be configured by production tests and adjusted to the edge material thickness. The radii scraper must also be adjusted; here the XTreme surface must not be treated. The use of a surface scraper must be checked. The use of buffer aggregates can only be recommended together with the spraying unit.



Duropal element with XTreme and ABS edge

Core materials

Each core board which is also suitable for traditional Duropal HPL products can be used together with Duropal XTreme. In order to ensure maximum surface stability for the matt, unstructured surface, we recommend using MDF core material. We have achieved particularly good results with Pfleiderer StyleBoard MDF plus.

Postforming

Duropal XTreme is suitable for postforming. Our recommendation:

- Postforming-radius = 10 x thickness
- Postforming-radius < 10 x thickness – Own tests required!

Please note that XTreme can already be postformed at much lower temperatures. We recommend own tests to adjust your production line.

CLEANING RECOMMENDATION

Duropal XTreme stands out due to its material properties like durability, hygiene and easy maintenance. The high-quality surface is neither corrosive nor oxidizing. It doesn't need any further surface treatment for example varnish, oil, wax, furniture polish or other coatings. Possible contamination of any form should however be removed immediately.

Please observe the following information in order to achieve an optimum care and cleaning effect and to maintain the surface structure in the long term.

Basic cleaning

The basic cleaning of Duropal XTreme is normally accomplished by the use of hot water cleaning agent solutions. As cleaning substance commercial detergents are suitable, alternatively cleanser-degreasers. For stubborn soiling, the cleaning solution should be allowed to react. Afterwards the moist surface needs to be dried with hot, clear water until all residues of the cleaning agent have been removed. Use a dry lint-free cloth to rub dry in "decor direction" or uniformly in one direction in order to avoid streaking. The cleaning with micro fiber cloths (dry or humid) didn't show any surface injury.

Cleaning agents as well as cleaning cloths or sponges containing abrasive components must therefore be avoided. Examples include scouring cream, polishing agent and also sponges (for example Scotch Britt, steel wool or similar). The fine surface structure can be irreparably damaged by abrasive components and/or movements.

Inadequate as cleaning substance are so-called washing up liquid "lotion". The skin caring substances contained will form a hard to remove film on the product surface.

Furthermore the contact with aggressive cleaning agents or descalers - if any - should only be limited to a short period of time. Drip quantities must be removed immediately. Leaving the agents to work for a longer period would lead to micro-cracks or embrittlement of the surface on subsequent, irreparable formation of spots or stained rims.

Following these instructions and according to our findings, Duropal XTreme can be kept perfectly clean.

Intensive cleaning

If, contrary to expectations, after the primary cleaning there are still any residues remaining on the surface, we recommend an intensive cleaning of the area affected always following the manufacturer's instructions.

The intensive cleaning starts with a good fat-dissolving commercial cleaning agent suitable for all plastic surfaces.

Best cleaning results have been achieved with:

- Henkel – Sidol-Küchenkraft
- Henkel – Sidol-Kunststoff
- MELLERUD – Küchen-Entfetter
- P&G – Meister Proper Küche
- Ostermann - FSG-Kunststoff-Reiniger, Type DN

The cleaning must be in accordance with the manufacturer's instructions, normally by spraying of the detergent. Corresponding residence times and subsequent primary cleaning must be adhered in its mentioned recommendation. Before first use, a test is advisable at a non-visible point.

With old or more dirt or with particularly hard to remove residues due to layer formation, the repetition of the same procedure may be necessary.

Special cleaning

For the removal of impairments due to lime-, paraffin and wax residues, silicone, colours, paints or adhesives, we recommend to follow the instructions in the Technical Data Sheet "Cleaning of Decorative HPL" under www.pro-HPL.org.

For all self-caused damages no liability can be assumed.

PM HPL/elements

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