



PRODUCT GUIDE

A PORTFOLIO OF HIGH-QUALITY, LIGHTWEIGHT EXPANDED RIGID PVC SHEET MATERIALS
FOR INDOOR AND OUTDOOR USE.





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FOREX®

The FOREX® product family offers a wide choice of lightweight, high quality sheet materials with excellent surface properties. This makes FOREX® “the material of choice” for numerous indoor and outdoor applications.

FOREX®classic is the premium sheet in the FOREX® product family with the best mechanical and physical properties and appropriate surface quality.

FOREX®print is specially designed for the printing industry. It is a lightweight sheet with brilliant white, smooth surfaces which provide a perfect substrate for printing, particularly digital printing.

FOREX®lite is the best choice for high-volume printing campaigns. The expanded rigid PVC sheet focuses more on economic considerations as on the mechanical properties of the material. That’s why FOREX®lite should only be used flat.

FOREX®color rounds off the FOREX® product family with a selection of nine striking colours. The solid, vibrant colours of the rigid foam sheets offer optimum colour fidelity.

FOREX®re is manufactured using a proportion of approximately 30% recycled material content from post-industrial (PIR) and post-consumer (PCR) waste sources. The unique, smooth natural white surfaces make FOREX®re a favourite for large volume advertising print campaigns where sustainable aspects are the overriding factor.

Sustainable involvement and environmental protection have always been amongst the essential corporate objectives at 3A Composites. The minimisation of risks for man and environment as well as the reduction of environmental pollution through careful and efficient utilisation of resources is part of the corporate philosophy.

Our production site in Sins, Switzerland, is certified in accordance with the ISO 14001 the standard, defining internationally recognised requirements for environmental management systems. In addition, we have already linked the management systems for quality (ISO 9001), health and safety (ISO 45001) and energy management (ISO 50001) at many production sites.

The Sins plant has also been audited by EcoVadis, a prestigious, independent platform which evaluates companies all over the world on their performance in the areas of environmental protection, ethics, purchasing employment and human rights.

Ongoing efforts to reduce CO₂ emissions by scaling back energy and water consumption, increasing productivity and avoiding waste are being made at the FOREX® production site. The site has sourced 100% of its electricity from renewable energies since 2022.

Read more about our commitment to sustainability starting on page 8.

FOREX® – A PORTFOLIO OF HIGH-QUALITY, LIGHTWEIGHT EXPANDED RIGID PVC SHEET MATERIALS FOR INDOOR AND OUTDOOR USE.

FOREX®

WIDE RANGE OF HIGH-QUALITY, LIGHTWEIGHT EXPANDED RIGID PVC SHEET MATERIALS FOR INDOOR AND OUTDOOR USE.

CHARACTERISTICS

- Excellent surface properties
- Suitable for both indoor and outdoor use
- Easy to handle
- Widest range of thicknesses, sheet sizes and colours

APPLICATION

- Displays (POS/POP)
- Signage | Lettering
- Corporate Identity
- Shop design | Shop window decoration
- Interior design | Furniture
- Partitions | Cladding
- Exhibition design and construction
- Model making
- Short term promotional campaigns
- Applications in the health sector
- Construction business

PROCESSING

- Printing (direct digital/screen)
- Lacquering | Painting | Spray painting
- Lamination
- Cutting (cutter/CNC/waterjet)
- Sawing | Cutting out
- Contour milling
- Punching
- Folding (V-groove) | Cold bending
- Hot bending | Hot folding
- Hot forming | Thermoforming
- Cold rolling | Roll bending
- Gluing
- Hot air welding
- Screwing
- Drilling



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GENERAL			FOREX®classic			FOREX®print			FOREX®lite		FOREX®color	FOREX®re
Sheet thickness (mm)			1	2 – 3	4 – 19	2 – 3	4 – 10	19	2 – 5	10	2 – 19	3 / 5
Apparent density (nominal)	ISO 1183-1	kg/m³	750	650	500	500	450	500	430	430	500 – 600	470 – 550
Surface hardness	ISO 868	Shore D	44		40	>32	>32	>40	26	32	37	25
Water absorption (23°C – 24 h)	ISO 62	%	<1			–			–		<1	–
MECHANICAL												
Tensile strength	ISO 527-2	MPa	16		8	10	7	8	8	7	–	–
Tensile modulus	ISO 527-2	MPa	800		500	600	400	500	600	400	–	–
Flexural strength	ISO 178	MPa	22		18	18	16	18	15	16	–	14
Flexural modulus	ISO 178	MPa	1100		650	750	500	650	700	600	–	850
Compressive strength	ISO 844	MPa	–		4	–			–		–	–
THERMAL												
Maximum service temperature		°C	55			55			55		55	55
Coefficient of linear expansion	ISO 11359-2	mm/(m*K)	0.07			0.07			0.07		0.07	0.07
Reaction to fire	EN 13501-1		C-s3, d0 (1–19 mm)			C-s2,d0 (2–5mm) C-s3,d0 (6–10mm)			C-s3, d0 (2–10 mm)		C-s3, d0 (3–10 mm)	C-s3, d0 (3/5 mm)
	NFP 92-501		M1 (1–19 mm)			M1 (2–10 mm)			M1 (2–10 mm)		M1 (3–10 mm)	–

Note: These technical data of our products are typical ones. The actually measured values are subject to production variations.

Some product versions may have restricted processing options.
For more details on the processing of FOREX®, please contact our technical team.

SUSTAINABILITY

MISSION: TOGETHER. RESPONSIBLE.

We have summarised our commitment to sustainability in our corporate **MISSION: TOGETHER. RESPONSIBLE.** As we also apply and comply with this mission in regard to our products, we have created a classification system for them. The five categories in our **FIVE-DOT-MISSION** system indicate factors with a significant impact on sustainability. Our intention is to offer our partners guidance with their purchasing decision-making and to provide a transparent system. A system which focuses on the use of materials, the carbon footprint, the product life cycle and recycling, a topic of particular relevance for our products. Our FIVE-DOT-MISSION makes an assessment of a product on the basis of the five categories and awards points per category, the product is then assigned to one of the five coloured DOTs. By this means we achieve a transparent, quick valuation logic which we can also use to gauge product innovation and improvement at 3A Composites.

THE FIVE-DOT CATEGORIES ARE:



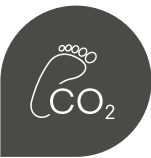
1. BIOBASED CONTENT

Depending on the product, different raw materials are used to manufacture our panels. In this case, we look at the percentage of renewable raw materials used in our products. Our aim is to increase the percentage whenever possible and appropriate.



2. RECYCLED CONTENT

The industry selects raw materials obtained by means of recycling processes which can be used in the manufacture of new products. At the same time, it is essential to ensure requirements such as fire ratings, processing, functionality and appearance are retained. We work continuously to extend our network of recycling companies and to increase the material recycling rates. This category is where we gauge the proportion of high quality recycled raw material in our products' total material input.



3. CO₂ FOOTPRINT

In this category we monitor the kg CO₂ eq/kg per product which is released into the environment during product manufacture (cradle-to-gate) according to EN 15804+A2 (A1-A3). Using the Helix calculation program from Ecochain Technologies B.V as well as the latest available LCA datasets from Ecoinvent or similar databases, we measure the carbon footprint of our products in accordance with ISO 14040 und 14044 for the Life Cycle Analysis (LCA). Information regarding the carbon footprint of a specific product respectively a Life Cycle Assessment (LCA) document is available on request.



4. PRODUCT LIFE CYCLE

The plastic sheets and composite panels we produce are used by our customers for a longer period of time. In contrast to products used in the short term, these longer-term alternatives make an active contribution to saving resources. In this category we show our panels' average service life. Life cycles can range from approximately 1 year to more than 30 years depending on the different materials.



5. RECYCLABILITY

One of the most important aspects of sustainability is contributing to environmental protection by cutting down use of valuable raw materials, conserving resources and avoiding waste. Unlike the second category "recycled content", in this assessment category, we show options for recycling the panels after they have been in use. There are already, for instance, established recycling loops for various paper types and metals. At some production sites, the material can already be returned, so that material for new products can be created. As a company, we came to the conclusion that thermal recycling as a means of energy capture does not seem sustainable enough, so it is not included in our FIVE-DOT classification. Instead, we are actively working with partner companies to establish sustainable and future-oriented recycling solutions for closed-loop recycling management.

As many as 3 points can be achieved in each of the categories presented, totalling a maximum of 15 points. According to the total number of points achieved (1-15), the FIVE-DOT classification is conducted using the following colour gradation.



Transparency is important to us! We will review the product assessment annually to see in which areas the product can be improved. We have set ourselves the goal of achieving 80% of our sales with products which achieve a rating of ≥ 7 points in the FIVE-DOT classification by 2028.

Join us on our sustainable mission!



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SUSTAINABILITY

FOREX® FIVE-DOT-MISSION

FOREX®, the lightweight expanded rigid PVC sheet material, has been assessed in line with the criteria described above. FOREX®classic, FOREX®print, FOREX®lite and FOREX®color currently achieve in total 6 points in the FIVE-DOT classification, FOREX®re achieves a total of 8 points.

FOREX®classic | FOREX®print | FOREX®lite | FOREX®color



RECYCLED CONTENT

We are already recovering and reusing our own production waste to create new material in the manufacture of FOREX® sheets, and we aim to continue increasing the proportion of recycled content in the future. FOREX®re is manufactured using a proportion of post-industrial and post-consumer waste, which originates from both end-use applications and processing. The current amount of recycled material integrated is approximately 30% due to the limited availability of waste material. In future, waste from printed PVC sheets of one unmixed material category may also be fed back into the cycle.

CO₂ FOOTPRINT

FOREX® sheets offer advantages in terms of weight and, at the same time, a high degree of stability due to their unique foamed structure. In addition, as fewer resources are required for production, the amount of CO₂ bound in the material is reduced. By using recycled waste from PVC sheets, the proportion of new raw materials in FOREX®re can also be reduced. This results in the double benefit of lowering CO₂ emissions and also contributing to waste prevention.

FOREX®re



PRODUCT LIFE CYCLE

Our FOREX® sheets are made of PVC, a very robust and durable synthetic material with excellent long-term properties. The material is also known for its “difficult to ignite” rating, its strong resistance to chemicals and outstanding resistance to weathering.

FOREX®classic is used, in particular, for very long-term applications in the visual communication, building and industrial sectors. FOREX®print, FOREX®lite and FOREX®re are high quality printing sheets for medium-term indoor and outdoor purposes. FOREX®color offers a wide variety of colours and is a real eye-catcher for medium-term shop and design uses.

RECYCLABILITY

The whole FOREX® product family can be sorted into individual types for recycling and reuse. We are committed to processing our production waste within the company and using it again to manufacture new products. As standard practice, FOREX®re is supplied without protective film, facilitating easy recycling for sheet offcuts. 3A Composites is also working intensively with partner companies to develop even more and better options for collecting and processing our customers' PVC sheet waste.

Draw inspiration from our wide variety of FOREX® sheets shown on the following pages.



FOREX[®]classic

THE CLASSIC AMONGST THE DISPLAY SHEETS.

FOREX[®]classic is the No. 1 sheet in the FOREX[®] product family with the best mechanical and physical properties and an appropriate surface quality. The fine, closed, homogenous cell structure and the smooth, silky mat surfaces make FOREX[®]classic an ideal material for high quality and longer-term interior and exterior applications. Mechanical processing using standard tools and machines and three-dimensional forming using cold/hot bending is possible. Due to the homogeneous cell structure, thermoforming is also successfully feasible with unusually short cycle times.

FOREX[®]classic offers the widest range of thicknesses (1 – 19 mm) and sheet sizes. The fire behavior is according to: DIN EN 13501-1: C-s3, d0 (1 – 19 mm) > BS 476-7, Class 1 (3 – 19 mm).

FOREX[®]classic can be applied in all the areas of visual communication:
 Signage and display panels | POS/POP displays | Screen printed panels | Digitally printed displays | Exhibition stands | Shop fitting | Wall cladding & partitioning | Interior design

CHARACTERISTICS

- Universal sheet for all display applications
- Optimum mechanical properties and surface quality
- Hard-wearing surface
- Robust sheet suitable for longer-term interior and exterior applications
- Three-dimensional forming using cold/hot bending and thermoforming
- Widest range of thicknesses and sheet sizes

PROCESSING

- Printing (direct digital/screen)
- Lacquering | Painting | Spray painting
- Lamination
- Cutting (cutter/CNC/waterjet)
- Sawing | Cutting out
- Contour milling
- Punching
- Folding (V-groove) | Cold bending
- Hot bending | Hot folding
- Hot forming | Thermoforming
- Cold rolling | Roll bending
- Gluing
- Screwing
- Drilling

APPLICATION

- Displays (POS/POP)
- Signage | Lettering
- Corporate Identity
- Shop design | Shop window decoration
- Interior design | Furniture
- Partitions | Cladding
- Exhibition design and construction
- Model making
- Short term promotional campaigns
- Applications in the health sector
- Construction business



White



FOREX®print

THE ECONOMIC SOLUTION FOR PRINTING.

FOREX®print sheet material is specially designed to meet the requirements in the field of printing. The extremely lightweight sheet is outstanding due to its brilliant white, smooth, even surface which forms the basis for a perfect printing result, particularly for direct digital printing.

Due to its surface structure, FOREX®print attains optimum ink adhesion for printing and shows high colour fidelity. The sheet material is suitable for flat applications in such fields as sign-making and advertising for medium-term use. FOREX®print enables economic solutions in the field of printing applications.

„Ready to use“ – FOREX®print can be printed on directly without any pre-treatment required. The sheets are provided with protective film, means no impairment of the print result due to contamination of the sheet prior to printing. The fire behavior is according to: DIN EN 13501-1: C-s2, d0 (2 – 5mm) / C-s3, d0 (6 – 10mm); BS 476-7, Class 1 (10 mm).

CHARACTERISTICS

- Brilliant white, smooth, even surface for good printability, especially for direct digital printing
- Optimum ink adhesion and colour fastness
- Good dimensional accuracy of the sheets
- Suitable for flat applications
- „Ready to use“ – can be printed on directly

APPLICATION

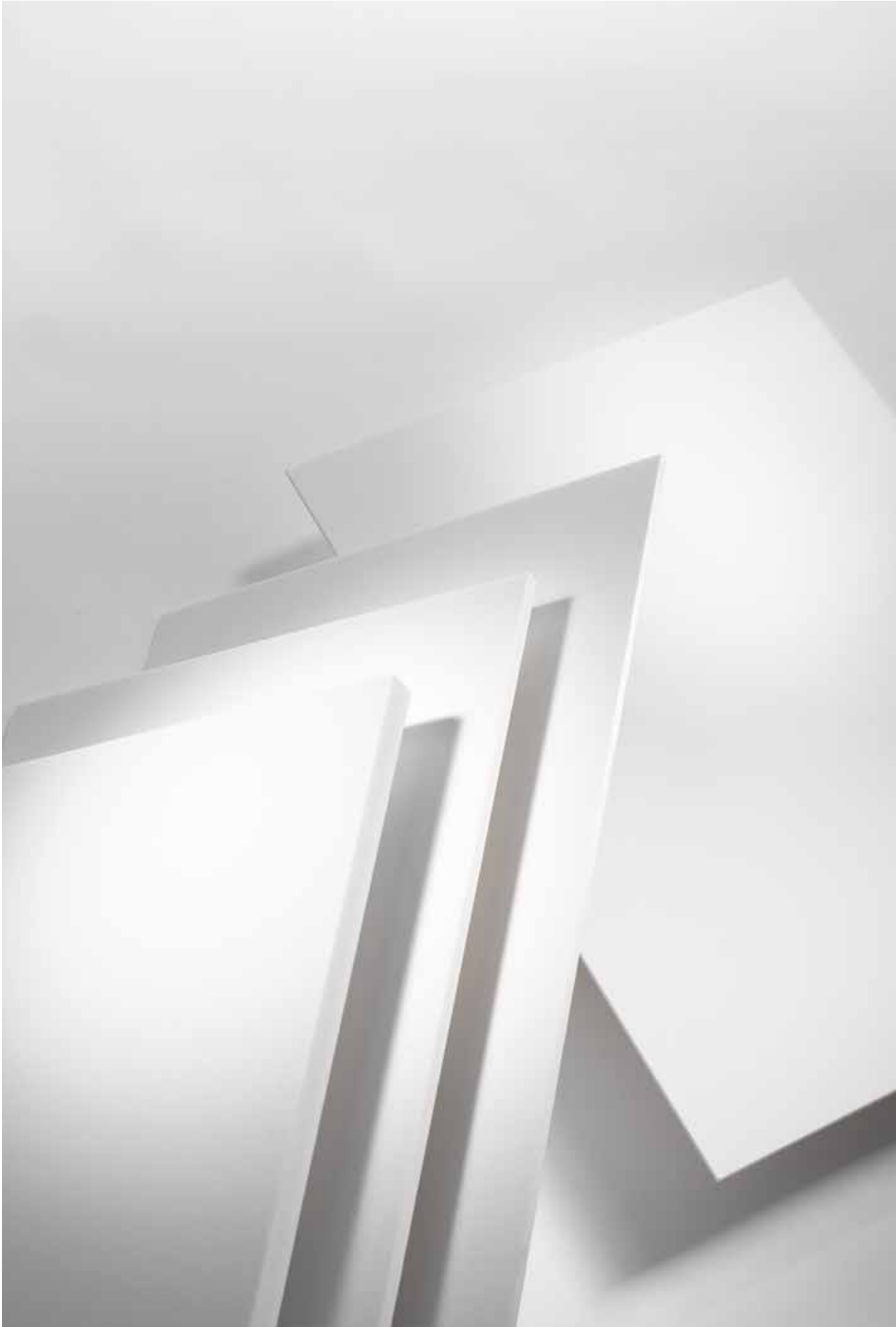
- Displays (POS/POP)
- Signage | Lettering
- Corporate Identity
- Exhibition design and construction
- Model making
- Short term promotional campaigns

PROCESSING

- Printing (direct digital/screen)
- Lacquering | Painting | Spray painting
- Lamination
- Cutting (cutter/CNC/waterjet)
- Sawing | Cutting out
- Contour milling
- Gluing
- Drilling
- Riveting



White



FOREX®lite

THE ECONOMIC EXPANDED RIGID PVC SHEET.

FOREX®lite is the best choice for high-volume printing campaigns. The expanded rigid PVC sheet focuses more on economic considerations as on the mechanical properties of the material. That’s why FOREX®lite should only be used flat.

The expanded rigid PVC sheet FOREX®lite was specially developed for the printing industry. The high quality, very flat surface appears in a shiny light white tone and can be printed both-sides. The fire behavior is according to: DIN EN 13501-1: C-s3, d0 (2 – 10 mm).

CHARACTERISTICS

- For high-volume printing campaigns
- Shiny light white tone of the sheet
- High quality, very flat surfaces
- Suitable only for flat applications
- Developed for the printing industry

APPLICATION

- Signage | Lettering
- Exhibition design and construction
- Model making
- Short term promotional campaigns

PROCESSING

- Printing (direct digital/screen)
- Lacquering | Painting | Spray painting
- Lamination
- Cutting (cutter/CNC/waterjet)
- Sawing | Cutting out
- Contour milling
- Gluing
- Screwing
- Drilling



White



FOREX[®]color

THE CREATIVE PLAY OF COLOURS.

FOREX[®]color rounds off the FOREX[®] product family with a selection of nine striking colours. The solid, vibrant colours of the rigid foam sheets offer optimum colour fidelity and a high degree of rigidity. FOREX[®]color sheets are suitable for both indoor and seasonal outdoor use.

FOREX[®]color offers designers the best possible basis for giving colour to the most varying solutions in the field of visual communication:

Signage and display panels | Merchandising display | POS/POP applications | Shop fitting | Exhibition stands | Decorative wall cladding

A simple, mechanical processing using standard tools for processing wood and plastics is possible. The fire behavior is according to: DIN EN 13501-1: C-s3, d0 (3 – 10 mm)

CHARACTERISTICS

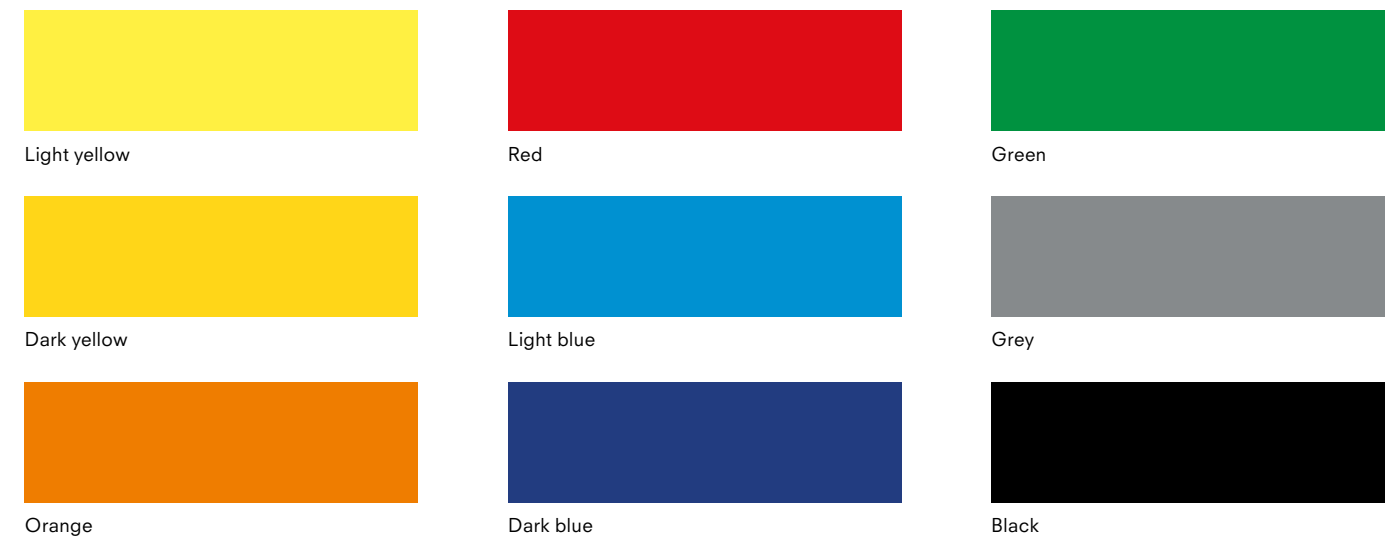
- 9 colour shades with a striking colour effect
- Uniform solid-coloured material
- Maximum colour consistency throughout the entire sheet

PROCESSING

- Printing (direct digital/screen)
- Lacquering | Painting | Spray painting
- Lamination
- Cutting (cutter/CNC/waterjet)
- Sawing | Cutting out
- Contour milling | Punching
- Folding (V-groove) | Cold bending
- Hot bending | Hot folding
- Cold rolling | Roll bending
- Gluing | Drilling

APPLICATION

- Displays (POS/POP)
- Signage | Lettering
- Corporate Identity
- Shop design | Shop window decoration
- Partitions | Cladding
- Exhibition design and construction
- Model making
- Short term promotional campaigns





FOREX®re

THE EXPANDED RIGID PVC SHEET WITH RECYCLED CONTENT.

FOREX®re is a lightweight expanded rigid PVC sheet manufactured using a proportion of approximately 30% recycled material content from post-industrial (PIR) and post-consumer (PCR) scraps. The unique, smooth natural white surfaces make FOREX®re a favourite for large volume advertising print campaigns where sustainable aspects are the overriding factor.

Since the recycled material is gained from used or printed expanded rigid PVC sheets and cutting waste, pigments from colour inclusions are visible in the FOREX®re sheets. Slight colour variations may occur between different production batches, depending on which colour is dominant in the recycled material.

FOREX®re stands out with the well-known properties of an expanded rigid PVC sheet, has a good dimensional stability and is tailored for flat indoor and outdoor applications. Thanks to the very smooth surface, the sheets are perfectly suited for printing on both sides. The fire behaviour is according to: DIN EN 13501-1: C-s3, d0 (3mm and 5mm).

Expanded rigid PVC sheets are an excellent choice for keeping a printing substrate in circulation. As standard practice, FOREX®re is supplied without protective film which simplifies the recycling process afterwards.

CHARACTERISTICS

- Made with a proportion of approx. 30% recycled material from PIR/PCR scraps
- High-quality, unique natural white and smooth surfaces
- Pigments visible on the sheet surface, due to colour inclusions from recycled material
- Suitable for flat applications – indoor and outdoor

APPLICATION

- Signage | Lettering
- Exhibition design and construction
- Model making
- Short term promotional campaigns

PROCESSING

- Printing (direct digital/sublimation printing)
- Powder coating
- Lamination
- Cutting (cutter/laser with good optical quality)
- Sawing | Cutting out
- Cold rolling | Roll bending
- Hot air welding
- Screwing



Natural white

