



Be a green leader

**With sustainable finishing
in print & packaging**

Sustainability is one of the greatest challenges of our times, and is shaping the identity of brands worldwide. To be successful in the market, you have to operate credibly in a closed loop. This brand claim demands sound strategies along the entire value chain – from production and processing to the end product and its recycling – in particular for the printing and packaging industry with its important supportive role in the circular economy.

After all, it is packaging with functional and aesthetic surfaces that protects goods, supports logistics and retail processes, generates demand, increases value and provides a decisive buying incentive through unique design.

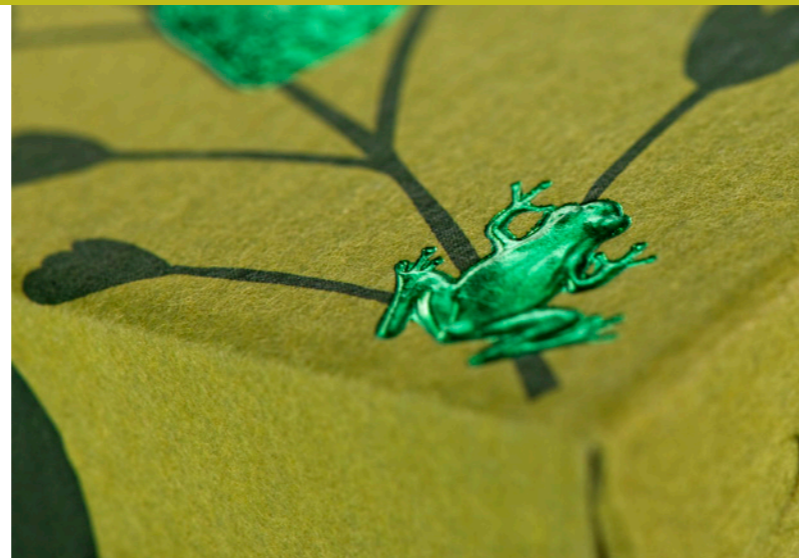
- 1 The finished end product**
- 2 The transfer process**
- 3 Manufacturing process**
- 4 The PET carrier**

Transfer designs and sustainability. Dazzle with well-founded facts.

Outstandingly sustainable from production to recycling

As an innovative finishing specialist and global technology leader in the field of hot stamping, we see ourselves as shouldering responsibility. The information we have provided you in this booklet proves how excellent print finishing with transfer decoration can be a sustainable success.

Take a look at our transfer technologies along the entire value chain from a sustainable perspective. Use the advantages of our environmentally friendly, high-quality printing products and services to emphasize your credibility and implementation expertise – and take the lead with sound arguments for glossy finished surfaces.



You can find more information on the sustainability of transfer finishing, on the processes involved or on PET recycling in our FAQ. Our specialists will also be happy to help you.

Link to download the 'KURZ and the environment publication'



Contact us:

sustainability@kurz.de

KURZ in industry initiatives Commitment to our customers

At KURZ, sustainability is more than just a word. This is reflected company-wide in our products and processes – and in our commitment. As a member of numerous industry initiatives, we are committed to increasing sustainability in various sectors and providing important impetus on the way to a circular economy.



FFI represents German manufacturers in the supplier industry, in politics, and in business, and presents their interests on the international stage.



Capi 4evergreen aims to increase the contribution of fiber packaging to a sustainable circular economy, raise awareness of its benefits throughout the EU and promote the development of collection systems and recycling infrastructures.



UNFEA-Citeo compilation of technical guidelines for the development of labels in order to reduce the impact of finished products on the environment.



RecyClass initiative of different sectors to promote the recyclability of plastic packaging in Europe; assesses the recyclability and makes specific recommendations based upon these assessments.

When your customers are considering holistic closed-loop recycling, glossy metallic packaging and surfaces made of paper and cardboard raise one specific question: If I have high sustainability standards, can I still finish my products with a clear conscience? If you use KURZ transfer decorations for finishing, the answer is: Yes! KURZ transfer technology does not use laminates, so there is no foil left behind on the product. The surface finishing process is by transfer only.

Finishing with transfer decoration

**Minimum material application.
Maximum effect on sustainability.**

**The end product:
Key facts at a glance**

Pure transfer finishing:
Only the decorative layer remains on the end product; no foil, no laminate

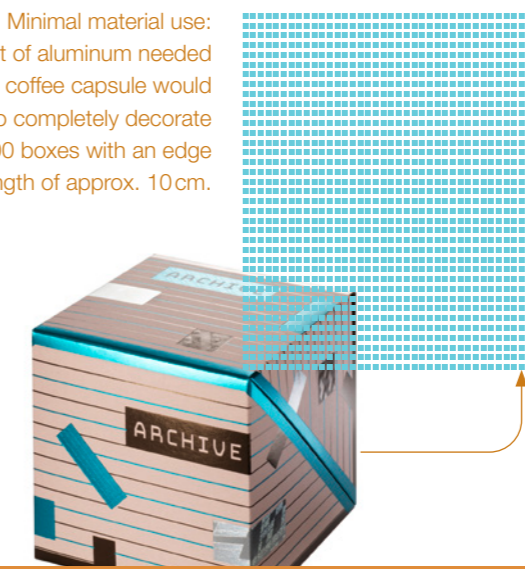
Minimal material use:
The aluminum layer applied is just 0.02 µm thick and a minimal amount of lacquer is used (~2.4 g/m²)

Harmless raw materials:
KURZ transfer finish are articles according to REACH regulation and do not contain declarable harmful substances (SVHC).

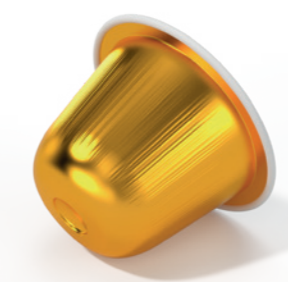
Recyclable, deinkable and compostable:
Transfer finishing does not affect either the automatic sorting process (up to 70% of finished surface possible), the deinkability nor the composting process

Unmatched finishing quality:
The most efficient technology with the widest variety of designs, finest details and maximum gloss

Minimal material use:
The amount of aluminum needed for just one coffee capsule would be enough to completely decorate around 1400 boxes with an edge length of approx. 10 cm.



Human hair (original size)



Human hair (250x)

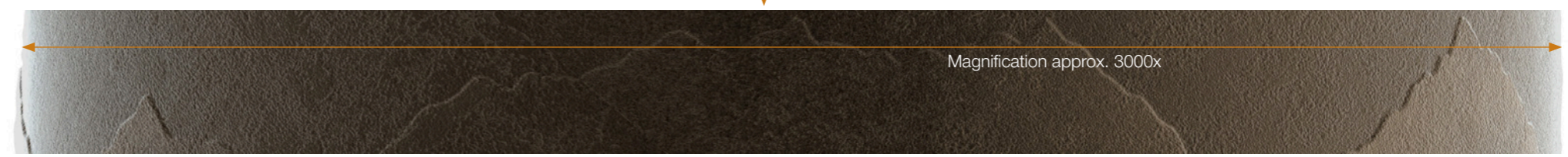
Do more with less
Packaging decorated by KURZ transfer technology is verifiably deinkable, compostable and recyclable (All on the condition that the packaging itself is compostable). How is this achieved? By applying the thinnest amount of material possible and using harmless raw materials.

When comparing KURZ transfer finishing with other decoration processes, one thing becomes particularly clear: The extremely thin aluminum layer makes the decoration of packaging with KURZ transfer technology extremely efficient and resource-saving. A minimal amount of material is used and applied to achieve a premium look in terms of gloss, edge definition and more – with an unrivalled range of designs.

The aluminum layers that are transferred onto the substrate in our dry finishing process are just 0.02 µm thick. That makes them 6,000 times thinner than a human hair.



Size comparison:
Thickness of the aluminum layer in KURZ transfer finishing: 0.02 µm
Thickness of a human hair: approx. 0.06–0.1 mm



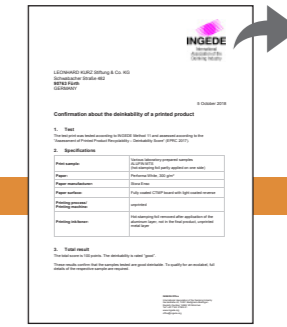
Magnification approx. 3000x

Let's take a closer look at finished paper and cardboard: KURZ transfer decorations offer your customers the best option regarding raw materials used, conserved resources, sustainable disposal and the unlimited recyclability of packaging. Learn about it all in detail and provide your customers with impressive answers to crucial questions!



Top score in deinking
Independent tests by INGEDE (International Association of the Deinking Industry) have confirmed that our hot stamping and cold transfer products are fully deinkable.

KURZ transfer finishing:
Impressively safe.
See for yourself!



Packaging with a transfer finish can be recycled

Paper and cardboard packaging decorated using KURZ transfer technology is fully processable by means of existing collection, sorting and recycling methods. Products with a KURZ finish can be recycled at any sorting facility without additional hassle.

Modern sorting systems designate decorated substrates of paper or cardboard with a basis weight of less than 100 g/m² as high-quality deinking products.

Hot stamping and cold transfer decorations are completely separated from the pulp fibers in the deinking process.



Packaging with a transfer finish is biodegradable and compostable

When your customers are considering sustainability, one important aspect is the packaging's biodegradability and compostability. Here too, KURZ transfer finishing offers proven reliability.

For example, LUXOR® MTS 220 is certified according to DIN EN 13432 as an additive that is harmless for the composting process. The minimal decorative layer (≤1 % by weight) does not affect the process. And it has no negative effects upon plant growth.

Of course, this is only if the cardboard itself is compostable and a disintegration test for cardboard and coating is carried out according to EN 13432.



Packaging with a transfer finish contains only harmless ingredients

KURZ transfer finishes contain only raw materials that do not contain volatile, ozone-depleting, halogenated hydrocarbons, cadmium, lead, mercury or hexavalent chromium. Thus, they comply fully with current EU chemical regulation REACH.

No special requirements or restrictions need be considered when processing the transfer products.

You can find more information on our raw materials in chapter 3 (Manufacturing process), or under:
www.leonhard-kurz.com/company/reach/



Good to know:

Biodegradable:

A chemical process in which organic material is converted into natural substances such as water, carbon dioxide and compost by micro-organisms without artificial additives, depending upon the environmental conditions (e.g. location, temperature, oxygen, humidity)

Compostable:

EN 13432 states that a material is compostable if 90% of it biodegrades in an industrial composting plant within 6 months



Whether hot, cold or digital – the advantages of KURZ's transfer technology successfully build a bridge between brilliantly finished packaging design and environmentally friendly processing. Because our environmentally friendly method of transfer finishing means foils are neither transferred to nor laminated within your product.

Our technology is based upon an extremely thin, dry layer of lacquer (unmatched in the entire industry) containing the design (1.5 to 3µm). It is located on an extremely thin polyester carrier (PET), which is removed after transfer.

Dry. Emission-free. Highly efficient.

One transfer technology. Three finishing processes.

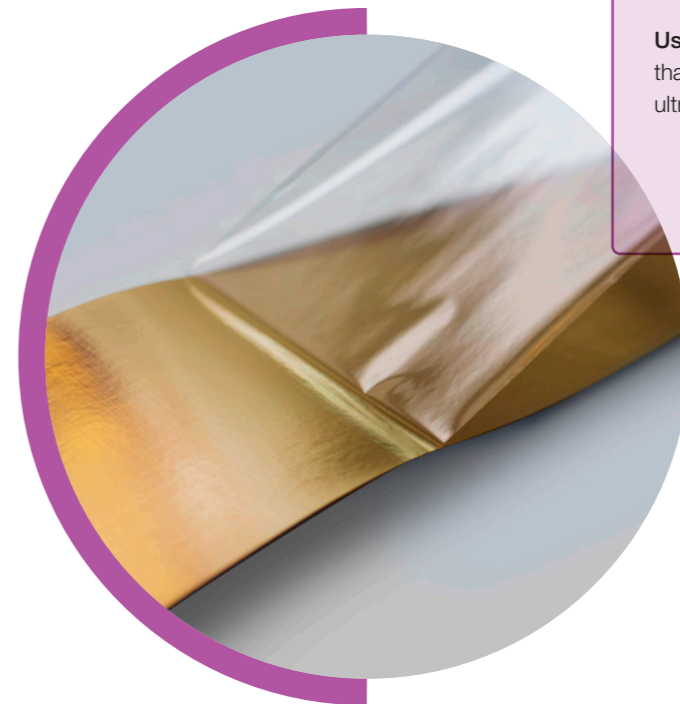
Transfer process: Key facts at a glance

No foil is transferred onto the product

Emission-free transfer of an extremely thin, dry layer of lacquer (1.5 to 3µm; unmatched in the entire industry) onto the substrate

Dry application process without wet lacquers

Uses less energy per m² of finished surface than normal finishing procedures thanks to an ultra-thin decorative layer



Dry. Emission-free. Highly efficient.

One transfer technology.
Three finishing processes.



Hot Stamping

Hot stamping is characterized by its fundamental environmental compatibility. Wafer-thin aluminum and lacquer layers (the decoration) are transferred from a thin PET carrier to a substrate during the printing process. The carrier is removed. The decorative layer remains on the substrate. The up & down process (on the spot transfer, minimized pull) allows to maximize carrier film and coating usage. The transfer process itself is emission-free. No wet lacquers used. As the decorative layer being transferred is so thin, its application uses less energy per square meter of finished surface than normal finishing procedures.

This makes hot stamping sustainable:

- No foil on the product
- Dry process
- No emissions
- Super-thin PET carrier
- Unused material can be kept for the next application



Cold Transfer

Cold transfer (sheet fed and web fed) also involves transferring wafer-thin aluminum and lacquer layers (the decoration) to a substrate. However, an adhesive is also applied. Firstly, the adhesive is applied to the substrate with the utmost precision. Then the cold transfer design is precisely applied and the adhesive is cured, for example using UV light. Once cured, the carrier is removed from the substrate. The decoration remains on the parts of the substrate bearing adhesive.

This makes cold transfer sustainable:

- No foil on the product
- Foil-saving system (DISTRIBUTOR®) for precise positioning of single images and continuous designs. This facilitates efficient use of the space between two images (repeated film use – up to 5 times)
- Dry process
- No emissions
- Super-thin PET carrier
- Unused material can be kept for the next application
- Minimizes wastage and energy use



DIGITAL METAL®

Our innovative DIGITAL METAL® transfer process is a particularly versatile way to achieve your desired finish. Designed as an efficient complete solution, we provide all components from a single source – from the machine, to the transfer finish, to the ink – all perfectly matched.

The DM-JETLINER enables you to apply metallization effects to paper and label materials seamlessly in your digital press prior to digital color printing. With our multi-use ready process this is particularly cost- and material saving (repeated film use up to 3 times). In this way, production-related free space can be used effectively.

Once the transfer finish is applied to the unprinted substrate with a UV-curing adhesive, the PET carrier is removed and the substrate can be overprinted inside the press.

The DM-LUXLINER applies metallization to paper and cardboard prior to digital color printing. The motifs are first digitally printed. The DM-LUXLINER then applies the DIGITAL METAL® transfer decoration. The PET carrier is removed and rolled up. Compatible digital printing machines can overprint in four colors with very precise register accuracy.

This makes DIGITAL METAL® sustainable:

- No foil on the product
- Film saving system for optimized film utilization
- Dry process
- No emissions
- Minimized set-up times (less waste and energy use)
- Lower material use
- Lower losses at the start of production
- Super-thin PET carrier
- Unused material can be kept for the next application
- Minimizes wastage and energy use



Energy efficient. Less carbon. Wastewater-free. Harmless.

Sustainable production as an international benchmark

When discussing sustainable finishing with your customers, our method of transfer finishing will be your trump card. Because the standards for environmental management (DIN ISO 14001) and sustainable energy management (DIN ISO 50001) already form the international benchmark for the manufacture of our extremely thin, easily processed transfer products.

The effect is impressive: The production of our transfer decorations is not only waste-water-free, energy efficient and its ingredients certified – our decoration products also boast the lowest carbon footprint in the industry.

The manufacturing process: Key facts at a glance

Safe raw materials as a basis for no harmful substances, heavy metals or carcinogenic components according to the EU Chemicals Regulation REACH

Recovery of solvents after the laquering process, and use of these for energy and heat generation

Transfer products with minimized carbon balance thanks to waste-reducing production on the widest printing presses in the industry.

Wastewater-free production process



Safe ingredients:

Zero tolerance when it comes to raw materials

In order to protect people and the environment (in accordance with REACH), we globally buy and use only raw materials and approved chemicals that do not restrict the recyclability and harmlessness of your products. Our rigorous purchasing policy, coupled with strict controls on incoming goods and regulations, ensures that we have full control over our ingredients.

We use only ingredients that do not contain volatile, ozone-depleting, halogenated hydrocarbons, cadmium, lead, mercury or hexavalent chromium. Furthermore, the new classification of titanium dioxide (Regulation (EU) 2020/217) is irrelevant to our transfer products.

Thus, we ensure that our transfer products contain only that which we specify.



Energy efficient. Less carbon. Wastewater-free. Harmless.

Sustainable production as an international benchmark



Minimized energy use: Lowest carbon footprint in the industry

We can produce one square meter of LUXOR® cold transfer decoration with approx. 15 W/m². Thus, the product only pollutes our environment with 1.5g CO₂-equivalent/m². We achieve this low carbon footprint by applying surplus regenerative heat in the manufacturing process, generating on-site solar-energy, and by purchasing green electricity.

- Very low energy input per m² of transfer product
- Approx. 1.5 g CO₂-equivalent/m² for energy use on cold-transfer products

International standards: Embodying sustainability awareness

The environmental management standard DIN ISO 14001 forms the international benchmark for the manufacture of our transfer products. All our factories are relevantly certified, and we work according to a strict, customized environmental management system.

Integrating energy management standard ISO 50001 throughout the entire company also helps us to increase our awareness of sustainable and energy-efficient processes. We are also investing in a carbon-neutral production process at our locations around the world, efficiently tailoring our production to carbon reduction and thus supporting local and international markets.

- Wastewater-free production process
- Lowest possible carbon footprint

Efficient energy recycling: Highest efficiency, lowest emissions

We recover the solvents evaporating out of our in house designed lacquers during the drying process by generating heat and energy for our production process.

Thanks to our regenerative heat and energy plants, we can achieve high efficiencies. This system also enables us to stay far below the emission values allowed by law.

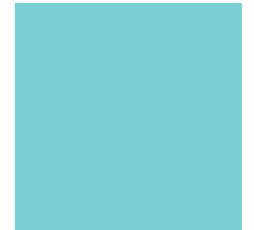
- Regenerative heat and energy generation with 95 % efficiency
- Only 15 % of permitted emissions
- Use of cogeneration units

Purposeful energy management: On the straightest path to becoming carbon neutral

Step by step, we are getting closer to our aim of a CO₂-neutral production process. For example, 100 % of the electricity used at KURZ Germany already comes from renewable sources. We generate some of the energy ourselves using solar panels.

We are also well on our way internationally, as KURZ China proves, where the area of rooftop solar panels has been doubled to 20,000m².

- 100 % energy from renewable sources
- Expansion of in-house photovoltaic systems



No matter how you look at the sustainability of finished packaging – in the end it all comes down to waste. It has been independently proven that packaging finished with KURZ a transfer decoration can be safely sorted and recycled (see Chapter 1). However, what happens to the PET transfer carrier that becomes production waste during manufacture and after application of the decorative layer?

Valuable. Harmless. Recyclable.

Transfer carrier as processing waste

Here too, we take our responsibility seriously and work according to a clear concept:

1. KURZ uses only PET as a carrier material for all transfer processes (hot stamping, cold transfer and DIGITAL METAL®).
2. KURZ is currently the only manufacturer committed to recycling PET surpluses by proper disposal.
3. KURZ is continuously working to improve recycling concepts and initiatives.

PET as a recyclable material

Harmless in the loop: As a plastics specialist, KURZ relies upon high-quality PET as a carrier material. The extremely thin PET carrier is not transferred to the substrate during finishing, but is removed, collected and stored separately after the lacquer is transferred.

Even when carrying dry residual lacquer from the coating process, PET is considered free of hazardous substances and remains a raw material in the industrial waste cycle, making re-use easier.

Energetic recovery: Most of our scrap transfer carriers are used to create energy. PET carriers can be kept as secondary fuel for energy recovery plants. Their high heating value means they can be used to fire specially equipped facilities that normally run on gas, coal or oil. PET carriers are a popular replacement for fossil fuels in many industrial sectors.

Landfill as an exception: Depending upon users' commitment to sustainability, remains of our PET carriers do sometimes end up in landfill. This is, of course, not the most sustainable solution. However, PET does not release emissions or pose a danger to soil or groundwater.

PET production waste: Key facts at a glance

Extremely thin PET carrier material

Free of hazardous substances even when carrying dry residual lacquer from our coating process

High quality substitute fuel for natural gas or oil

KURZ: a recycling-pioneer within the industry with a complete process for recycling KURZ transfer carrier waste.

First plant for KURZ transfer carrier recycling produces different plastic grades

One thing is certain: Transfer products from KURZ do not leave any foil packaging residue that could affect common sorting systems and thus limit the amount of sorted paper that can be cleanly recycled. Harmless PET carriers remain a valuable raw material in the industrial waste cycle, making re-use easier. But that does not mean we're resting on our laurels, because PET is not yet being used to its full potential as a recyclable material!

KURZ as a pioneer within the industry:

Recycling program for transfer carriers



As a plastics specialist and driver of innovation, we are currently the only manufacturer in the industry to launch a PET recycling program and, together with you as a processor of our transfer finishes, we are taking a decisive step towards closed loop technology.

Groundbreaking:
KURZ transfer carrier recycling
 After many years of research and considerable effort, we have managed to develop a complete process for recycling KURZ transfer carrier waste.

In-depth expertise gained from our plastics segment was especially helpful in developing this process. Our plant now enables us to produce recyclate as well as raw materials that return to the recycling loop.

Currently we are establishing a takeback system for our PET backing films, which we are gradually implementing for additional customers. For short transport distances, we are also planning to set up recycling plants at all international production sites.

360° finishing cycle

How KURZ transfer carrier recycling works:



1
 The KURZ transfer product is delivered as usual.



2
 The transfer design is processed in the printing house.



3
 The used PET backing film is sorted and stored.



4
 KURZ collects used PET backing material.



5
 The PET backing material is fed into the KURZ recycling process.



6
 The recyclate properties are optimized.



7
 The new raw material returns to the material cycle as injection molding material for high-quality products with a wide range of properties.

PET material cycle



KURZ worldwide

The KURZ Group is an international leader in thin-film technology and supplies products for surface finishing and decoration. With over 5,500 employees at more than 30 sites worldwide, KURZ has an international presence and manufactures under uniform quality and environmental standards in Europe, Asia and the USA. Thanks to KURZ's many years of experience and the constant expansion of our portfolio, we can offer our customers a wide range of products – and all from one source. A global network of subsidiaries, representatives and sales offices ensures short paths and individual, on-site consulting.

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Fields of expertise

KURZ is always investing in new technologies. KURZ subsidiaries develop innovative solutions for functional integrations into surfaces as well as products for labeling and counterfeit protection along with the corresponding software. A comprehensive range of stamping presses and stamping tools rounds off the versatile KURZ product portfolio. Furthermore, KURZ subsidiaries use their expertise to provide future-oriented, custom-made complete solutions including project consultancy and machine and tool technology.

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