Green BIC Brunch, June 2020

Green Book Production:
Materials matter!

#greenbicbrunch

Agenda

12pm	**Introduction and update on BIC** Alaina-Marie Bassett, Business Manager, BIC
12:05pm	**Green Book Production: Materials Matter!** Stephen Holman, Head of Technical Support, Holmen Paper AB Lisa Faratro, Customer Service Director & Director of Environment & Sustainability, CPI Books Alexis Tonneau, Sustainability Project Manager, Kurz Jamie Beale, Quality Assurance Technical Manager, Graphic Image Films
12:50pm	**Question and Answer and General Discussion**
1pm	**Wrap-up and end** Alaina-Marie Bassett, Business Manager, BIC

Some housekeeping before we get started

- **Reducing background noise**: We kindly ask that all non-speaker attendees mute themselves to reduce any background noise.

- **Questions for speakers**: Questions will be invited at the end of this event (time-permitting). If you would like to ask a question, please either indicate this by messaging the meeting organisers (only) in the chat box provided or unmute yourself in order to speak.
  Remember to re-mute yourself once you've asked your question.

- **Recording**: This event is being recorded for BIC to use in its marketing and to allow people who are unable to attend this session today to still enjoy the event later. Unless you speak, you will not be identified in the recording.

- **Social media**:
  We'll be tweeting during this event using the **#greenbicbrunch** hashtag. Feel free to join in!

Who we are

BIC (Book Industry Communication Ltd) is at the cornerstone of the book industry, creating standards, delivering best practice and improving margin.

If you are in the book industry supply chain you need to be a member of BIC.

Who we are

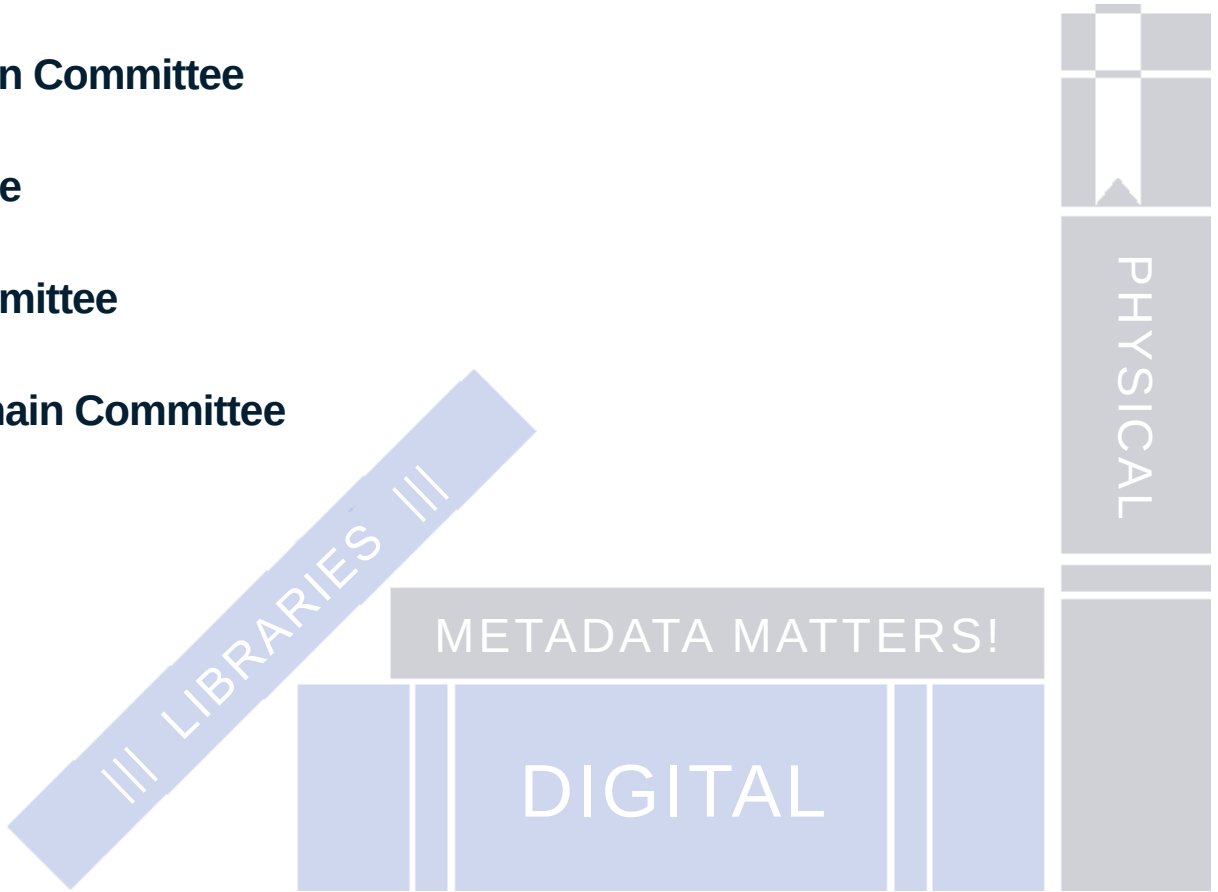
BIC is the dedicated book industry supply chain organisation in the UK and as such, the environment is naturally high on our priorities for 2020 and beyond.

#bicgreenhub

bic.org.uk/225/BIC-Green-Hub/

BIC Committees

- Digital Supply Chain Committee
- Libraries Committee
- Metadata Sub-Committee
- Physical Supply Chain Committee



BIC Events & Training

- **BIC Breakfasts / BIC Brunches / Green BIC Brunches**
- **Networking Events**
- **Annual seminar at London Book Fair**
- **Extensive training programme** (runs throughout the year)
- **Social media**: Facebook
  LinkedIn
  Twitter:
  @BIC1UK
  @BIC_LCF
  YouTube

What is a Green BIC Brunch?

- Bi-monthly, as of June 2020
- Short (60 minute)
- Online sessions
- Dedicated to the book industry supply chain's environmental impact, topics and issues
- Joining the book industry supply chain together in one place
- Focussed on steps being taken by the book industry to make our supply chain greener
- Exploring and inspiring change in response to environmental challenges

bic.org.uk/99/What-are-BIC-Breakfasts?/
bic.org.uk/97/Upcoming-Breakfasts/

Over to our first speaker…

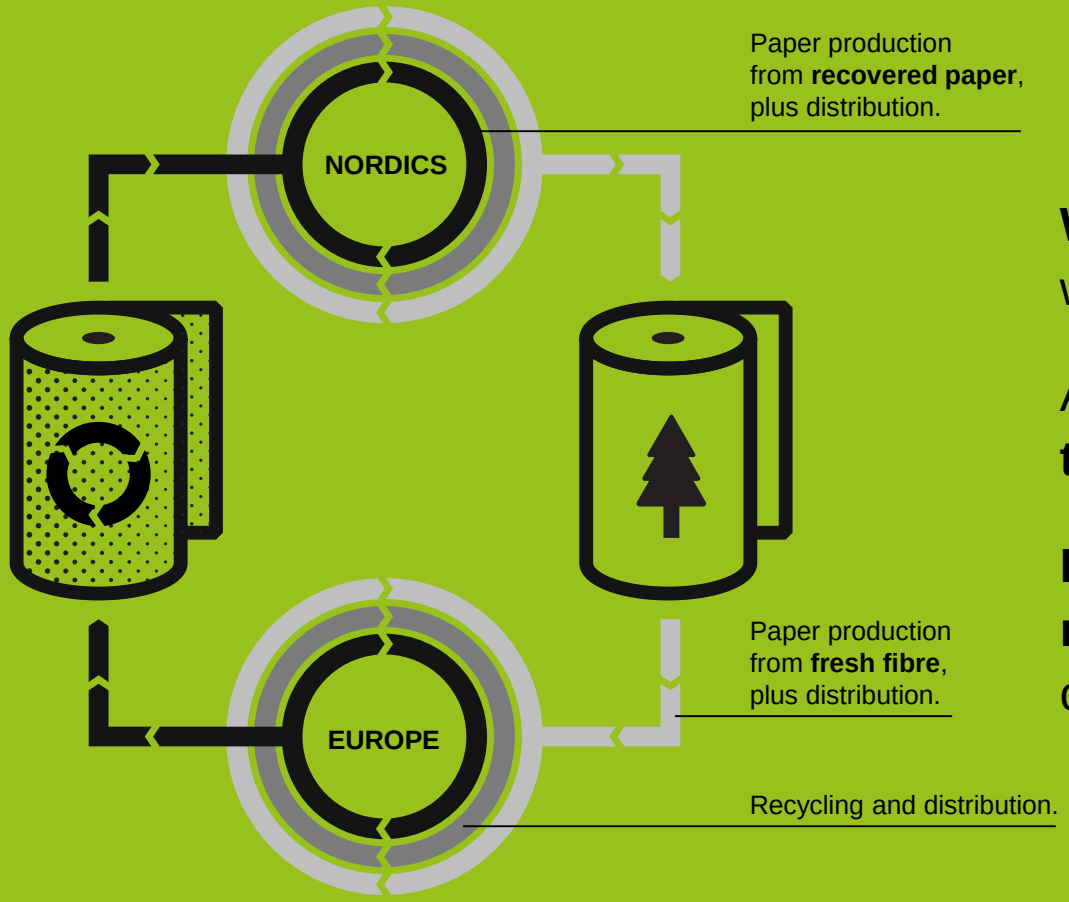
Stephen Holman, Head of Technical Support, Holmen Paper AB

HOLMEN

HOLMEN

A LIFE CYCLE ASSESSMENT OF SPECIALTY PAPER

We grow recycled paper



We supply Europe with recyclable paper

A fibre can only **be recycled 5-7 times**

Recovered paper would not exist without the addition of paper with virgin fibres

WHAT IS AN LCA AND WHY DID WE DO IT?

What is an LCA?

- Short for “Life Cycle Assessment”
- Environmental impact for a product during its entire lifecycle, ”cradle to grave”

Why did we initiate a study?

- Negative trend in perception of fresh fibre
- A need to strengthen our argumentation
- Country example needed for realistic study- Germany chosen due to specific challenges in the market

THE STUDY AND ITS OUTLINE

Who did it?

- IVL, The Swedish Environmental Research Institute

What was assessed?

- Environmental impact of one kilo of advertising flyers along its entire life cycle based on
  - 100% fresh fiber, Holmen Paper production conditions
  - 100% recycled fiber, German production conditions

- Concept of the Circular Formula Footprint used

LIFE CYCLE STEPS

SCENARIO **Fresh fibre paper Holmen Paper, Sweden**	SCENARIO **Recycled paper, German**
Raw material extraction (forestry and chemicals)	Recycled paper
Paper production based on virgin fibre	Paper production based on recycled fibre

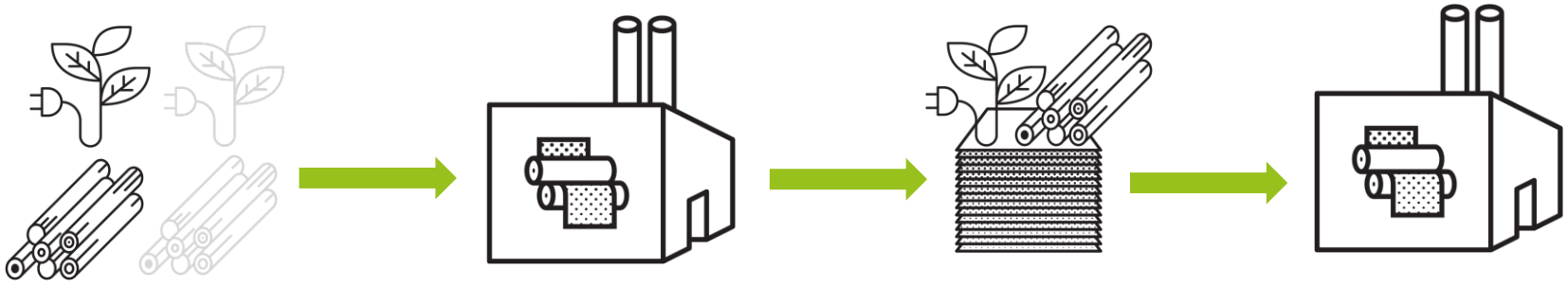
Converting to advertising flyer in Germany

German households
(impact from transport to recycling facility omitted)

Waste management in Germany
(about 85% material recycling, 15% energy recycling)

THE CIRCULAR FOOTPRINT FORMULA

- Circular Footprint Formula developed on request by European Commission
- Describing past life cycle impacts for an input material
- 50% of former life (fresh fibre paper) is allocated to the recycled paper product



Fresh fibre & energy, input primary production

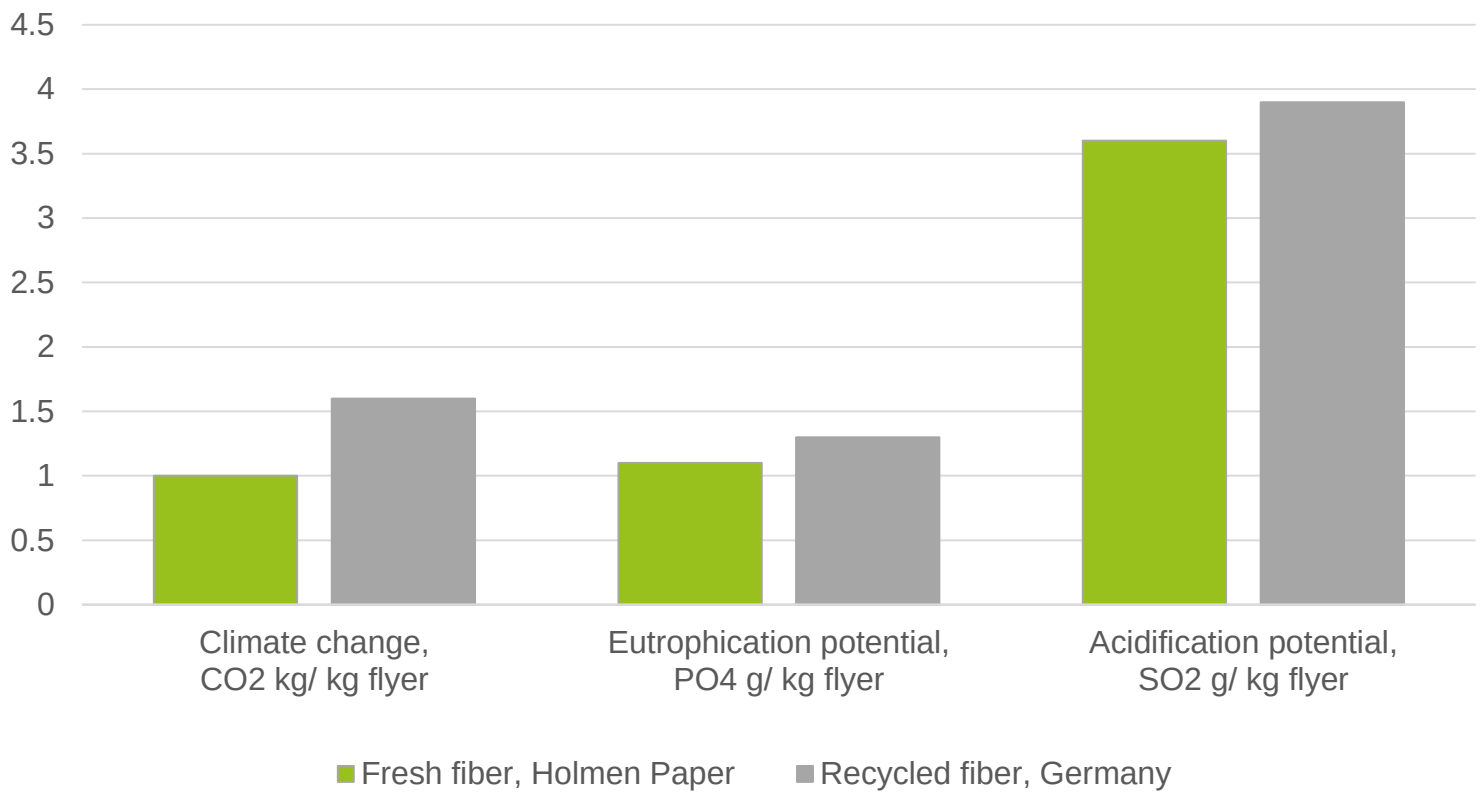
Primary production, fresh fibre- based paper

Recycled fibre, input recycling process

Recycled paper production


HOLMEN
THE CLIMATE IMPACT
IS LOWER FROM
FRESH FIBRES

RESULTS OVERALL ENVIRONMENTAL IMPACT



KEY TAKE AWAYS FROM THE RESULT

- The former life of the input material must be included also in the recycled paper process
- Paper from fresh fibers produced in Sweden has a significantly lower environmental impact compared to paper from recycled fiber produced in Germany looking at
  - climate impact (CO_2 eq.)
  - eutrophication (PO_4 eq.)
  - acidification (SO_2 eq.)
- Paper from fresh fibers produced in Sweden has a low environmental impact due to:
  - the electricity mix having a low environmental impact
  - the raw material coming from sustainably managed forests
- The result does not take into consideration the positive climate effect from the growing forest


HOLMEN
FRESH FIBER PAPER SHOULD BE PRODUCED
where the electricity mix has a low environmental impact and where the raw material comes from sustainably managed forests


HOLMEN
www.holmen.com/paper

Over to our second speaker…

Lisa Faratro, Customer Service Director & Director of Environment & Sustainability, CPI Books

CPi BOOKS

Materials Matter

Materials Matter

- What makes up a book (materials)
- Waste streams
- Glue
- New Materials

What makes up a book?

- 320pp Royal cased book with wibalin cover and jacket
- Paper - 81%
- Greyboard, hollows and crepe – 16.5%
- Laminate – 0.6%
- Foil – 0.04%
- Ink – 1.07%
- Glue – 1.19%

Waste Streams – Paper products

- Books and Mixed papers
  - Recycled into corrugated packaging (clean product)
- Section waste and Binders trims
  - Recycled into newsprint
- Sorted Office waste
  - Recycled into hygiene products / tissue plant
- Unprinted waste (white waste)
  - Recycled into newsprint


DS Smith
Zero Waste
Direct to Landfill
Certificate
This is to certify that
CPI BOOKS (CHATHAM)
has achieved Zero Waste Direct to Landfill
L. Tranter
Lydia Tranter, Supply Chain Director
29/01/2020
Zero Waste Direct to Landfill date
The Power of Less®

Waste Streams: Non-Paper products

- Shrinkwrap
  - Recycled into injection moulded plastics ie drainpipes
- Wooden pallets (broken)
  - Recycled into chipboard & fibreboard / used on footpaths on golf courses
- Plate developer
  - Collected and recycled using bio-digestion – bugs destroy the hazardous component
- Aluminium plates
  - Recycled back into Aluminium plates or used in the car industry.

Glue Types

- Paperback Glues
  - PUR (Polyurethane)
  - PO (Polyolefin)
  - EVA (Ethyl Vinyl Acetate)
  - PSA (Side glue – rubber based)

- Spine and side adhesive glues are from petrochemical sources – natural materials used are not from animal derived materials.
- Glue technologies available at CPI are used to minimise fibre contamination through the re-pulping process therefore when a book is recycled the adhesives are able to be effectively screened out.

Glue Types

- Hardback Glues
  - PUR (Polyurethane)
  - PO (Polyolefin)
  - EVA (Ethyl Vinyl Acetate)
  - PSA (Side glue – rubber based)

- Case making & Backlining (casing in) use gelatin based glues.

- At one of our CPI sites we have machinery that does use non gelatin based glues.

New materials

- Paper weight / micron
- Recycled wibalin
- PO glue
- Antibacterial coatings / laminates
- Supplier engagement

Over to our third speaker…

Alexis Tonneau, Sustainability Project Manager, Kurz

KURZ

LIFE CYCLE THINKING @KURZ

News on the topics of sustainability & recycling

Alexis Tonneau

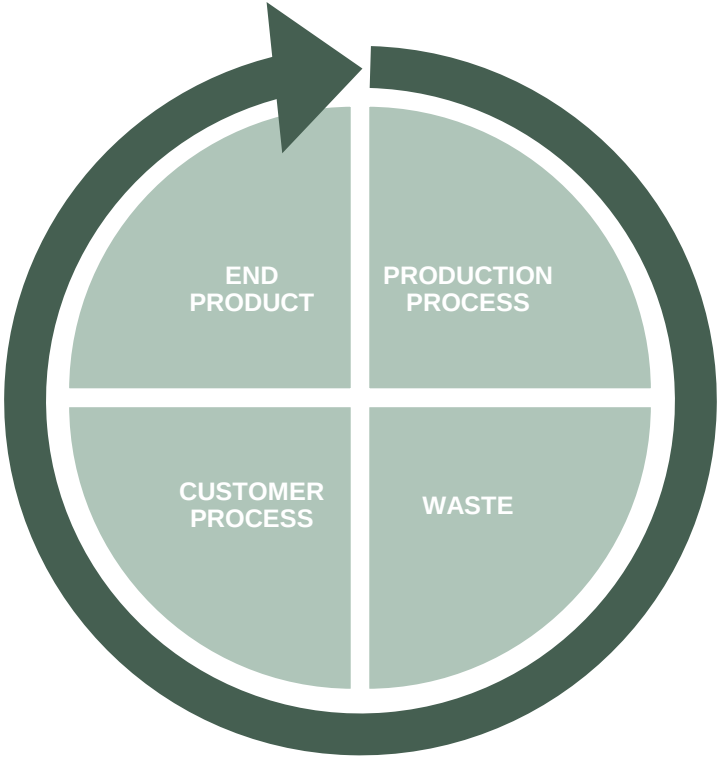
IS KURZ FOIL RECYCLABLE?

... have you ever asked that question?

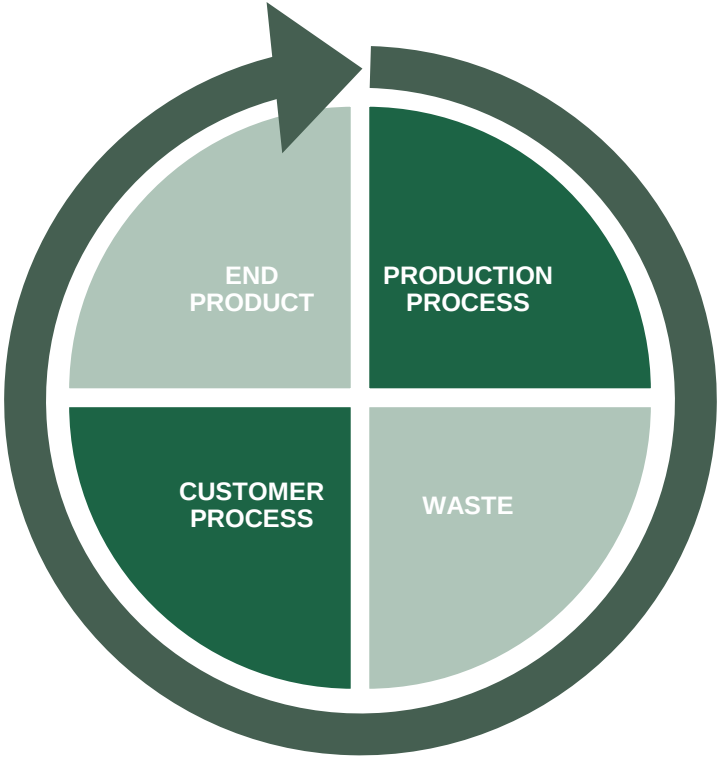
IS ... not easy to answer, right? ?

... have you ever asked that question?

IS KURZ FOIL RECYCLABLE?



IS KURZ FOIL RECYCLABLE?



Manufacturing process

- No use of water, no waste water rejected
- 100% of electrical energy that Kurz uses comes from a sustainable source
- Producing with the widest printing machines in industry
  - ➔ more efficient
  - ➔ probably the lowest CO2/ m² in industry
- Processing of lacquers and solvents in industrial scale
  - ➔ economic and sustainable
- We are utilizing solvents twice: Once in the lacquer production and again for energy generation, worldwide

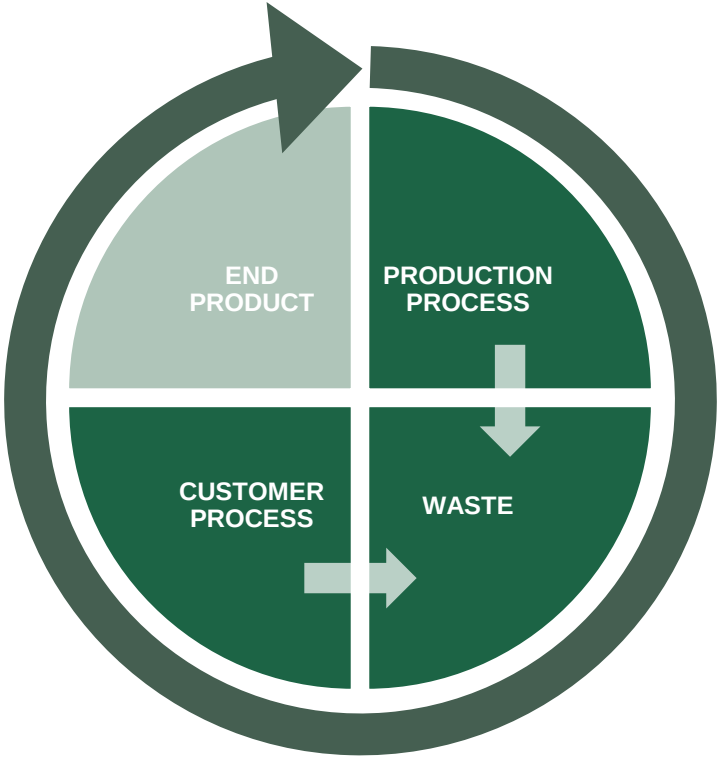
Manufacturing process

- We are manufacturing locally, i.e. in USA for America, in Germany for Europe, in China for Asia
- Even if not all products come from only one factory, we reduce the proportion of foils that are transported all over the world
- We are the ONLY company that has so many decentralized locations
- We actively contribute to CO2 minimization through short transportation

Application process

- Dry process, no liquid coating involved
- No use of water
- No exhaust air, no odour nuisance
- No lacquer residues, mixtures or residual quantities
- Only waste: The stamped carrier, dry
- Emission-free process
- Minimum application energy required (resulting CO2 emissions: 10 g CO2/m2)

IS KURZ FOIL RECYCLABLE?



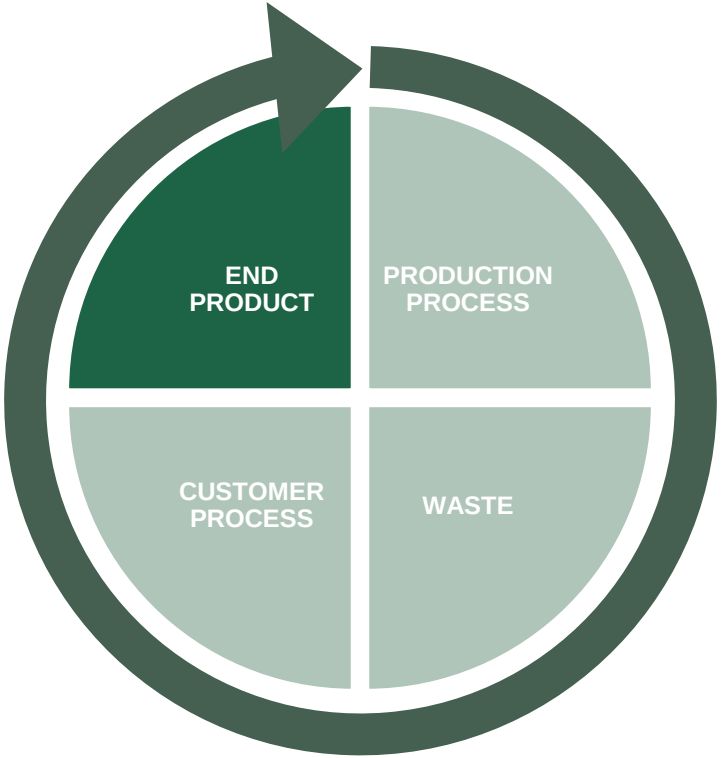
Production waste

- KURZ PET foil waste contains no hazardous waste
- Waste separation in the industry
  - End-consumers don’t have to separate the PET
  - Easier to recycle
- First PET recovery initiative worldwide started in 2010
  - Now, we need to find local partners for local solutions
- Foil waste can be segregated as secondary fuel for an energy recovery plant
- First material recycling concepts and initiatives

RECYCLING OF THE COATED PET CARRIER

Methods of Recycling:	Procedure:	General feasibility for PET (no lacquer, clean material)	
Mechanical Recycling	Reprocessing	✓	Washing of the coated KURZ PET carriers improves the quality of the resulting products
Chemical Recycling (Depolymerisation)	Polymer → Monomer	✓	
Chemical Recycling (Pyrolysis)	Thermal decompostion at elevated temperatures	X	Fouling and Blocking the Pyrolysis due to oxygen & acidic components
Incineration	Incineration of waste in order to gain energy	✓	

IS KURZ FOIL RECYCLABLE?



First of all:

It is not a FOIL!

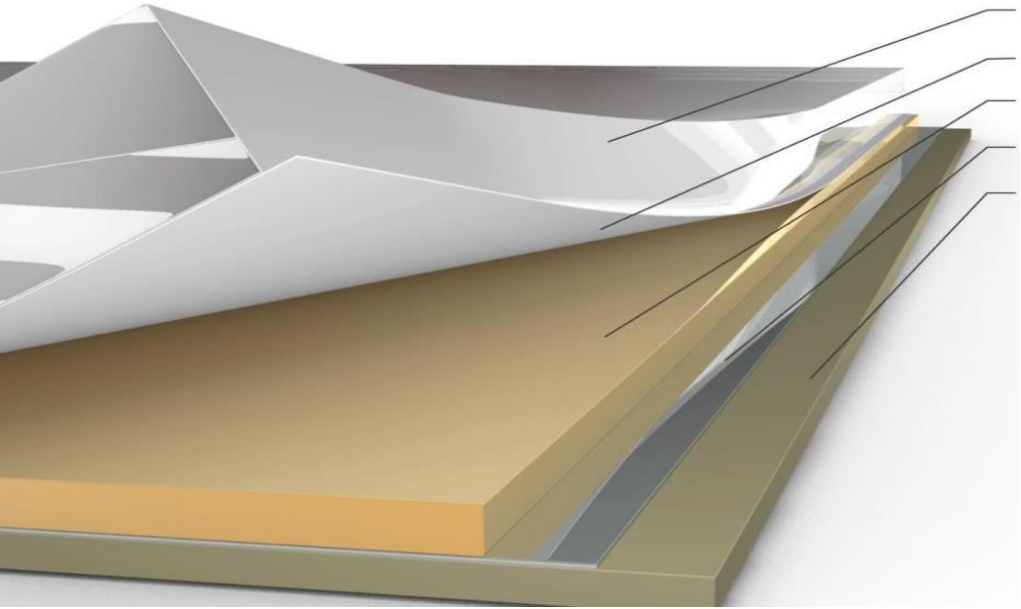
We offer a dry printing/coating process
It is not a LAMINATE!

END
PRODUCT.

No plastic on the packaging

KURZ

layout of KURZ transfer products

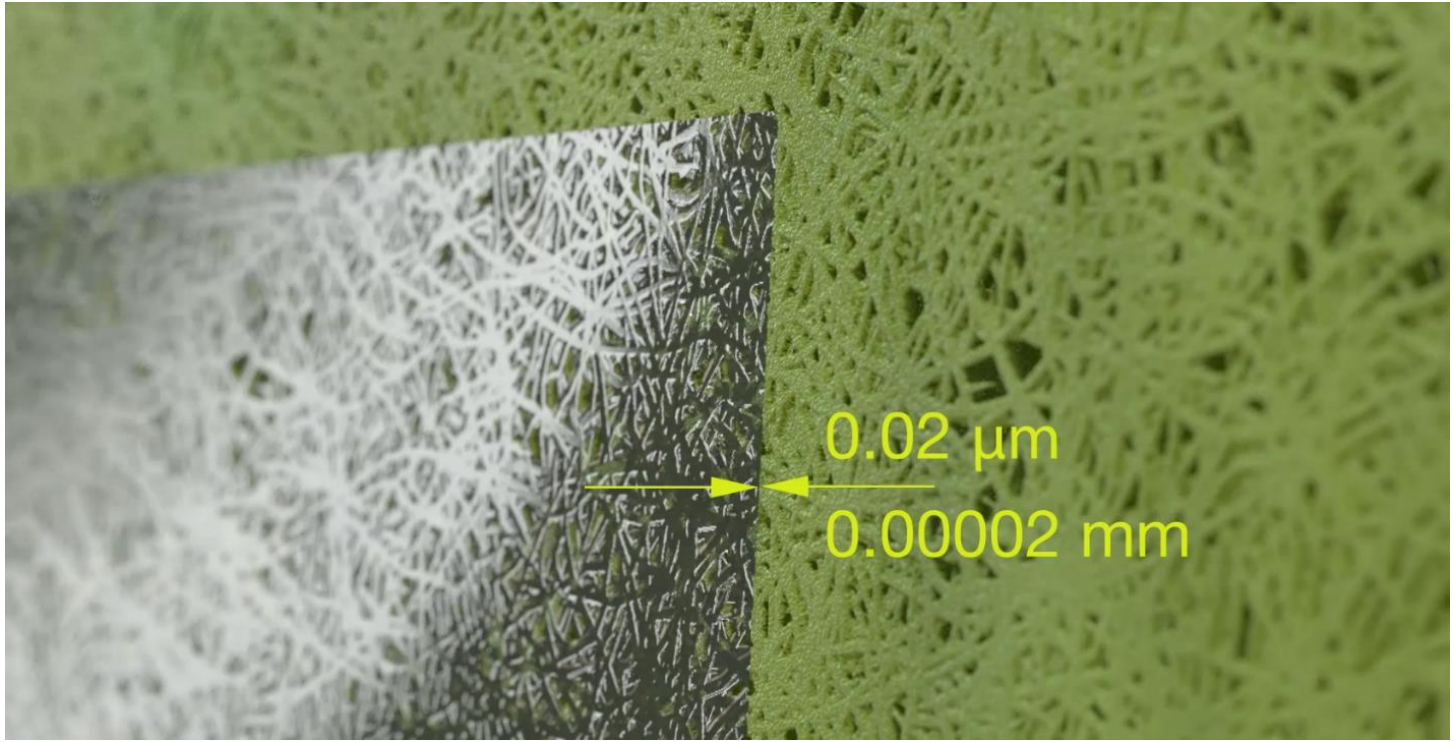


carrier
release layer
protective layer
metallization
adhesive layer

➔ **Total thickness of all layers**
1.5 to 3 g/m² ≈ 1.5 to 3 µm

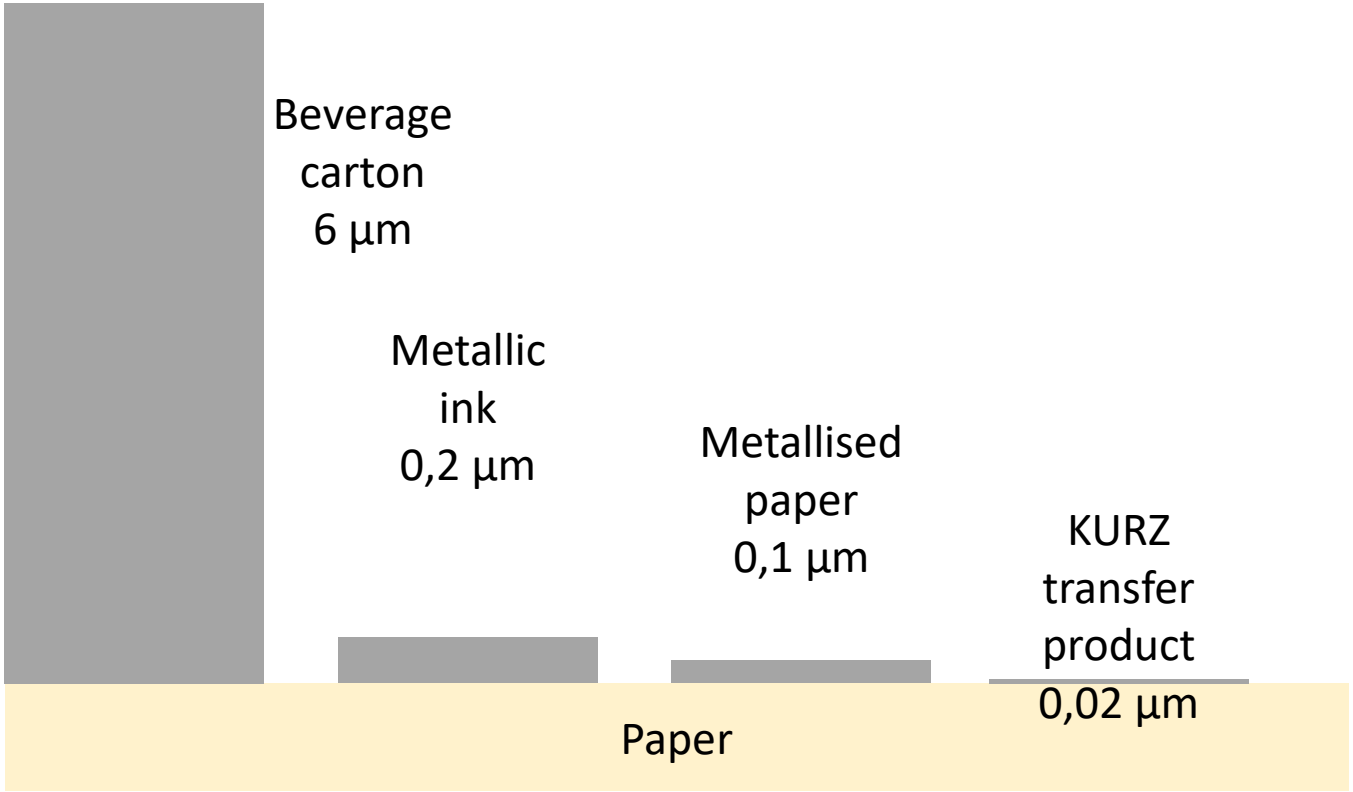
END
PRODUCT.

Extremely thinly transferred aluminium layers



KURZ

Aluminium thickness comparison

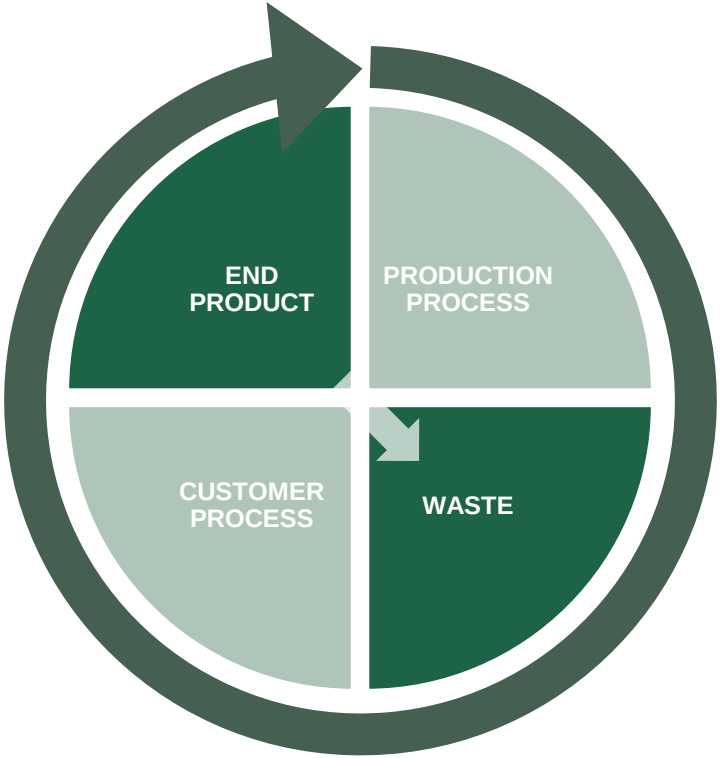


WHAT IS IT?

- No foil, no lamination: it’s a transfer
- No PET foil on the product, mostly max. 1% decoration weight
- PET stays in the industrial loop waste
- No hazardous ingredients
- Minimum aluminium quantity (often less than other decoration processes)

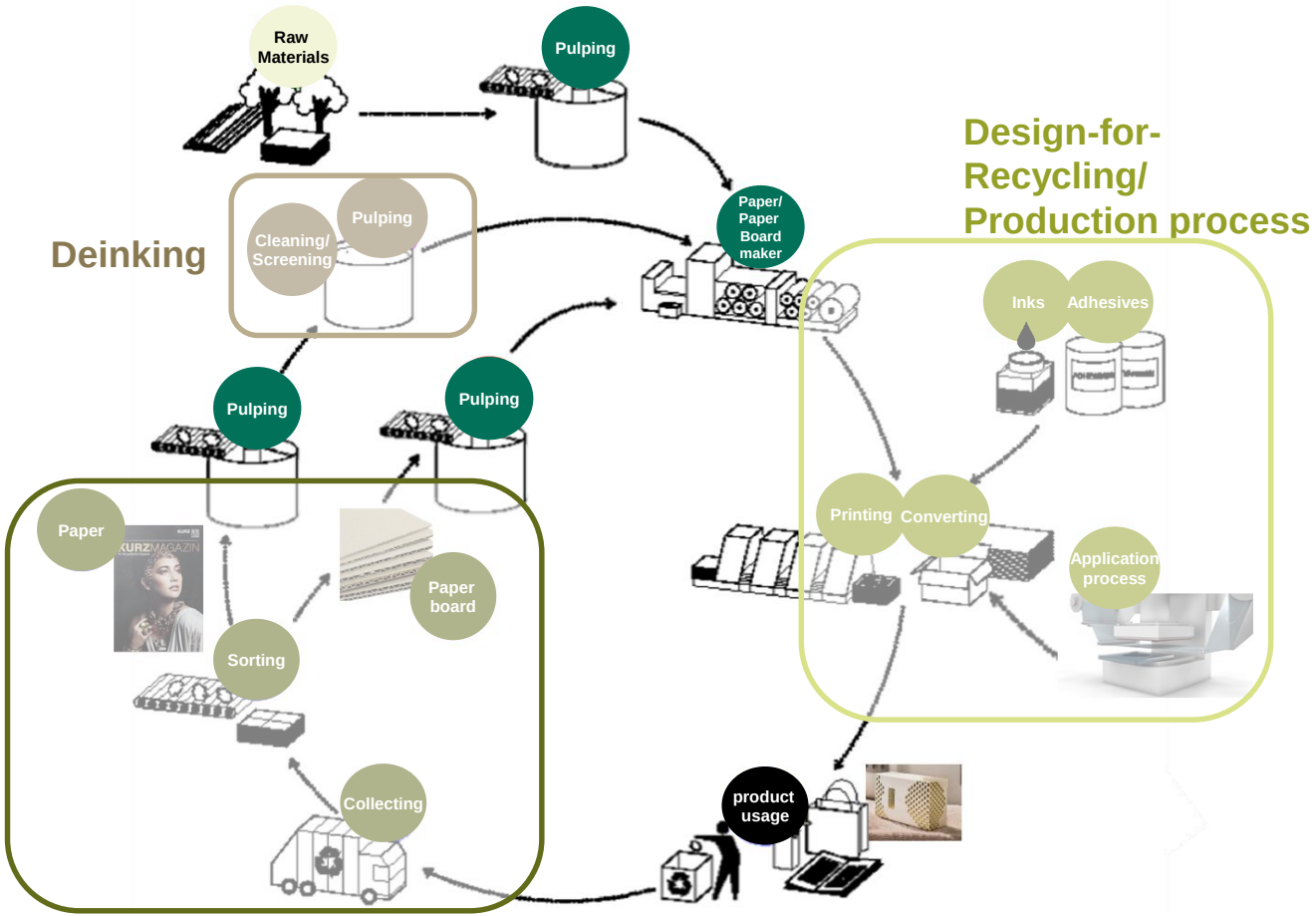
BETTER QUESTION: IS THE END PRODUCT ABLE?

IS KURZ FOIL RECYCLABLE?



END PRODUCT.

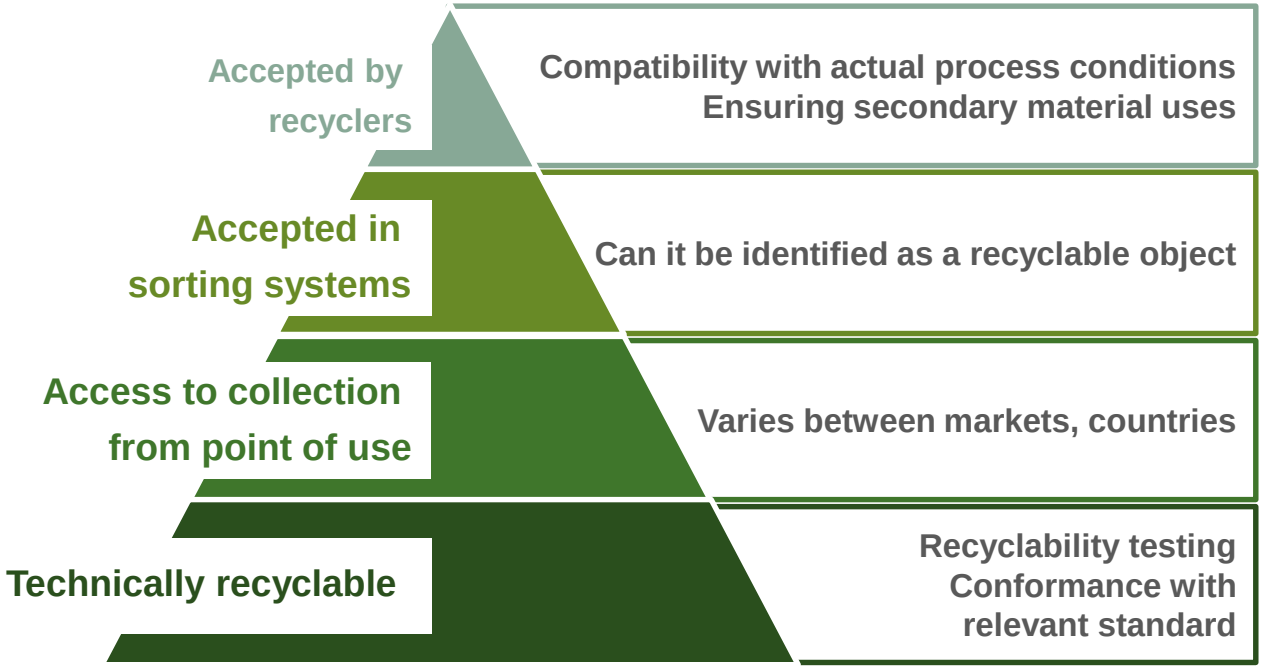
Paper/Paper Board



KURZ

END
PRODUCT.

IS THE END PRODUCT RECYCLABLE?



KURZ

END PRODUCT.

INGEDE
International Association of the Deinking Industry

DEINKABILITY OF DECORATION ON PAPER.

"Assessment of Printed Product Recyclability – Deinkability Score" INGEDE Method 11

Foil tested: ALUFIN KPS-OP 093, ALUFIN MTS, MTS 307, MTS 362, MTC 220, MTH 220

Result: The total score is **100 points.**
→ The deinkability is rated "good"

INGEDE
International Association of the Deinking Industry

LEONHARD KURZ Stiftung & Co. KG
Schwabacher Straße 102
90763 Fürth
GERMANY

9 November 2017

Confirmation about the deinkability of a printed product

1. Test
The test print was tested according to INGEDE Method 11 and assessed according to the "Assessment of Printed Product Recyclability – Deinkability Score" (ERPC 2015).

2. Specifications

Print sample:	Various laboratory-printed samples ALUFIN KPS-OP 093 (samples partly printed on cold foil)
Paper:	Performa Brilliance, 215 g/m²
Paper manufacturer:	IGEPA (Stora Enso)
Paper surface:	Fully coated CTMP board with white coated reverse
Printing process/ Printing machine:	Sheet-fed offset, UV-cured (without further specification) KBA Rapida 105
Printing ink/toner:	Cold foil attached with INXCure™ UV Cold Foil Adhesive [illegible] Siegwerk UV Sicura Plast SP (without further specification) UV varnish (without further specification)

3. Total result
The total score is 100 points. The deinkability is rated "good".

These results confirm that the samples tested are good deinkable. To qualify for an ecolabel, full details of the respective sample are required.

SCORE	EVALUATION OF DEINKABILITY	ALUFIN MTS	ALUFIN KPS-OP 093	MTS 307	MTS 362	MTC 220	MTH 220
71 to 100 points	Good	100	100	97	96	100	100
51 to 70 points	Satisfying						
0 to 50 points	Sufficient						
Negative	Not suitable for deinking						

END PRODUCT.

INDUSTRIAL COMPOSTING OF DECORATED PRODUCTS.

In concrete terms, the DIN Certco certificate states that our transfer product:

- LUXOR® MTS 220 according to DIN EN 13432 is a safe additive for the composting process
- Up to 1 mass percent of our transfer finish can be applied to your substrate without this restricting compostability
- Our product thus does not influence the composting process and has no negative effects on plant growth

DIN CERTCO
Gesellschaft für Konformitätsbewertung mbH

CERTIFICATE

Certificate holder	Leonhard Kurz Stiftung & Co. KG Schwabacher Str. 482 90763 Fürth GERMANY
Product	Additives according to DIN EN 13432
Type, Model	LUXOR® MTS 220
Testing basis	DIN EN 13432:2000-12 Certification Scheme Additives harmless to the composting process (2018-03)
Material	Maximal usable amount in product: 1 % by dry mass
Mark of conformity	ADDITIVE EN 13432 DIN Geprüft
Registration No.	8Z0039
Valid until	2024-09-30
Right of use	This certificate entitles the holder to use the mark of conformity shown above in conjunction with the specified registration number. See annex for further information.

2019-09-11
Dipl.-Wi.-Ing. (FH) Sören Scholz
Head of Certification Body

DAkkS Deutsche Akkreditierungsstelle D-ZE-11125-01-00

DIN CERTCO Gesellschaft für Konformitätsbewertung mbH · Alboinstraße 56 · D-12103 Berlin · www.dincertco.de

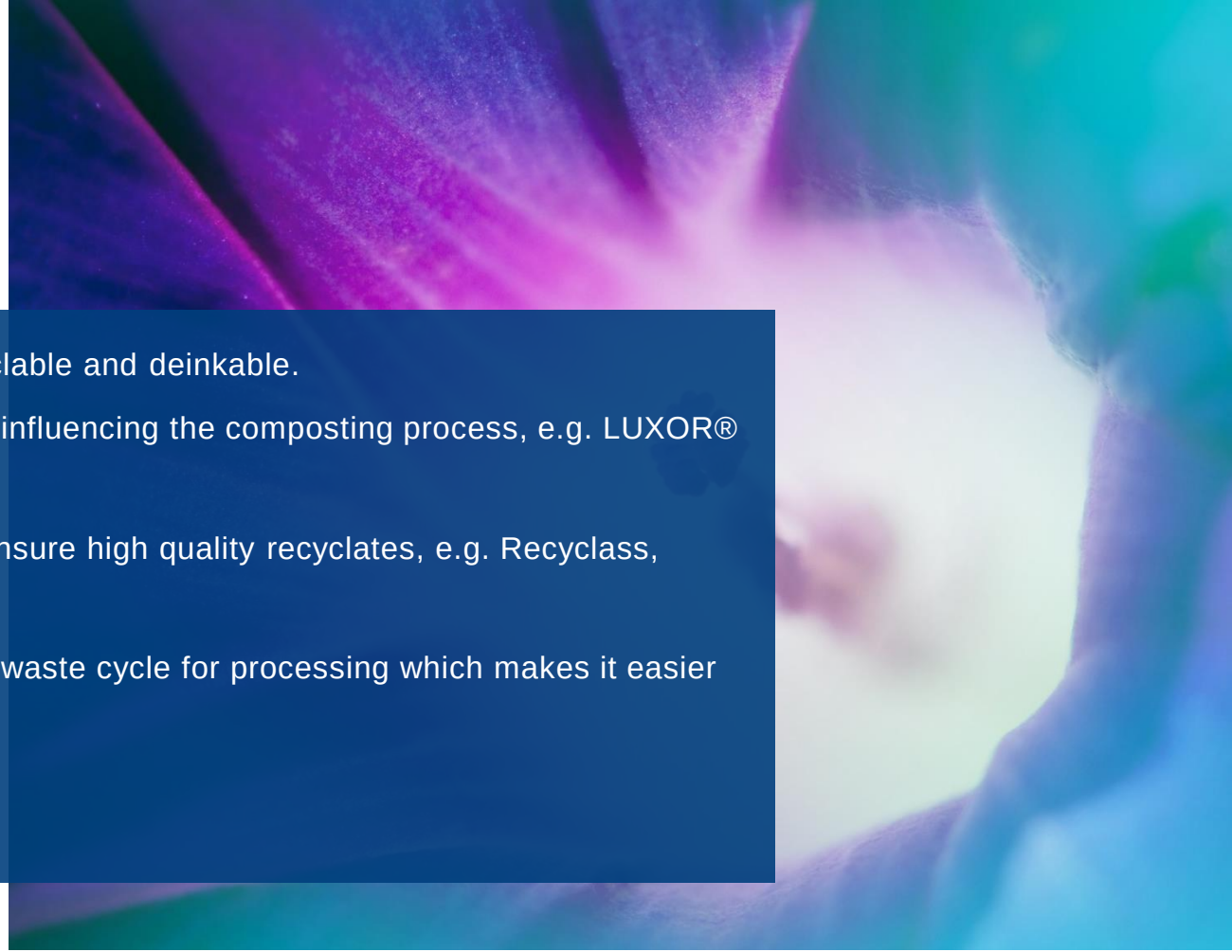
ADDITIVE EN 13432 DIN Geprüft

Registernummer 8Z0039

OUTLOOK

Recyclability & Recycling

- Paper/carton board are 100% recyclable and deinkable.
- Decorative layer (<=1 wt.-%) is not influencing the composting process, e.g. LUXOR® MTS 220, DIN EN 12432
- Collaboration with third parties to ensure high quality recyclates, e.g. Recyclass, 4evergreen
- The PET stays within the industrial waste cycle for processing which makes it easier to recycle.



KURZ

Bringing sustainability
in every product

THANK YOU!

Over to our fourth and final speaker…

Jamie Beale, Quality Assurance Technical Manager, Graphic Image Films

GIF Supplies

Graphic Image Films Ltd

Jamie Beale – Quality Assurance Technical Manager
Email: jamie@gifsupplies.co.uk
Tel: 01844 208308
Web: www.gifsupplies.co.uk

Who are Graphic Image Films?

We originally started out way back in 1990! And what's more, from those initial humble beginnings, we have become bigger, better and even more dedicated to the print finishing sector. Born in Long Crendon near Oxford, this birthplace is still where we are based to this day. The perfect location; we have super easy access to the M40 which leads onto London, Birmingham and beyond.

We love it here…almost as much as we love polypropylene and our wide range of specialised films! A good job really; as we've built up a significant industry experience over the years to become one of the leading and largest suppliers of laminating films in the UK.

Graphic ImageFilms

What's on the agenda

1. Manufacturing Process
2. Laminating Film Grades
3. Recyclability
4. Green Alternatives
5. The Future

1. The Manufacturing process

Extrusion

PP Homopolymer resin granules are extruded with a blend of additives

Blown/Tenter frame process

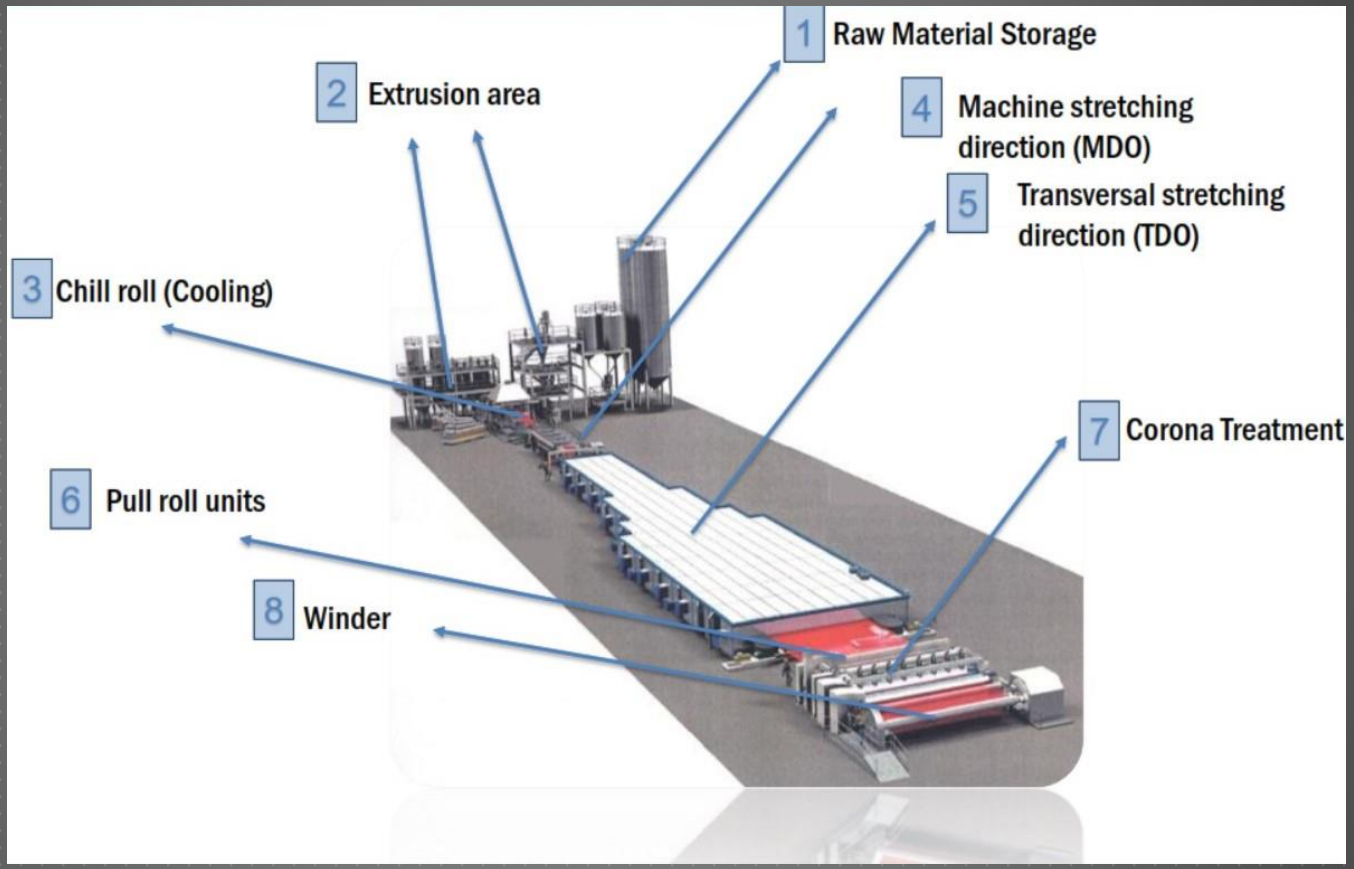
Bi-axial orientation – machine direction / transverse direction

Stretching ratios are adjustable

Film is wound onto large prime jumbo's ready for coating and conversion

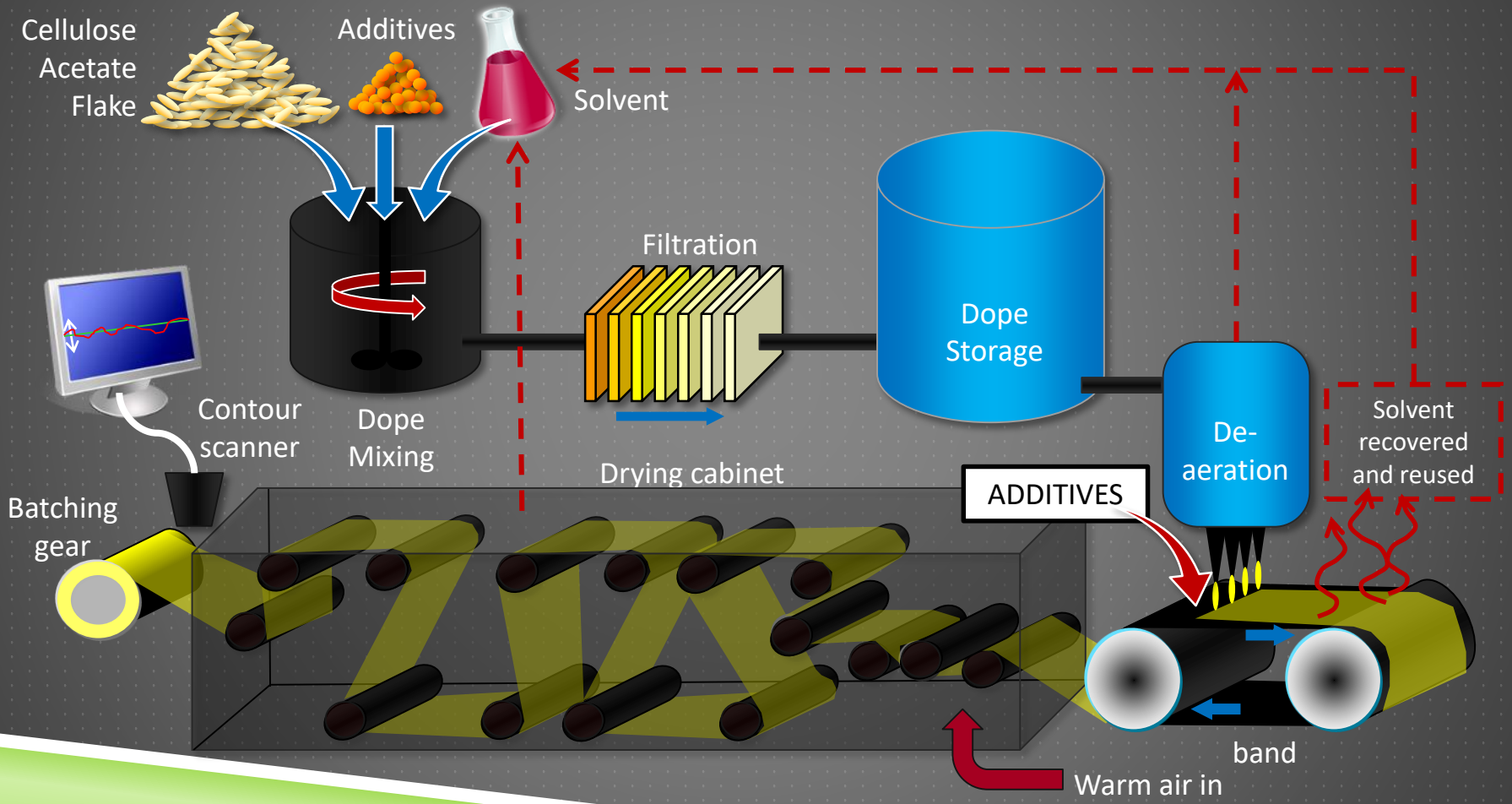
Bi-axial orientation increases the strength and clarity of the film

BOPP Film Extrusion



The Extrusion Process

Acetate film Extrusion



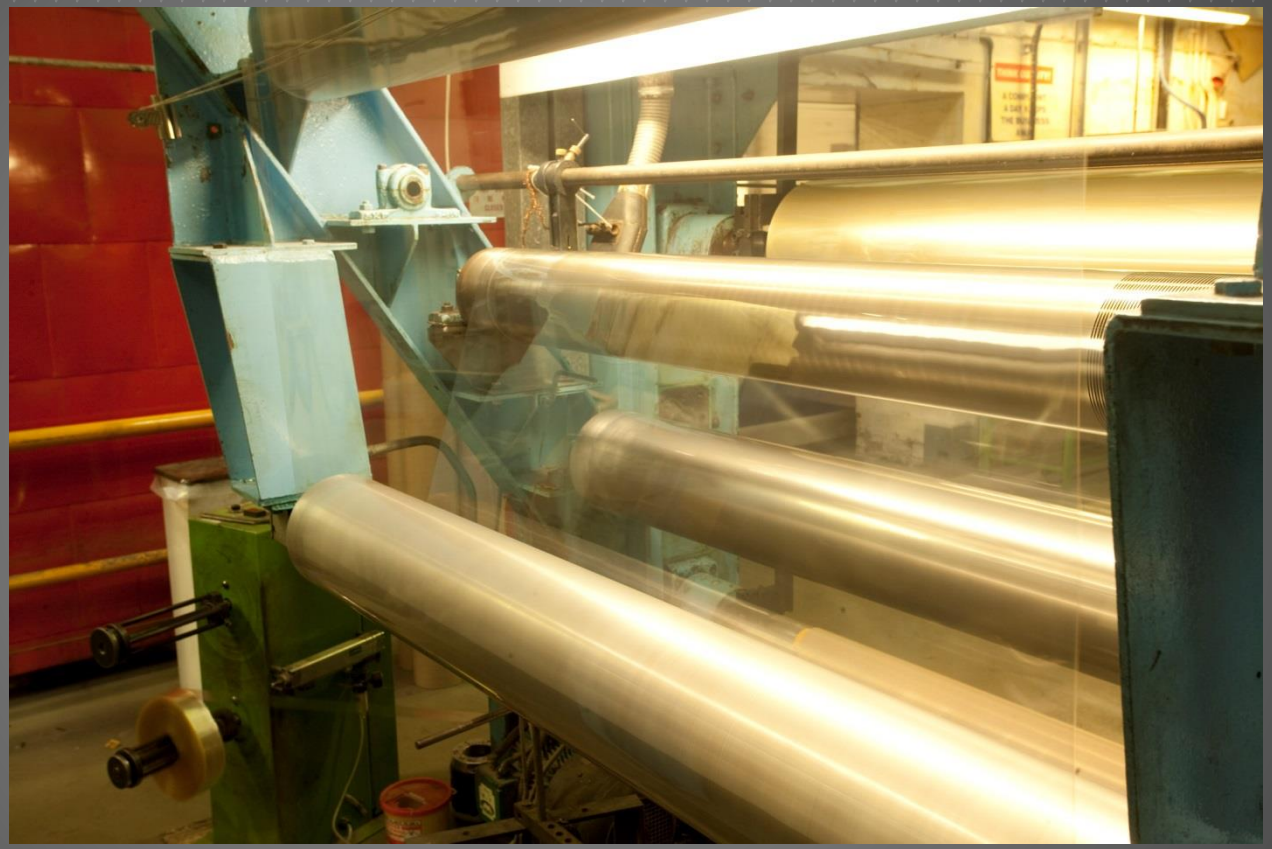
Graphic Image Films

The Extrusion Process

Graphic Image Films

The Extrusion Process

Graphic Image Films



The Extrusion Process

Coating

Prime Jumbo's can be coated with soft touch and anti-scratch coatings

EVA

(thermal adhesive) - is applied to thermal products

Conversion

Jumbo's are slit down to stock width

Graphic Image Films

Film Conversion

2. Laminating Film Grades

Gloss (litho and digital)

Matt (litho and digital)

Silk (litho)

Soft Touch (litho and digital)

Soft Touch Anti smudge (litho)

Anti-Scratch Matt (litho and digital)

Anti-Scratch Gloss(litho and digital)

Antibacterial Matt (litho)

Antibacterial Gloss (litho)

Holographic Clear (litho)

Holographic Metalised (litho)

Acetate Gloss (litho)

Acetate Matt (litho)

Acetate Silk (litho)

Embossed: Fine Linen, Leather, Pearl (litho)

Sandy/Gritty Matt (litho)

Encapsulation PET Gloss and Matt

** All film grades are available in wet and thermal, except for Acetate and Encapsulation*

Graphic Image Films

Wet - Wet Terminology refers to the BOPP based film without an adhesive, a wet acrylic adhesive is applied during the wet lamination process

Thermal - Thermal Terminology refers to the BOPP based film with a thermally activated adhesive already applied.

3. Recyclability

POLYPROPYLENE - an easily recycled plastic during the manufacturing and conversion processing stage.

RECLAIM - a small percentage of reclaim is put back into the manufacturing of the film, the remainder is easily recycled externally.

LAMINATED SUBSTRATES - sent back to the paper mill for recycling, where the individual element are filtered and separated from each other.

PULP - going back into the papermaking process.

FILTERED WASTE - filtered elements going for incineration (waste to energy waste stream) or sent to landfill (waste to energy is not considered recycling)

Graphic Image Films

Example of recycling

Graphic Image Films

Example of recycling

Graphic Image Films

Example of recycling

4. Green Alternatives

OXO BIO-DEGRADABLE POLYPROPYLENE – PP with an additional additive, which works as an accelerant when exposed to Oxygen, UV light and High Temperatures. The additives fragment and breakdown the plastic polymers into tiny particles ready for microbial bio-degradation. Banned in the EU from the start of 2021.

CELLULOSE ACCETATE:

- Not a new innovation
- Higher production costs
- Wood pulp based – does not derive from oil, therefore not classified as a plastic product
- Accredited with being bio-degradable, home compostable, and industrial compostable.
- Currently available in Wet grade. Thermal coming soon.

4. Green Alternatives

PLA (poly lactic acid)

- Derives from vegetable resources
- Not classified as a plastic product
- Only available in Wet Grade
- Bio-degradable, and industrially compostable, but not home compostable

PCR (post consumer recycled) – AVAILABLE SOON!

- Made with 50% post consumer recycled PP
- Will be available in most popular grades
- Continues our aim towards the circular economy where a film is produced and is not discarded after its intended life cycle

Thinner Films (another option)

- By decreasing the thickness of the base PP, we're able to reduce the plastic required for lamination

5. The Future

The Circular Economy

Thank you for your time.

If you have any further questions, please contact me via the details below.

Jamie Beale – Quality Assurance Technical Manager
Email: jamie@gifsupplies.co.uk
Tel: 01844 208308
Web: www.gifsupplies.co.uk

Any questions?

Ask your question either via the chat box provided or direct to our speakers.

Remember to unmute yourself prior to speaking!

Tell us your:

- Name
- Organisation
- Your question (and who it's intended for)

And please re-mute yourself once your question has been put to our speakers.

Thank You!

Presentation slides will be made available on our website shortly.
A recording of this event will be posted to BIC's YouTube channel.

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