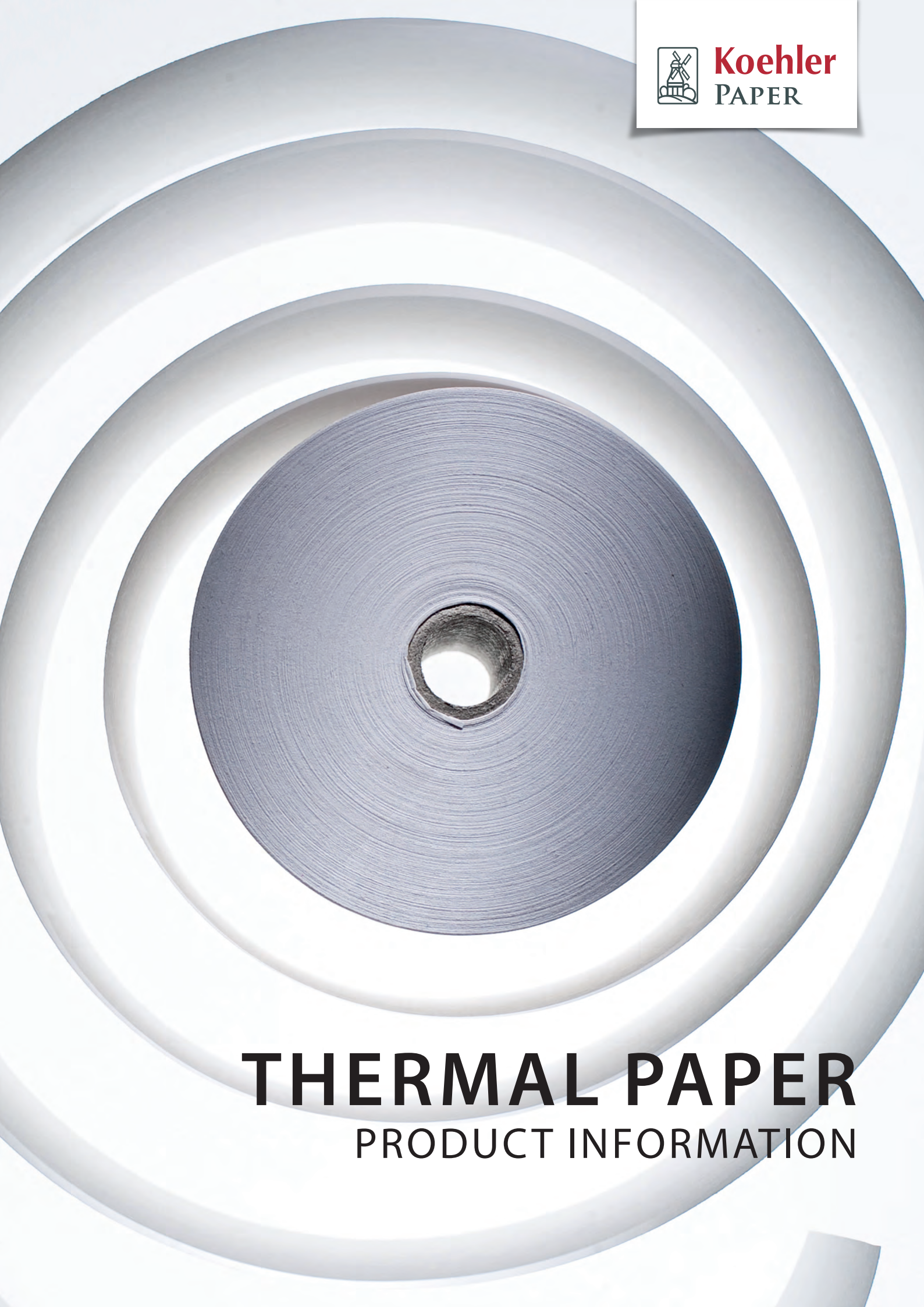
Koehler PAPER



THERMAL PAPER

PRODUCT INFORMATION

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Koehler
THERMAL PAPER

KOEHLER THERMAL PAPER – A GLOBAL LEADER

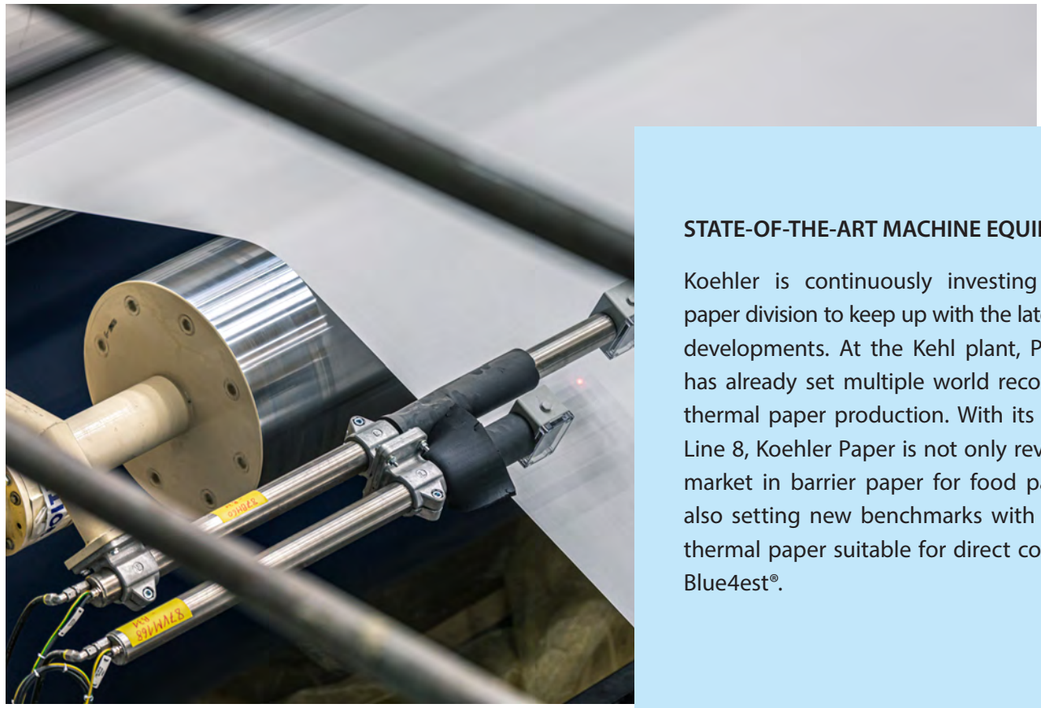
Thermal paper has become an integral feature of everyday life, for example in the form of:

- Checkout receipts
- Credit card receipts
- Price tags
- Packaging stickers
- Admission tickets

In other words, wherever there is a need for a cheap and quick way of printing information you'll find thermal paper!

Koehler Paper has been the market leader in this fast-moving field for many years. Koehler supplies converters and laminators around the world with 'thermal jumborolls', which are then turned into checkout rolls, tickets, or self-adhesive labels.

Thermal paper is in increasingly high demand for labels. However, it is also commonly found at supermarket checkouts where many customers still prefer to get a paper receipt rather than a digital alternative.



STATE-OF-THE-ART MACHINE EQUIPMENT

Koehler is continuously investing in its thermal paper division to keep up with the latest technological developments. At the Kehl plant, Paper Machine 2 has already set multiple world records for speed in thermal paper production. With its new Production Line 8, Koehler Paper is not only revolutionizing the market in barrier paper for food packaging, but is also setting new benchmarks with the world's first thermal paper suitable for direct contact with food, Blue4est®.

RANGE

POS APPLICATIONS

Whether it's in the form of checkout receipts in a supermarket or credit card receipts in a restaurant, one can find Koehler's cutting-edge thermal paper just about everywhere. It's no surprise that half of all checkout receipts in Europe are made of paper supplied by Koehler Paper.

The staples in Koehler's POS range are the **FA and PF qualities**. Whereas the FA paper is produced without using bisphenol A (BPA) as a developer, the PF paper is completely phenol-free.

The grammage and thickness of all qualities are regularly adjusted to the needs of the market so that an optimized solution can be offered for every application. For example, the lightweight KT 44 and KT 48 paper is now standard fare in all major supermarket chains across the world, and represents the most sold thermal paper at Koehler. Lower weight, lower costs – it's as simple as that.

BLUE4EST® – THE BLUE THERMAL PAPER FROM THE BLACK FOREST

As well as conventional thermal paper, Koehler Paper also offers the new, unique, and award-winning technology for thermal paper: Blue4est®.

The new generation is particularly friendly to the environment as it does not require color developers, which not only means it is recyclable but also that it is certified for direct contact with food. Instead of a chemical reaction to heat, the emergence of text on Koehler's new Blue4est® thermal paper is a purely physical reaction.

BLUE4EST®

SELF-ADHESIVE LABELS

Customers are surely familiar with the self-adhesive labels that they get when pushing a button on the weighing scales in the supermarket – these are made of thermal paper, too. However, these barcode labels are not only used for food but also for books, clothing, and all kinds of items that are used in daily life. Other typical applications include packaging labels for logistics, freight forwarding, and shipping as well as luggage tags at airports. Self-adhesive pallet labels made of thermal paper are now commonplace in industry too thanks to the numerous advantages of thermal printing.

As the primary purpose of a label is to display information, everything that is printed on the label must be clearly legible – an obvious use case for the Koehler label qualities **LFA** (BPA-free), **LPF** (phenol-free), and KT TC PF (phenol-free, with top coat). All of these variants have been optimized for use in labels: Good barcode readability, homogeneous printing results, and low risk of adhesive migration are the key quality features that set Koehler's label papers apart from the rest.

TICKETS

Thermal paper is often used in the area of leisure activities, whether that's in the form of cinema tickets, travel tickets, parking tickets, or lottery tickets – so basically wherever good stability, copy life, and printability are required. In addition to the heavyweight FA qualitites, the Koehler label papers like LFA and LPF are also suitable for these applications.

NOW FOR LABELS: BLUE4EST® PRO

Blue4est® Pro is the innovative follow-up to Koehler's popular Blue4est® thermal paper for cash register rolls. Blue4est® Pro features an additional layer that protects the paper from mechanical damage for use as label stock.

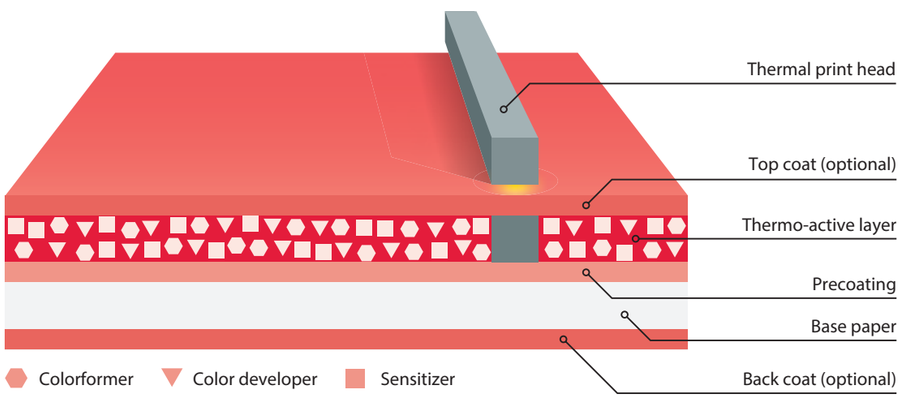
It is free of chemical developers, is certified for direct contact with food, and is thus ideal for use in supermarkets, for example in weighing scales for fruit and vegetables or at deli counters.

BLUE4EST®

THERMAL TECHNOLOGY

HOW DOES THERMAL PRINTING WORK?

In the case of thermal printing, the text or image is produced by directly applying heat to the thermal paper. This is done using a thermal print head, which is comprised of a host of tiny heating elements. These heating elements are electronically controlled and generate the thermal energy that triggers the color reaction in the functional thermal coating. This produces a multitude of tiny dots that combine to form letters, barcodes, or images.



STRUCTURE AND FUNCTION OF CONVENTIONAL THERMAL PAPER

Koehler thermal paper is comprised of a high-quality **base paper** plus a precoating to ensure high image quality.

In the case of conventional white thermal paper the **thermal coating** is what contains the key functional components such as colorformers and color developers. The application of heat at distinct points to the thermal coating by the thermal printer triggers a chemical reaction that causes the text or image to appear.

Thermal paper can also have a protective coating applied to them. It is a good idea to apply a **top coat** to the front side of the paper if it will be exposed to mechanical stresses, chemical influences, or environmental effects. A **back coat** may be used to offer additional protection during printing, lamination, and much more.

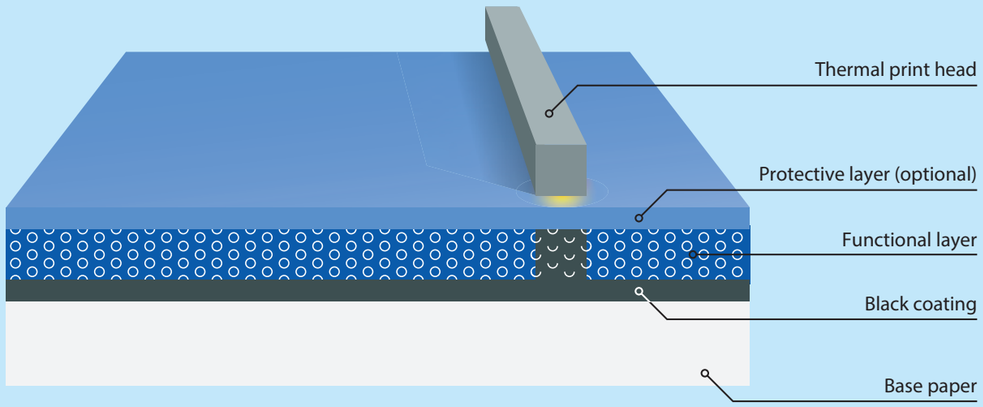
The distinction between thermal paper with and without a top coat is usually only relevant for labels and tickets.

BLUE4EST® TECHNOLOGY

STRUCTURE OF BLUE4EST® THERMAL PAPER – FROM CHEMISTRY TO PHYSICS

Blue4est® is the innovative thermal paper from Koehler Paper. It is free of chemical developers and can be used with many common thermal printers.

Instead of a chemical reaction to heat, the emergence of text on Koehler's new Blue4est® thermal paper is a purely physical reaction. Tiny bubbles in the functional layer collapse when subjected to heat from the thermal print head, which results in the black layer underneath becoming visible. Blue4est® Pro comes with an optional additional layer that protects the paper from mechanical damage for use as label stock.



WHY BLUE4EST®?

- Sustainable: Can be recycled and has no chemical developers
- Lasting: Image will not fade (> 35 years)
- Safe: Approved for direct contact with food
- Unmistakable: Immediately recognizable by its blue color
- Compatible: Works with common POS thermal printers
- Functional: Excellent printability

PROPERTIES OF KOEHLER THERMAL PAPER

COPY LIFE

Koehler thermal paper is guaranteed to function for a period of at least two years from the date of manufacture, when stored under the following conditions:

- Room temperature between 18°C and 25°C
- Relative humidity of 40 to 60 percent
- Away from light

If the paper is not stored correctly, this can adversely affect the functionality of the thermal coating and lead to discoloration of the thermal coating or lack of contrast in the printed result.

PRINTABILITY

Depending on the printing process used, it is possible to print both on the functional side and on the reverse side of Koehler thermal paper. Further information can be found under “Printing Recommendations for Koehler Thermal Paper.”

COPY LIFE OF THERMAL PRINTING

The copy life of the thermal printing on standard thermal paper can only be guaranteed when the paper is stored under the prescribed conditions. Further details can be found under “Copy Life Declaration for Koehler Thermal Paper.” Contact with plastic wrappers containing plasticizers, adhesives, hand creams, oils, plasticizers, and liquids should be avoided.

CERTIFICATION BY PRINTER MANUFACTURERS

Koehler works together with various manufacturers of thermal printers and thermal print heads in order to ensure the paper and devices are optimally aligned. Comprehensive testing is performed regularly to guarantee a long lifetime for the thermal printers and constant printout quality. Approvals for different grades exist from companies such as Epson, Bixolon, Toshiba, Seiko, Star Micronics, and Cognitive TPG.

SUSTAINABILITY ASPECTS

“Proudly Working For The Future” is Koehler's overarching sustainability message. As a family enterprise, Koehler wants to make a sustainable contribution to society and the environment through its business operations.

Koehler is specifically working towards developing a visionary approach to climate protection, obtaining its raw materials from responsible sources, working resource-efficiently, and developing successful and future-proof products that are as resource-efficient as possible.

PULP

Koehler only uses high-grade ECF bleached pulp from FSC® and / or PEFC-certified suppliers for its thermal paper. Koehler itself is chain of custody certified in compliance with both systems. The pulp originates from responsibly managed forestry and controlled sources. All Koehler thermal paper qualities are available FSC® (FSC®-C016508) or PEFC certified on request.

NON-FIBROUS RAW MATERIALS

All of the raw materials used are thoroughly evaluated by various departments in terms of their environmental impact by way of a certified release procedure.

Under the Schaefer-Koehler-Onsite GmbH joint venture at the Kehl site, Koehler is turning biogenic CO_2 found in the flue gas from the biomass combined heat and power plant into a pigment that is used as a filler. This allows Koehler to save on transport costs as well as transport-related CO_2 emissions.

WATER

Koehler has effective wastewater treatment plants and makes sure to be careful when using and handling water. The Kehl production site is located in the immediate vicinity of the Rhine. The plant always has a sufficient water supply, even at times of year when the weather is very dry. The production water is largely recirculated. In addition, Koehler operates hydropower plants and takes care of local water protection with fish ladders and stream adoptions.

ENERGY

Koehler Renewable Energy produces renewable energy for Koehler's own production processes and external customers. Koehler's declared objective is to generate more energy from renewable sources than is needed for its own paper production by 2030. At the Kehl production site, Koehler Paper operates two biomass combined heat and power plants that produce energy through cogeneration and circulating fluidized bed combustion.

LOGISTICS

Many of Koehler's raw materials come from abroad, and its thermal paper is exported worldwide. This obligates Koehler to choose the most eco-friendly modes of transportation possible. As the production site for thermal paper is located in the port area of the city of Kehl in the immediate vicinity of the Rhine, Koehler uses preferably water and rail as modes of transport to and from the overseas ports.

PRODUCT CERTIFICATIONS

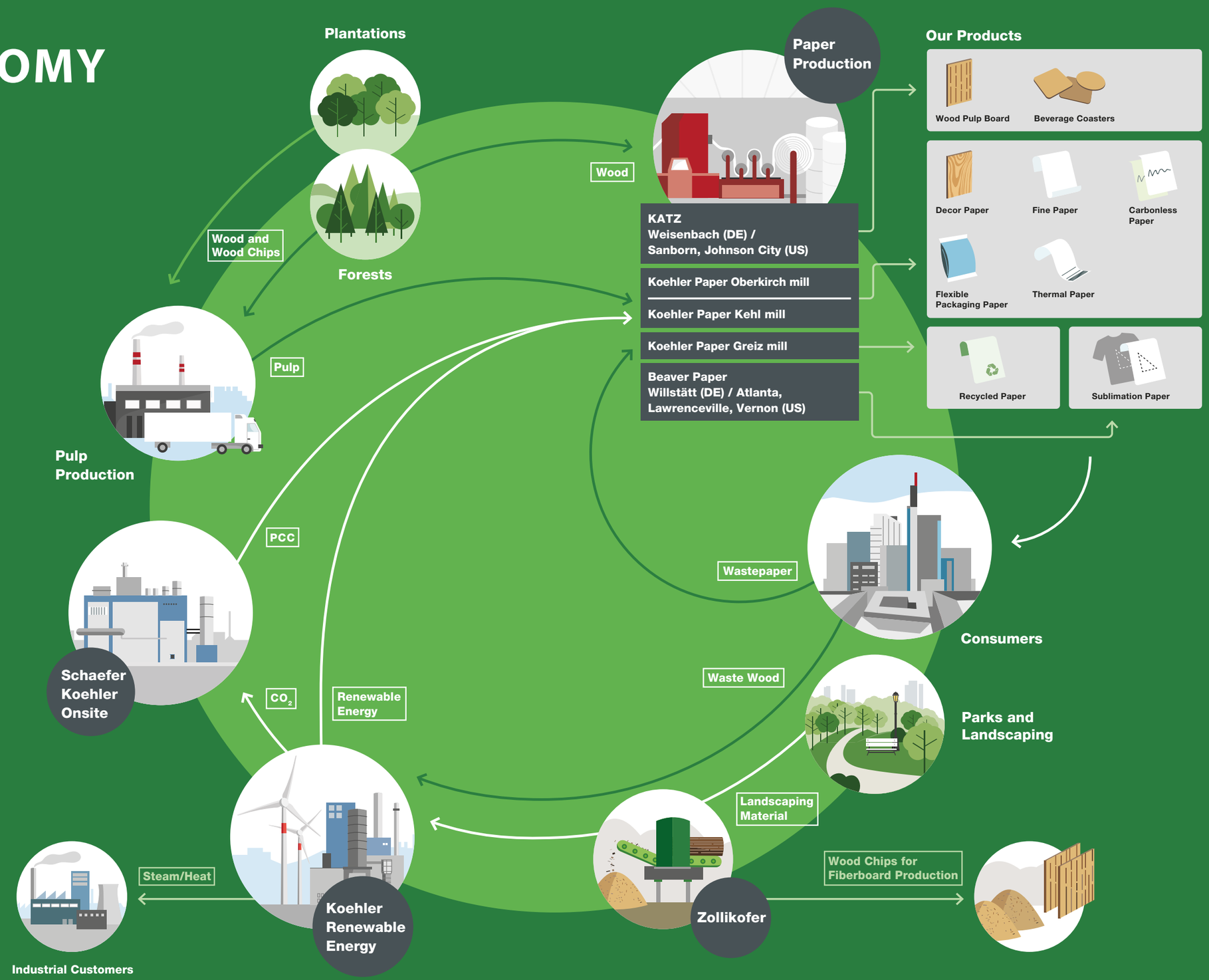
In addition to the management system certifications for the Koehler Group, Koehler has also obtained a host of variant-specific product certifications for its thermal paper and Blue4est® paper, for example food contact certification or recycling certification. Some of the thermal paper qualities have also been granted the French INERIS label “no phenols added.”

LIVING THE CIRCULAR ECONOMY

"Circular value creation" is a hot topic in this day and age. This process represents an alternative to linear value creation and "chug and chuck" models that rely on essentially infinite stocks of raw materials. Both Germany and Europe as a whole are dependent on imports of raw materials, so it is in their interest to implement the concept of circular value creation. Paper is a good example of a successful circular economy; wastepaper can be turned into new paper again and again.

The Koehler Group is part of this circular value chain. Koehler offers future-proof products in the form of flexible packaging paper made using renewable raw materials. Unlike other packaging materials, they can easily be recycled after use.

In the circular economy model, mechanical recycling, i. e., the reuse of the material as-is, sits right at the top of the hierarchy. However, if the costs outweigh the benefits and mechanical recycling is not feasible, as is the case with waste wood, then the waste products may be used to produce energy instead. With the takeover of the majority of Zollikofer GmbH & Co. KG, Koehler has significantly expanded its expertise in the area of the procurement, trade, and processing of biomass.



PACKAGING

The packaging used for Koehler thermal paper is recyclable. All rolls with a diameter of more than 40 cm can also be delivered without pallets.

DISPOSAL

Koehler thermal paper can be disposed of as general waste or recycled as wastepaper. However, Koehler always recommends asking the local waste sorting providers as the legal requirements and options for recycling thermal paper vary significantly between regions and countries. Local regulations may say that standard thermal paper is not allowed to be disposed of with the waste paper.

YOU CAN'T RECYCLE CHECKOUT RECEIPTS ... OR CAN YOU?

Unlike conventional white thermal paper, the blue Blue4est® thermal paper can be recycled as wastepaper, as Blue4est® does not contain conventional thermal paper chemicals like colorformers or color developers (e.g., bisphenols). That is why Blue4est® is also the first ever thermal paper to be approved for direct contact with food.

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