



TÖPPER
KULMBACH

ENVIRONMENTAL DECLARATION 2019

Updated declaration on the consolidated
environmental declaration 2018



ALWAYS AROUND

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Publication dates of the environmental declaration

This environmental declaration with adjustment according to the requirements of the EMAS innovation 2017 and 2019 was passed by the management in August 2019 and subsequently submitted to the EMAS environmental expert for inspection.

Every year, Töpfer Kulmbach GmbH publishes a simplified environmental declaration that is reviewed by the environmental expert and declared valid. Contents of this simplified environmental declaration essentially contain the updated environmental indices and the progress when implementing the environmental targets set.

The next consolidated environmental declaration will be published in 2021.

[This environmental declaration contains the indices for the environmental performance of the reporting year of 2018.](#)

Note: For reasons of better legibility, the text uses the male form and does not use several linguistic forms in parallel. All person designations shall apply to all genders equally.

Development of the site

Company and markets:

Töpfer Kulmbach GmbH has been producing at the site of Kulmbach for nearly 100 years and has been owner-managed in the fourth generation. The company is one of the globally leading manufacturers in the area of label printing for the beverage industry and flexible packaging for the food and luxury food industries. Customers include renowned German and international beverage and food manufacturers.

The developments in the most important field of business of the company, the beverages market, also show environment-orientated areas of action in addition to the continuing trend for greater product variety with mixed drinks and special beers in small and medium editions. Töpfer has found solutions for both:

In order to be able to produce small and medium editions cost effectively, Töpfer Kulmbach has been using the **UV flexo print** and **digital printing** techniques since this year. Whether all-round labels, shrink sleeves or self-adhesive labels – the expanded production possibilities offer implementation according to the latest technical standards.

A lot of effort has been put into the subject of sustainability in the last year, especially on the product level. EMAS is an important component here too. With the aid of toxicologically uncritical printing inks and new high-performance recycling papers, Töpfer Kulmbach was able to develop a label certified according to the **cradle to cradle principle**. Our goal is the complete transformation of our product portfolio to cradle to cradle level. This is the only way to ensure a fully functional recycling management and that all the ingredients of our packing materials are put back into a manufacturing process as valuable raw materials.

Process optimisations, further investments and increase of the marketing and sales activities in and outside of the country have continued consistently. The performance capacity could be improved further with **new machine technology** in production and the pre-press stage, and automation could be improved.

Manufacturers, not only on a European level, are being challenged to take on greater responsibility for the environment. The **extended producer responsibility EPR** is only one of the strategies to increase the extent of product recovery and solve ensuing waste problems.

We have taken over a pioneering role here too. Responsible use of our environment used to and will continue to be a supporting pillar for our action.

In order to inform interested parties about our activities in more detail, Töpfer is presenting itself with a new, modern and dynamic **homepage**. **www.toepfer.de** offers a wide range of information which focuses in many cases on environment-related topics.

Production and technology:

The technical investments and material developments in the reporting period are proof of the improvements in the environmental performance.

The implementation of the UV flexo print process in the company was an extensive project at the end of 2018/beginning of 2019. The aim was to convert the existing hall infrastructure from its previous use as a gravure printing hall to the requirements of a modern production site for UV flexo printing. The hall's old air-conditioning system was taken out of operation. This was located decentrally several floors above the hall and required an energy-intensive delivery rate for the long distance. The air-conditioning is now provided by a new **ventilation system** located next to the flexo hall. In addition, the resulting waste heat from the drying process can be fed into the UV flexo print machine through a heat recovery system of the ventilation system and supports the air-conditioning. Both factors – short distances and heat recovery – reduce the energy consumption considerably. Initial consumption measurements over a short period of time confirm our predictions. Long-term measurements with a planned stationary energy measuring technology will provide detailed data of the reduction.

Our positive experiences, the relatively easy implementation and the high reduction potential for the electricity consumption have induced us to carry out other projects such as changing over the existing lighting to energy-efficient **LED lighting**. As we announced in the last environmental declaration, the changeover was implemented for the areas of roll cutter, bale press and loading ramp as well as connecting traffic paths. An efficiency calculation shows a reduction in the energy consumption of around 68.2%.

In the course of the described conversion of the old gravure printing hall into the modern flexo hall, complete light strips and individual lamps with T8 fluorescent tubes were removed and replaced selectively by just 27 LED industrial lamps. A light control system allows them to be switched on as needed and therefore increases the efficiency of the lighting system even more. In terms of figures, the installed power is realistically capable of halving the electricity requirement.

Production in the UV flexo print process has been in operation in this hall since March 2019. The linchpin is a **UV flexo print machine** with which paper and film materials can be printed with up to 10 colours. The economy of this production system is expressed especially in small and medium editions. Lower cost printing forms, lower set-up material requirements, minimum ink waste. The latter arguments will have a positive effect on our environmental performance in the future.

The choice of ink system is also significant. Thanks to UV-hardening inks which have already hardened almost completely directly after the printer - as a result of a reaction of photo-initiators in the inks and varnishes as well as the effect of artificial UV radiation - excellent printing quality can be achieved at high running speeds. The omission of inks containing solvents avoids pollutant air emissions and the physical dangers of handling highly inflammable materials. Technical devices ensure that the developing ozone is sucked off and disintegrates again before reaching the outside air.

In the summer of 2019, with the investment in a **digital sheet-fed printing machine**, Töpfer added the fourth printing process to its portfolio.. Both white paper and metallised paper in the format up to 330 x 485 mm can be printed in the CMYK colour system and also in connection with opaque white and/or varnish. For our customers, Töpfer now possesses the basis for producing also small editions and individual printing solutions economically and with a photo and colour quality which comes very close to offset printing.

The Töpfer philosophy is to regularly invest in new production plants to meet the market's quality and quantity requirements. With modern technology, we take advantage of the manufacturers' know-how to integrate the benefits of energy and material efficiency into our processes. In most cases, the effects are presented positively and transparently in the environmental performance.

A new **face cutting machine** has been ordered, for example, which will be installed at the end of 2019. A cutting machine is being operated on loan in place of the old dismantled machine temporarily until then.

A new **sleever** was put into operation in September 2019. A new **roll cutter** was also ordered in the reporting period.

Two new energy-efficient air compressors were already installed in 2018. The reduction in the electricity consumption to generate compressed air is obvious. In addition to this measure, the **level of the operating pressure** in the central ring grid was reduced. Continuing the reduction that began in 2018, the compressed air level could now be reduced by a total of 0.7 bar without endangering the stability of the supply. This corresponds to a reduction of approx. 9%.

But the environment indices that we have calculated also make clear that not everything can be influenced – for instance the weather. Although the electricity consumption dropped by 0.5% in 2018, there was an increase of 4.4% in relation to the produced quantity.

The culprit was identified as the **“summer of the century 2018”** which led to the air-conditioning and cooling water systems working flat out and therefore consuming approx. 11.8% more electricity than in 2017. The summer of 2019 also showed that the trend towards longer hot periods is continuing. Here, the company will need to investigate how to react strategically to increased energy consumption for air-conditioning and cooling.

An environmental goal stipulated in the environmental declaration of 2018 was the reduction in water consumption by replacing water fittings with rotary valve mixers by modern **single-lever mixers**. This replacement was completed partially in the reporting period. Although this action does not bring massive saving potential, it does help to demonstrate especially to our staff in their daily use that Töpfer is working step by step on improving our environmental performance.

Products:

Described as an innovation in the environmental declaration of 2018, our product **“Natureline by Töpfer”** has established itself by very exciting arguments as a real alternative to conventional label papers. Both regular and new customers are showing keen interest.

The paper of the Natureline labels is made of 100% recycling paper. It therefore originates from 100% post consumer fibres. But “Natureline by Töpfer” is more than just a label paper made of recycling fibres – special treatment in the machine and care in the printing make a label which, in terms of processability, lye resilience and brilliance, is in no way inferior to labels made from paper of fresh fibres.

Kind on resources, fully recyclable and impressively high quality, Natureline papers are the first premium solution without losses in quality, brilliance, advertising effect and processing possibilities.



In addition to the sustainable developments in the printing substrates, environmentally relevant factors in the areas of inks, varnishes and additives are also very important.

Cradle to cradle is a fundamental principle with very high demands derived from nature. It is based on closed cycles which produce no waste and preserve valuable raw materials. This means, for example, that deinking sludge would no longer be waste but a valuable nutrient if the used materials in the printing product could be put back into a biological cycle. This system completely excludes many substances in the “Banned Lists of Chemicals” among other things.

Printing inks, varnishes and printing aids contain renewable raw materials and vegetable oils, have cobalt-free recipes and meet the criterion of deinking capacity according to the test method. Specification continues

in printing and further processing. Doing without undesired substances and limiting solvent emissions are worthy of mention.

The hubergroup Deutschland GmbH with its offset colour series hubergroup Eco-Offset Ink Premium Plus is certified to the environmental label Cradle to Cradle Silver. In addition to this, Töpfer Kulmbach meets the prerequisites for printing and further processing of these components.

Staying with the subject of sustainability, one of the aims of Töpfer Kulmbach is to improve the waste load in the Packaging product group after the life cycle. By setting the goal to reduce the proportion of heavy-metal-containing high-gloss inks in packing printing and replace the demand by **environmentally friendlier, heavy-metal-free high-gloss inks**, good progress could already be recorded in the interim balance. 37% of heavy-metal-containing high-gloss inks were already replaced by heavy-metal-free inks in 2018.

Employees:

Töpfer Kulmbach has the commitment of its employees to thank for the previous successes in competition. In the company, about 270 employees ensure smooth processes in meeting the tasks. The employee base is supported by employees of a regional employee lending company depending on production load.

The reporting period also stood essentially under the motto "optimisation of the production processes". The entire subject takes place under the name "**OpEx" (Operational Excellence)**". In order to pursue continuous optimisation of all processes and systems along the production chain in this respect, the ideas and commitment of the employees were essential requirements in this light. Only this way could subject focuses be put into practice, in order to reduce equipment times and increase productivity, as well as industrial safety. Many measures were in direct harmony with the improvement of our environmental results.

Of course, this is not a concluded process. It is important to recognise and implement existing potentials continuously and specifically. For this reasons, all employees are called upon to continue to contribute actively to the **continuous improvement process CIP**.

Training is important! Especially in these times of demographic development which no company can evade – characterised by many retirements, fewer school leavers and little interest in technical careers in shift operation. It is also important for Töpfer to align itself with the future specialist needs as a long-term **training operation**. Good news is that, with the beginning of the training year 2018, almost all training posts could be filled by young, enthusiastic trainees and that all apprenticeships for the coming year have already been appointed.

In addition to the numerous marketing campaigns (e.g. perimeter advertising at the Kulmbach Ice Rink, intensification of school contacts, Girls Day etc.). Töpfer Kulmbach was also represented at the Kulmbach ABITURA and the **training fairs** in Kulmbach, Bayreuth and Hollfeld in 2019. The presentation of our training possibilities also aroused keen interest at the 2nd recruitment day at a local grammar school. The format of this event was described in detail in the environmental declaration of 2018.

By trainees for potential trainees – That is the concept with which the Töpfer trainees have designed the **Facebook presentation "Töpfer Kulmbach GmbH – Generation Next"**. This has been addressing especially young people about their choice of career with informative articles all about training at Töpfer since April 2019.

The employees also pronounced the **Safety Day 2018** to be a successful event. In addition to the general and workplace-specific tuition, lively lectures and demonstrations by internal and external specialists on profound topics of work safety, health protection and environmental protection were held in station operation.

Networks:

Impulses for economically efficient measures that can be put into practice for more efficient use of energy in the company: This target incited Töpfer to participate in the **energy efficiency network "Impuls für Bayern"** in 2017. This network, sponsored by E.ON Energie, was aligned with a multiple-year exchange of information and experience of eleven North-Bavarian companies from many different industries - supported by the technical support of the research company for energy technology, Munich, as well as by competent specialists on the respective relevant subjects.

Three network conventions were held in the reporting period. Potential for possible actions could be derived from the professional expertise but also the experiences from implemented energy efficiency measures of the host companies. Several elements have already been implemented. Further elements will be appropriately reflected in the environmental program of this and future EMAS environmental declarations. The network was concluded with the event on the 25th of July. The planned goal that all participating companies can increase their total energy efficiency by 4.0% was overachieved with 4.1% and the goal to reduce the CO₂ emissions by 4.0% over the same period of time was only marginally failed with 3.9%.

In view of the growing problems, Töpfer Kulmbach GmbH's participation in the **Environment and Energy Commission of the Chamber of Trade and Industry for Oberfranken** in Bayreuth is gaining in significance. First-hand information on current topics - for example about waste management problems due to capacity bottlenecks or the effects of climate protection on the economy of Oberfranken - provide arguments for cooperation in the creation of basic environmental and energy conditions within the existing possibilities. It also shows us that environmentally friendly production lays an important role in really sustainable management.

The environmental management system

Compliance with applicable laws and environmentally relevant legal standards:

Consistent action in the scope of statutory requirements is specified in the company's environmental policy. It is ensured that these obligations are met in all company areas.

There have not been any complaints or notes in the reporting period according to which Töpfer Kulmbach violates any statutory requirements.

The task of the environmental management system is supporting the management by targeted internal evaluation of public information sources concerning changed or new legal provisions, the relevance review and passing on of relevant information to the responsible persons.

In particular use of the internet rules of "umwelt-online" with specific adjustment of the directory set up there contributes to quick and targeted assessment of the relevance for the company in the monthly updates.

The internal legal directory with all legal provisions relevant for the company is regularly subjected to a review for whether it is still up to date and adjusted on demand. If a changed or new legal provision requires actions to be taken in the company, the requirements are determined and measures for implementation are initiated. This internal legal directory is available on the company's Intranet to everyone who is interested.

The examination of company relevant requirements from the new packing law (VerpackG) as well as the updated ordinance on firing installations (1st BImSchV / 44. BImSchV) should be mentioned here, for example, in the reporting period.

Employee involvement

For all employees to be able to meet their responsibilities in the scope of the environmental management system, they will be informed and instructed at regular intervals. This way, they can actively contribute to avoiding and reducing environmental stress. They are also asked at all times to contribute suggestions on the subject of the environment so that they proactively contribute to the continual improvement process.

Further constant process optimisations often also have an important relevance for improving the company's environmental performance. Analysis of the processes, in finding solutions to optimise and implement improvements involves employees from all corporate areas more than ever.

The necessary integration of the temporary workers into the management system's processes has become much more stable. Of course, their work must also comply with the requirements to avoid and reduce environmental stress and to improve our environmental performance. They are briefed about this when they start working for the company. However, auditing of the observation of requirements always remains highly topical. The supervisors act as decisive examples in the entire process.

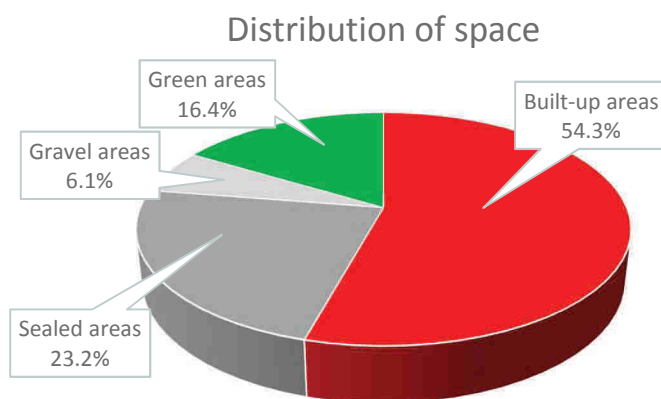
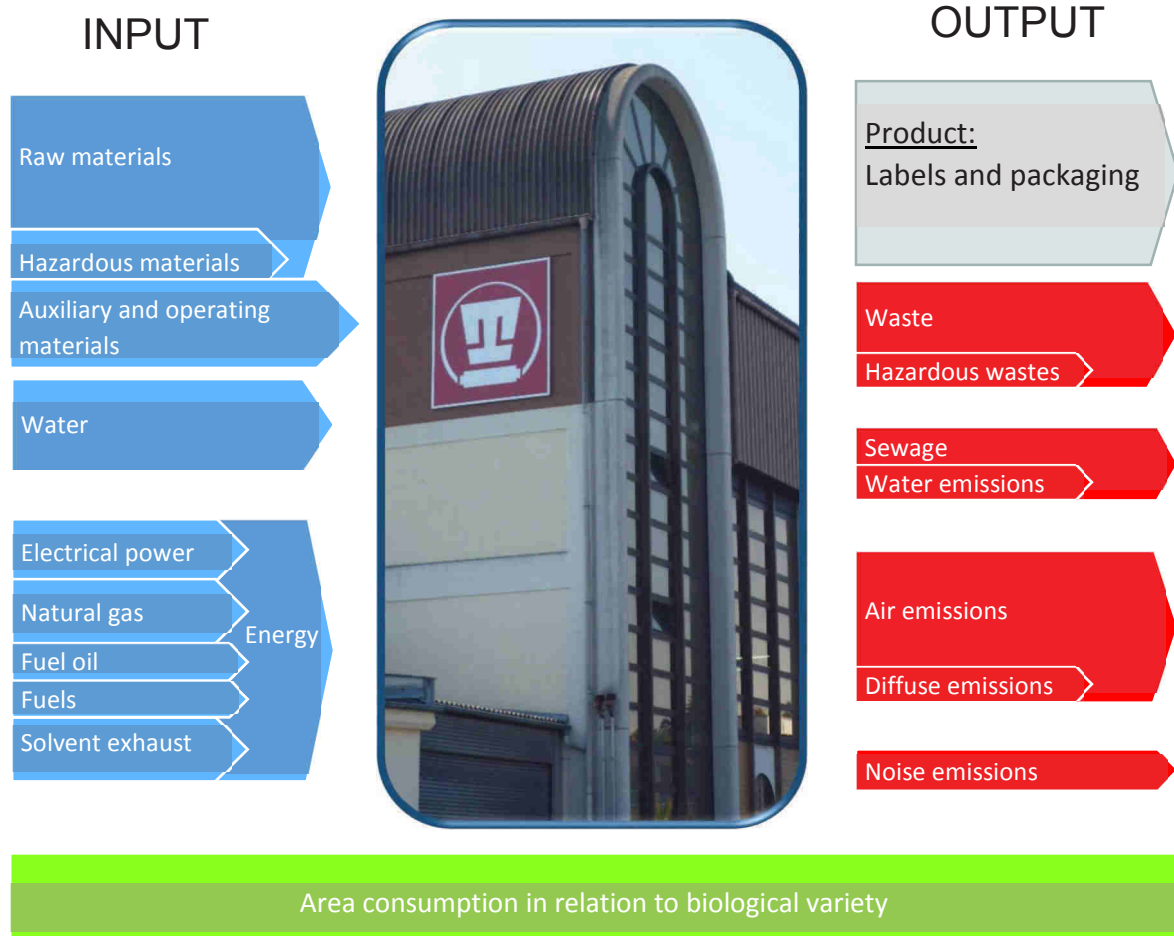
In order to actively involve the employees in EMAS and to promote communication, regular employee information concerning the environmental management system's activities appears in the "Töpfer-Info-Point" - an information platform in the intranet. Thus, the media and environmental data that is also available there and the selected subjects of the EMAS information panel are sensibly supplemented.

Internal environmental operating inspections:

Review of effectiveness and permanent improvement of the environmental management system is very important for the company in order to ensure avoidance and reduction of environmental pollution at all times. Therefore, various internal audits were performed, their results documented, evaluated and - if necessary - measures were taken to improve the situation. The audit questionnaire was restructured prior to this. Greater focus is now placed on direct and indirect environment aspects. We expect a more profound, more detailed research of the actual situation from this.

Regular factory inspections were conducted independently of scheduled internal audits. This way, it was always possible to react in a timely manner to arising problems.

Environmental performance



No construction activities in the outdoor area of the site were performed in the reporting period. For this reason, the area distribution is identical to that of the prior year.

The area consumption is therefore

Total	approx.	27,800	m ²
Sealed area	approx.	21,550	m ²
Natural area at the site:	approx.	6,250	m ²

Overview of the environmental performance

Important indicators are recorded as a basis for the documented environmental performance. The quantity flows of the environmentally relevant indicators necessary for production (input) and those caused by the company (output).

INPUT	Unit	Annual volume 2018	
MATERIAL	t	15,903.99	
Raw materials			
Printed material paper	t	13,222.86	
Printed material film	t	916.89	
Ink / varnish gravure printing and offset printing	t	817.58	
Solvent gravure printing	t	759.34	
Auxiliary and operating materials			
Plate winder	t	2.52	
Offset printing plates	t	8.48	
Printing additives offset	t	15.48	
Offset cleaner	t	14.95	
Packaging cardboard	t	142.11	
Water additives	t	3.80	
HAZARDOUS SUBSTANCES of listed material	t	1,518.68	
WATER	m³	12,791.00	
ENERGY	kWh	26,090,831	
Electrical power	kWh	7,353,669	
Natural gas	kWh	9,780,395	
Fuel oil	l kWh	1,000	10,700
Solvent exhaust	t kWh	1,195	8,946,067

OUTPUT	Unit	Annual volume 2018	
WASTE	t	3,750.53	
Production waste paper	t	3,177.78	
Production waste film	t	124.21	
Waste ink gravure printing and offset printing	t	16.79	
Production-related residual materials (packaging, etc.)	t	257.13	
Other residual materials	t	174.52	
HAZARDOUS WASTE of listed waste	t	33.11	
SEWAGE	m³	2,729.00	
EMISSIONS			
Air emissions from fuel combustion			
CO ₂ -equivalents / Scope 1-2 (calculated)	t	4,357.48	
SO ₂ -equivalents / Scope 1-2 (calculated)	t	4.64	
Dust and particles / Scope 1 (calculated)	t	0.01	
Air emissions VOC as diffuse emissions			
from gravure printing	t	36.38	
from offset printing	t	26.68	
Water emissions			
Chemical oxygen demand (COD)	t	0.55	

In order to make the indices comparable between the individual business years, the reference standard used is the produced annual volume in million square metres of printed material. Detailing – in particular in the area of material and waste - increase the quality of indices and their comparability considerably. For example, the annual volumes of printed goods were broken down by printing method and by printed material type.

Production volumes

	2016	2017	2018
Printed material, total, in M m ²	187.810	194.547	185.438

The classification of relevance took place after evaluation of the effects on the environment regarding resource consumption / volume and environmental pollution / hazard level. Evaluation of the influenceability is based on the analysis of current operational processes and the state of the art, as well as the ability of economically reasonable improvement.

Current developments can lead to more effects on the environmental indices. If an improvement was not considered in the stipulation of the "strategic environmental targets by 2020", influence that can be taken in the short term is to contribute to positive development. This is made clear with the term "operative" in the column "target" of the following overviews and explanation in the chapter "environmental program and targets".

Environmental indices

Material / raw materials:

	Unit	Volume 2016	Volume 2017	Volume 2018	Trend	Relevance	Influenceability	Target
Printed material paper	kg/M m ² Paper	83,779	86,401	83,768	⇒	high	low	
Printed material film	kg/M m ² Film	50,168	36,870	33,221	↘	high	low	
Ink / varnish gravure printing	kg/M m ² Gravure printing	5,231	4,757	4,625	↘	high	medium	✓ ¹
Ink / varnish offset printing	kg/M m ² Offset printing	3,603	3,754	3,627	⇒	medium	medium	
Solvent gravure printing	kg/M m ² Gravure printing	6,336	5,633	5,227	↘	high	low	

Not only the characteristic of the end product - for example, label papers have a lower grammage than packaging papers / the film material used for production of shrink sleeves affects the indices in the raw materials area.

The industry-related changes in our customers - e.g. development towards a high type diversity in beverages or tea flavours - directly influence the raw material use in the company. The trend towards smaller print editions that essentially influenced the number of equipment processes in particular in past years, continued considerably especially in offset label printing as well as packing and film printing in gravure printing in 2018. The required equipment raw material of printed materials and ink reduce the share of printed goods that can

be sold. It is therefore to be seen as all the more positive that the used materials in all sections were used so efficiently that an improvement in these indices was achieved. This demonstrates that implemented process optimisations are showing an effect in the order and workflow planning.

It has been evident for years that the quantities of metallised papers used are decreasing continuously. This quantity has now been halved since 2013. High-quality replacement results from combining white paper with high-brilliance metal gloss inks. The CO₂ footprint of this combination in raw material production is much lower than that of the required aluminium vaporisation of the paper.

Material / auxiliary and operating materials:

	Unit	Volume 2016	Volume 2017	Volume 2018	Trend	Relevance	Influenceability	Target
Plate winder	kg/M m ² Offset printing	65	55	63	⇒	medium	low	
Offset printing plates	kg/M m ² Offset	193	194	211	↗	medium	low	
Printing additives offset	kg/M m ² Offset printing	461	448	385	↘	medium	medium	
Offset cleaner	kg/M m ² Offset printing	485	378	372	↘	high	medium	✓ ₂
Packaging cardboard	kg/M m ² Labels	1,343	1,486	1,335	⇒	medium	low	✓ ₃
Water additives	kg/M m ² Total	17	19	20	↗	medium	low	

Material consumption of auxiliary and operating materials is also influenced by the number of equipment processes. This becomes most clear in the pre-press stage for offset printing. Around 10% more offset printing plates were made on the developer plant which is reflected in the greater quantity of plate developer. The ink and plate indices are of course article-specific and hardly influenceable.

It is therefore gratifying that equipment and cleaning processes in offset printing can be carried out more material efficiently. The new roll washing technology of both offset printing machines reduced the detergent use considerably since 2016 and has settled at a stable level.

The first use of an additional low-emission moistening agent additive noticeably reduces the amount of isopropanol and reduces the moistening agent requirement on the whole.

To explain why no gravure printing cleaners are listed: Cleaning work for set-up processes in gravure printing are carried out here with recovered solvents from distillation. The quantities are therefore proportions of the consumed quantities of solvents and gravure printing ink from the "Material/Raw Materials" section and are not considered again in the "Material/Auxiliary and Operating Materials" section.

Composition of the packaging cardboard depends strongly on the individual customer wishes for packaging and the logistic feasibility of using our recyclable packaging. Although the indices were improved again in 2018, this indicator remains subject to fluctuations and is hardly influenceable.

It is evident that the demand for water additives increases in years with a much hotter summer. This was also the case in 2018. Certain substances, such as hardness stabilisers, must be added to the required fresh water more often with higher water evaporation.

Hazardous substances:

	Unit	Volume 2016	Volume 2017	Volume 2018	Trend	Relevance	Influenceability	Target
Share of hazardous substances in material	%	10.46	9.79	9.54	↘	high	medium	✓4

Although influenced by the reduction in the production volume in gravure printing, the greater percentage reduction of the consumed volumes of gravure printing inks and solvents had a much greater effect. In gravure printing, hazardous substances in paints, varnishes, additives and pure solvents are predominant for production reasons. They therefore have a greater influence on this index. The reduction of dangerous auxiliary and operating materials also had a positive effect in offset printing.

Water:

	Unit	Volume 2016	Volume 2017	Volume 2018	Trend	Relevance	Influenceability	Target
Water	m ³ /M m ² Total	67.69	65.02	68.98	⇒	medium	low	✓5

The absolute water consumption increased in 2018 by approx. 1% in comparison with the previous year. The demand essentially results from the areas of steam generation, air humidification, cooling water generation and production. Air conditioning of the storage and production areas is a basic prerequisite for optimal printing and further processing of the printed materials. The air conditioning effort is essentially influenced by external weather and utilisation of the production capacity. Another main consumer has now been identified:

The summer of 2018 was a challenge. In the Oberfranken region, there were approx. 73% more cooling factor days in 2018 in comparison with 2017. This explains why about 10% more water was needed for recooling in cooling water production. The relative index, on the other hand, increased rather more moderately with 6%. This shows what influence the cooling water demand of our production plants has on the total water demand.

Energy:

	Unit	Volume 2016	Volume 2017	Volume 2018	Trend	Relevance	Influenceability	Target
Electrical power	kWh/M m ² Total	41,838	37,972	39,656	⇒	high	medium	✓6
Natural gas	kWh/M m ² total	60,182	57,674	52,742	↘	high	medium	✓7
Fuel oil	l/M m ² Total	37	139	5	↘	low	low	
Solvent exhaust	kg/M m ² Gravure printing	9,191	8,454	8,227	↘	medium	low	

After the lowest value since commencement of the recording for the environmental management system was achieved in 2017 for the relative index of power consumption, this value increased again for the first time by approx. 4.4%. The causes were easier to identify by the stationary energy measuring technology that is installed on our defined main consumers. It was found that around 13% more electricity is required for cooling water production and around 10% more for room air conditioning. As already in other cases: An effect of the summer of the century 2018.

In addition to a further improved reactive current compensation, the continued conversion of the present lighting to LED lighting will also have a positive effect in some areas. The measures for the production of compressed air also have an important influence. A reduction of 6.4% in comparison with the previous year was recorded.

Solvent steams from gravure printing are burned via the regenerative thermal exhaust cleaning system RTO. The waste heat use of the hot exhaust flow of solvent combustion for the heating of thermal oil, hot water, steam and warm water reduces the demand in fossil fuels considerably. However, since the combustion process must be kept up permanently to heat up thermal oil for reasons of viscosity, an insufficient solvent concentration must be compensated by use of natural gas as fuel. Nevertheless, the consumption of natural gas, above all, was reduced considerably as compared to the prior year. Reduction of the relative index was approx. 8.6%.

The common supply of building and production facilities with hot water or steam takes place through the heat exchange named. Only demand-dependent coverage of load peaks for heating of water for hot water and for steam takes place through combustion of fuel oil. It was necessary to cover the basic supply through the fuel oil burners in two situations in 2017. The repairs to the standard plants had considerable effects on consumption and index. With a fuel oil consumption of 1,000 litres in 2018 the previous status as peak load coverage has been achieved again.

The brief usage times of the fleet for internal traffic at Töpfer have made this aspect of subordinate relevance only to date. Since acquisition of the data is too time consuming in relation to the minor importance and influenceability, this index will be ignored in the future.

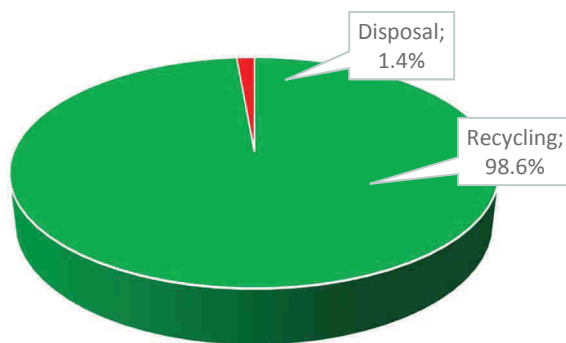
Waste:

	Unit	Volume 2016	Volume 2017	Volume 2018	Trend	Relevance	Influenceability	Target
Production waste paper	kg/M m ² Paper	22,400	20,160	20,133	↘	high	low	✓8
Production waste film	kg/M m ² Film	5,260	4,070	4,500	⇒	high	low	✓9
Old ink gravure printing / offset	kg/M m ² Total	90	60	91	⇒	high	low	✓10
Production-related residual material	kg/M m ² Total	1,390	1,250	1,387	⇒	medium	medium	✓11
Other residual materials	kg/M m ² Total	640	780	941	↗	medium	low	

Hazardous waste:

	Unit	Volume 2016	Volume 2017	Volume 2018	Trend	Relevance	Influenceability	Target
Share of hazardous wastes in the total	%	0.88	0.43	0.88	⇒	high	low	

Recycling ratio 2018



The strict separation of waste according to the principle of avoidance before recycling before disposal was effectively performed. Raw materials could be recycled sorted this way. Wastes that had to be disposed of were kept separated so that no increased danger from mixed-in materials resulted, in particular in hazardous wastes. Only waste for which no more effective disposal option is available was disposed of as commercial domestic waste. This is also reflected by the almost constant recycling ratio of 98.6% of the total waste volume.

For production-related reasons, paper waste forms the main share of our wastes. Waste will occur automatically depending on product type - more waste for punched labels / very little for cut labels and packaging. Several years in sequence, the absolute waste volumes for paper could be reduced. There was a clear reduction by 5.3% as compared to the prior year in 2018. The reduction of the index in relation to the production volume is much less at 0.2%. This is mostly due to the quantity distribution among the product types. The greatest growth in orders resulted in the packaging segment. Increased set-up processes led to more set-up material which had to be disposed of.

A similar development was seen in the film waste. A very clear increase of the processed orders is facing a relatively small increase of the waste volumes for disposal.

Both figures demonstrate that a pleasing careful handling of materials has been achieved despite a considerable increase in processed small orders.

The year 2018 was also characterised by numerous ink and varnish tests to be able to offer an optimum solution for special customer requirements and market trends. The provided inks and varnishes that did not meet maximum requirements had to be disposed of. The advantages of consistent ink management which had led to constant improvement in the environmental performance in recent years, did not show up sufficiently in the indices for 2018.

Mainly additional solvent-containing ink waste from gravure printing contributed to an increase in the proportion of hazardous waste of the total waste quantity in 2018 in comparison with the previous year. But irregular disposal intervals also have a strong influence on this index. Where, before buying the new developer plant, the used offset plate developer had to be disposed of more often, it now takes much longer to reach the disposal quantity level due to the improved efficiency of the developer. None of this waste was disposed of in 2017 – but it was in 2018. This influences the index.

Among residual materials from outside of production is an increase of the annual disposal volumes by approx. 22 tons to be found. Here, the cause can be found, among others, in a completed warehouse cleaning and clear-ups. Comparison to the prior years is hardly practical here due to the variability of disposal over time.

Sewage:

	Unit	Volume 2016	Volume 2017	Volume 2018	Trend	Relevance	Influenceability	Target
Sewage	m³/M m² Total	14.02	14.98	14.72	⇒	low	low	

The calculated volume of sewage introduction into the public sewers dropped by approx. 6.3%. This has a direct effect on the relative index with a reduction of approx. 1.7%.

Actual sewage and, as a result, effects on the environment do not. For example, the water consumption is specified as moistening agent of the offset printing machines. Although no sewage returns from this process (the moistening agent evaporates by oxidative drying), the quantity is calculated via sewage.

Emissions:

	Unit	Volume 2016	Volume 2017	Volume 2018	Trend	Relevance	Influenceability	Target
<i>Air emissions from fuel combustion</i>								
CO ₂ -equivalent (Scope 1 + 2)	t/M. m² Total	40.36	25.53	23.50	↘	high	medium	✓ ¹²
SO ₂ -equivalent (Scope 1 + 2)	t/M. m² Total	0.03	0.03	0.03	⇒	medium	medium	
Dust and particles	t/M. m² Total	< 0.01	< 0.01	< 0.01	⇒	low	medium	
<i>Air emissions VOC as diffuse emissions</i>								
Share of emissions in the solvent use TD	%	4.74	5.01	2.81	↘	low	low	
Share of emissions in the solvent use OD	%	91.20	98.03	97.84	⇒	medium	medium	✓ (operative)
<i>Water emissions</i>								
COD, BSB, ammonium-nitrogen, phosphor	t/M. m² Total	0.01	0.01	0.01	⇒	low	low	

Energy carrier combustion considers emissions that come from the energy conversion of natural gas, fuel oil, and solvent exhaust.

The emissions from fuels in internal traffic and business travel with different means of transport are, for the first time, no longer evaluated with this environmental declaration. The mentioned emissions sources only accounted for 1.75% of the total emission volume in 2017. It has been shown that the time-consuming acquisition of the data stands in no justifiable relation to the emission volume and reasonable influenceability of the causers. The tabular evaluations of the previous years have been updated accordingly.

We will still do our best to ensure that emissions in this segment are kept to a minimum in the future. This particularly concerns business trips where the means of transport plays an important role.

The power supply company supplying Töpfer Kulmbach GmbH with power only indicates its CO₂ emissions. Since Töpfer Kulmbach has verifiably been purchasing power made from wind, water, solar power or biomass, CO₂ emissions are avoided entirely since early 2017. Töpfer thus makes a considerable contribution to avoiding air pollutants. This becomes particularly clear in the development of the indices.

Consumption of all fuels could be reduced in 2018. CO₂ emissions for the goods produced thus could be reduced by 8%.

Extraction of the gravure printing solvent vapours at the site of occurrence, the very high efficiency of the exhaust cleaning system and a considerable reduction in the escape of freed VOC continues to keep the share of diffuse emissions in the area low.

All in all, the consumed amounts of solvents with volatile organic carbon compounds in offset printing are low (only 2.0% of the volume consumed in gravure printing in 2018). The high percentage share of diffuse air emissions in solvent use in offset printing of 97.84% must therefore be viewed in a differentiated manner: Fewer released solvent steams are captured in offset printing. There is no technical extraction directly at the source of occurrence on the roll cleaning, sheet drying etc. Binding is affected by absorbing the solvents in cleaning rags and wiping fleeces. A large proportion is released into the environment again by evaporation especially with the fleeces of the roll washing plant. Isopropanol as a moistening agent additive evaporates 100% by oxidative drying.

The use of materials with a low VOC percentage is still the aim of our efforts.

The used volume of offset cleaners remained constant in 2018 in comparison with the previous year - with an increase in the production volume. This led to a slight reduction of the emissions there in the assessment.

Töpfer has remained clearly below the emission limit of 1100 mg per litre at most for chemical oxygen demand in sewage for years.

Environmental program and targets

In the environmental program of the published, past environmental declarations, future targets were defined. Evaluation of the degree of performance of these targets takes place in the following overview.

In order to achieve the desired strategic targets that are to be implemented by 2020, the targets for the period from 2017 to 2020 are expanded by new measures that can be achieved.

Changed market conditions, many different new requirements for materials and products, the feasibility of implementation of planned measures in terms of time and economic aspects, etc., essentially influence the achievement of strategic environmental targets. This is made clear by reconciliation of the current indices of our environmental performance with the intended targets that were recorded in 2015. Four years after the first specification, we are on a good path. Targets achieved must be stabilised. We will objectively assess development over the next few years and consider it in time. Where adjustments may be necessary, we will give factual reasons for these.

Töpfer not only looks at direct environmental aspects that can be influenced by its own actions. Indirect influences that already arise in production of the materials we need from suppliers or aspects that are relevant for the environment in the use and disposal of our products by customers are included in the considerations as well.

We still see potential for increasing energy efficiency, reducing fuel consumptions and saving water. Since Töpfer is a company that uses considerable amounts of hazardous substances for production-related reasons, this is also where we put our efforts to reduce volumes and dangers.

Measures for the years of 2017 – 2020

No.	Environmental target	Expected use	Measure	Status of implementation	Start	End	Refers to target
1	Reduction of the fuel demand for electricity	Reduction of the electricity demand for transport of thermal oil by 30% as compared to 2016	Removal of the conveyor pumps of the thermal oil system for line strands no longer in use	Implementation in the stage of planning and fine tuning of detailed questions. Will not be implementable in 2019. Therefore: The end date had to be extended. Target achievement still uncertain!	03/2017	12/2020	✓ ₆
2	Reduction of the fuel demand in natural gas	Reduction of the natural gas demand per operating hour of the burner for heating thermal oil by 5% in comparison to 2016	Removal of line strands no longer needed / shortening of the thermal oil line system	Implementation in the stage of planning and fine tuning of detailed questions. Will not be implementable in 2019. Therefore: The end date had to be extended. Target achievement still uncertain!	03/2017	12/2020	✓ ₇
3	Reduction of diffuse emissions in offset printing	Reduction of the share of diffuse air emissions of VOC in solvent use in offset printing by 15% in comparison to 2016	Partial replacement of isopropanol as moistening agent additive by additions with VOC shares	VOC-free additive has partially replaced isopropanol since 03/2018. Proportion of diffuse air emissions created by addition of moistening agent could be reduced by 16.2%. Environmental target achieved!	10/2017	05/2018	✓ (operative)
4	Reduction of the hazardous substance share in material use	Reduction of the hazardous substance share in offset cleaners by 40% in comparison to 2016	Partial to complete replacement of dangerous offset cleaners by cleaners with harmless contents	Testing of cleaners negative so far because drying is still insufficient. Further tests. The end date had to be extended. Target achievement still uncertain!	03/2018	12/2020	✓ ₄
5	Reduction of the fuel demand	Reduction of the power demand for production of compressed air by 5% as compared to 2016	Reduction of compressed air loss by leakage management and repair of leaks	Electricity consumption reduced by 12%. However, the action leading to this is not exactly identifiable (new compressors, compressed air level, leakage repair?) > New target Environmental target achieved!	01/2018	12/2018	✓ ₆
6	Reduction of waste load at disposal	Reduction of the share of heavy-metal-containing high-gloss inks in packing printing by 40% in reference to 2017	Replacement of heavy-metal-containing high-gloss inks by heavy-metal-free ones in packaging printing	Heavy-metal-free high-gloss inks used increasingly - with simultaneous reduction of heavy-metal-containing inks. Target achievement still uncertain!	10/2018	12/2019	General indirect environmental aspect
7	Reduction of the fuel demand	Reduction of the electricity demand for production of compressed air by 7% as compared to 2017	Reduction of the pressure level at the compressed air compressors	The compressed air level was reduced from about 8.0 bar to 7.3 bar in the previous time period. Target achievement still uncertain!	10/2018	12/2019	✓ ₆

No.	Environmental target	Expected use	Measure	Status of implementation	Start	End	Refers to target
8	Reduction of the water consumption	8% water saved in sanitary areas for 2017	Exchange of water fittings with mix by dial valves for modern single-lever mixing taps	Implemented in various places. Other places to follow. Target achievement still uncertain!	03/2019	12/2019	✓ ₅
9 NEW	Reduction of the fuel demand	Reduction of the power demand for production of compressed air by 5% as compared to 2018	Reduction of compressed air loss by leakage management and repair of leaks	Employees who regularly search for leaks are appointed. Possible repairs are initiated promptly.	10/2019	12/2020	✓ ₆
10 NEW	Conservation of natural resources	Consumption of fresh fibres for paper production reduced by 10% in comparison with 2018	Conventional label papers without a recycling paper percentage are replaced by Natureline paper from 100% recycling fibres	First orders on Natureline successfully placed with several customers. Advertising campaign to win further customers (also in connection with cradle-to-cradle ink system)	08/2019	12/2020	General indirect environmental aspect

Declaration of validity

DECLARATION OF THE ENVIRONMENTAL EXPERT ON THE INSPECTION AND VALIDATION WORK

The next consolidated environmental declaration will be submitted for validation no later than December 2021.

The next updated environmental declaration will be submitted to the environmental expert for validation no later than December 2020.

Environmental expert / environmental expert organisation

The following environmental expert / environmental expert organisation was contracted:

Dr.-Ing. R. Beer (license no. DE-V-0007)
Intechnica Cert GmbH (licence no. DE-V-0279)
Ostendstraße 181
D-90482 Nuremberg

Confirmation of validation

The undersigned, Dr.-Ing. Reiner Beer, EMAS environmental expert with registration number DE-V-0007, accredited or licensed for area 18.12 (NACE-code Rev. 2) confirms to have assessed whether the site as named in the updated environmental declaration of the organisation

Töpfer Kulmbach GmbH
Am Kreuzstein 5
D-95326 Kulmbach

with the registration number DE-106-00059 meets all requirements of the regulation (EC) no. 1221/2009 of the European parliament and the council from 25th of November 2009 and change VO 2017/1505 from 28.08.2017 and 2018/2026 from 19.12.2018 on the voluntary participation of organisations in a common system for environmental management and environmental audit of operations (EMAS).

The signature under this declaration confirms that

- the inspection and validation were performed in full correspondence with the requirements of the regulation (EC) no. 1221/2009 and change VO (EU) 2017/1505 and 2018/2026,
- the result of the inspection and validation confirms that there is no proof for non-compliance with the applicable environmental provisions,
- the data and information of the updated environmental declaration of the site provides a reliable, credible and true image of all activities of the site within the area indicated in the environmental declaration.

Nuremberg, this day of *8.11.2019*



Dr.-Ing. Reiner Beer
Environmental expert

Glossary

Reactive current compensation	Static system of permanently installed and automatically activated capacitors which absorb and almost completely compensate the undesirable portion of electrical energy which is not transformed into useful energy but leads to the build-up of electromagnetic and electrical fields.
CMYK colour model	Subtractive colour model. Technical basis and therefore standard model for modern four-colour printing. The letters stand for the basic colours Cyan, Magenta, Yellow and Key (Black).
Cradle to Cradle	Principle with the solution for a continuous and consistent recycling management in the sense of "from the cradle to the cradle". "Cradle-to-cradle products" are therefore those which are either fed back into biological cycles as biological nutrients or can be held continuously in technical cycles as "technical nutrients".
FIMO	Fit. Innovative. Modern. Proactive - The future concept of Töpfer Kulmbach GmbH for strategic realignment with the focuses on process optimisations, further investments and increase of marketing and sales activities.
Deinking	Removal of printing ink from printed waste paper. Printed products are considered verifiably deinking-capable if they meet the references of the "Deinkability score card" after application of the INGEDE test methods.
Printing viscosity	Toughness of printing inks. The higher the viscosity, the thicker the ink. In gravure printing, viscosity of the delivered, already-thickened ink is optimised by adding solvent. This is important for best printing results.
Diffuse emissions	Volatile organic compounds released by evaporation of liquids that are not collected and that will be emitted to the environment without defined exhaust volume flows.
CO ₂ -equivalent	Substances with greenhouse gas potential. Töpfer evaluates CO ₂ , CO, methane and volatile organic compounds without methane for this (NMVOC).
COD	Chemical oxygen demand - indicator and sum parameter for quantification of the pollution of sewage with organic substances.
EMAS III	Eco-Management and Audit Scheme – Voluntarily instrument of the European Union that supports companies and organisations of all sizes and industries in improving their environmental performance continually.
EPR	Extended producer responsibility. Political solution by which manufacturers are made responsible for the management costs of their products at the end of their life cycle. The financial incentive is in developing products for re-use, reusability and material reduction which minimise waste disposal costs and contain safe materials. Products should be designed to last longer.
Healthy Printing	Initiative of the EPEA to improve the safety of foodstuffs and reduce recycling costs. The aim is to increase the availability of healthy ingredients in printed packages and to optimise printed paper as an economical resource for recycling and composting.
Cooling factor days	Annual total of temperature differences between the daily average outside air temperature and the basic value of the outside air temperature for cooling days. A cooling day is a day on which the average daily temperature exceeds 18.3 °C.

MIC®-Gold / MIC®-Silver	High-brilliance, heavy-metal-free metallic inks in gravure printing to reinforce the refined impression of labels for sales-promoting effects. Considerably reduces stress on the environment.
RTO	Regenerative thermal oxidation system for exhaust cleaning. Stores the thermal energy of the combustion process in ceramic materials of the combustion chambers and emits them again to the exhaust to be cleaned. Thus, the combustion process can be continued without use of other fuels with sufficient energy.
Natureline by Töpfer	Sustainable labels and packaging. The first premium solution without losses in quality, brilliance, advertising effect and processing possibilities. Printed on paper made of 100% recycling fibres. Manufactured using a cradle-to-cradle silver certified printing ink system. Produced with electricity from 100% renewable energies. Exclusively from the only provider of labels and packaging's in the Healthy Printing Association.
Safety Day	Campaign day for legally required employee instructions for general operational and workplace-specific subjects such as safety and health, supported by annually changing lectures and practical demonstrations by external technical competences.
Shrink Sleeves	All-round labels printed on a film type with optimised thermal shrinking properties. The film is glued into a hose, separated above the bottle and applied true to shape by the heat.
SO2-equivalents	Air pollutants that may, among others, be the cause for acid rain. Töpfer evaluates sulphur dioxide, nitrous oxides and ammoniac.
VOC	Volatile organic compounds – carbon-containing substances that evaporate easily and that are gaseous even at low temperature.

Imprint

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