

Printing inks and coatings with heart & soul





Printing inks and coatings – and much, much more

Welcome to Siegwerk

You know us. Every day you encounter Siegwerk printing inks and coatings at newsstands and gas stations, in supermarkets and department stores. In fact, everywhere you see printed products such as yogurt containers, beverage bottles, soup sachets, glossy magazines, paper cups and cigarette packs appealing to consumers.

With more than 5,000 employees worldwide, Siegwerk is one of the market leaders for high-quality printing inks and coatings for packagings and publications. In this brochure, you will learn more about our competitive products, reliable solutions and individual services, which often go beyond the printing ink and coating itself.

See how we developed from a "calico factory," a textile printing shop, to an internationally successful printing ink

and coating manufacturer with innovative, sustainable and circular packaging solutions. Although we have constantly been adapting to our changing world, the proven values of a family business have stayed with us: independent and target focused, flexible and competent, committed and reliable. The company shares are in the hands of the sixth generation of the same family of owners with Alfred Keller as the current chairman of the supervisory board. This guarantees a business policy which is both innovative and sustainable.

People have been and will always be the focus of our company. In the field of consulting and production, application engineering and supply – the "Siegwerkers," as the employees like to call themselves, work with passion on behalf of our customers. You will read more about what makes a Siegwerker later on.

Siegwerk designs, develops and produces customized printing inks, coatings and primers.

Together with our customers, we optimize the structure, functionality and cost-effectiveness of their print jobs. And we help design solutions for the circular economy.

MILESTONES IN THE SIEGWERK CORPORATE HISTORY

Market leader out of tradition



Rolffs' calico printing works is relocated to today's company headquarters in Siegburg.

1844

Establishment of "Siegwerk Chemisches Laboratorium GmbH ("chemical laboratory company").



Production resumed.
As well as printing inks, products also include glazier's putty, roof paint, corrosion protection, adhesives and nail varnish.

1953

Foundation of the manufactured goods business "Rolffs & Poensgen" in Cologne. Development of a modern laboratory for the production of inks based on chemical syntheses which are suitable for copper rotary printing.

1844

First printing inks exported to Europe, North Africa, South America and the USA.

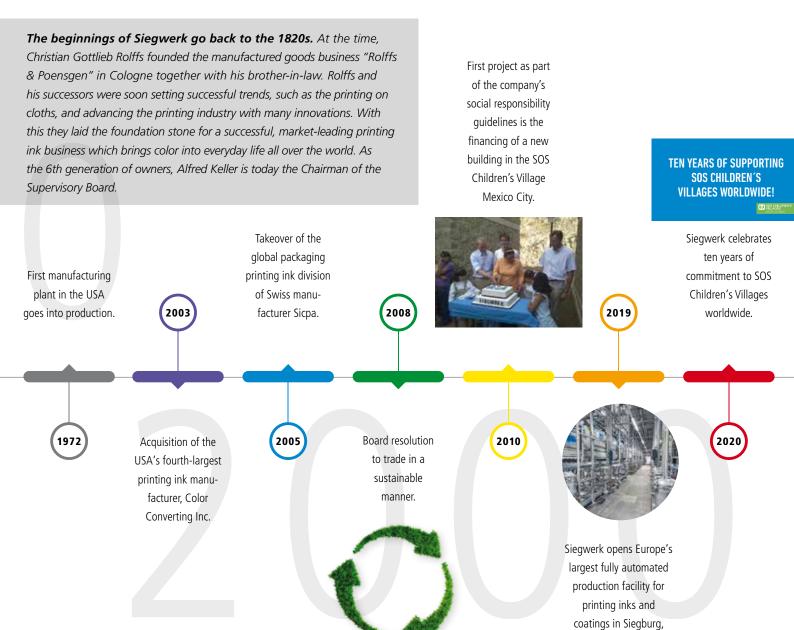
1920





Supply of printing inks for the first colored glossy magazines. At the end of the decade, Siegwerk is the largest manufacturer of gravure inks in Germany.

If you would like to see more milestones please visit our homepage https://www.siegwerk.com/en/company/history.html



Germany.

What makes a "Siegwerker"?

People in focus

Our corporate culture has evolved over generations. It has been molded and driven by our employees, which is why new colleagues should be able to easily identify with our values.

A "Siegwerker" lives and breathes our values. This in turn creates the special "Siegwerk Spirit" we see at work every day.

Siegwerk is a dynamic global company that is run by the sixth generation of the same family. Our corporate philosophy aims at remaining independent and autonomous over the long term. All employees share this aim and work consistently towards the same goal.

This requires a good deal of commitment and motivation, but also resilience and a down-to-earth attitude. A "Siegwerker" works on solutions within a team and is always loyal and reliable. Our tone always remains friendly and respectful, and we remain resolute in our aims.

We are near to our customers all over the world and offer them excellent, forward-looking solutions. We want our business relationships to become long-term partnerships with benefits to both sides – and we are searching for colleagues who can help us achieve that.

Motivation and commitment of each and every "Siegwerker" form the basis of our international growth, whilst knowledge exchange beyond all borders ensures that all international customers can profit from our expertise. We work as a global team, and our business as well as our clients benefit as a result.







They are valuable to us

We invest in our employees

Siegwerk has all of the advantages of a genuine market leader: an international set-up, professionally managed with a long term strategic mindset. Nevertheless, despite the fact we are a global player, we are not an anonymous group of companies. As a family business, Siegwerk is characterized by a strong sense of togetherness. Our goal-oriented teams are formed from skilled individuals, working as part of a close-knit, global team. Short decision-making channels and a strong corporate culture with a strong sense of responsibility shape our daily lives.

Our 5,000 employees work in over 30 countries – ideal conditions for gaining and developing international experience. Foreign assignments, job rotation and career planning are essential components of our ongoing development plans.

A "Siegwerker" always has the freedom to adapt their work to their individual situation. In regular individual feedback and development discussions, the aims of the company and the employee are discussed and balanced. Then, we do our absolute best to care for all individual needs and wants – whether that's advanced training courses, specific target agreements, international secondments or more.

We offer excellence programs which are used both as a platform for advanced training courses and for international exchanges. In addition to individual advancement, our employees also have a structured range of further training opportunities at their disposal.

We offer all of these measures with the firm belief that investments in people are the best investments we can make.

Current vacancies can be found in our careers website at www.siegwerk. com/careers. We encourage you to explore and find out more!

You can rely on Siegwerk

Close to our customers and with top products around the world

Siegwerk builds on a modular production network in order to provide its business partners with what they most urgently need: high-performance printing coatings. The basic inks and coatings are therefore produced at our parent plants, the "Centers of Excellence."

"Blending Centers" at more than 50 foreign subsidiaries around the globe ensure that our products are then matched to individual customer requirements. Deliveries are made promptly, precisely when the inks are needed: "just-in-time" – and with the desired performance.

Printing ink and coating solutions from Siegwerk are as unique as our customers. Colors here are not "off the shelf," but out of the technology lab.



Close to the customer, worldwide

Quality and service add up

Thanks to our international production and service network, Siegwerk has a global presence. Our products and solutions, consulting and support services are available worldwide.

Experienced and highly qualified employees assist customers in developing new products, and provide support with their production processes on-site at packaging and publication printing plants.

The use of defined base colors and intermediate materials guarantees consistent product quality; a fact valued by international customers and business partners, because they depend on getting their printed or packaged products to their consumers around the world in a uniform quality and visual appearance.



Process Management and Consulting (PMC) – individual and tailor-made services

Reaching the best solutions together

Did you know that we are more than an ink and coating producer?

Siegwerk offers a broad range of additional services in order to meet our customers' requirements: we summarize these additional services under the roof of PMC.

PMC stands for Process Management and Consulting. Our goal is to increase transparency, improve productivity and thereby contribute to the sustainable company development of our customers. Together with them, we analyze and optimize the production process, determine potential savings and motivate and train staff

We also support color and ink management as well as the print set-up and finishing processes. Within our PMC organization we handle three pillars of our customer service solutions:

- · Colorwerk our Color Management Program
- On-Site Consulting our service where we collaborate with our customers on site to improve processes in their value chain
- InHouse our service where we manage the ink room of our customers



- Ink Development & Performance Optimization
- · Ink Portfolio Simplification
- · Packaging Development Support
- · Ink & Solution Trainings
- On-press Support
- Color Management & Colorimetric Support



Consulting & InHouse:

- · On-Site Consulting
- · InHouse
- · Benchmarking
- · Workshops & Trainings



& Regulations:

- Quality Assurance & Testing Capabilities
- · Product Safety & Regulatory Support
- **Product Safety Trainings**



How we support and what we achieve joining forces with our customers

Our customers are often fully occupied in their day-to-day business. Their responsibility is focused on getting customer orders done right on time and with highest quality. It is exactly this daily operation where untapped potential for improvement lies.

Here, our On-Site Consulting experts can deliver an outside view and objective input, helping customers to overcome any subjective viewpoints and identify valuable improvement potentials. Therefore, the mutual exchange with customers' experts is key for us to successfully realize any kind of improvement project. When looking at ink rooms you will also find high potential for

improvements: There are ways to further increase efficiency in almost every ink room.

Our consultants can either advise customers how to exploit untapped potential and improve the efficiency of their ink rooms or our InHouse teams can support and assist in ink room management to ensure the ink room is well-managed and therefore effectively organized.

In order to achieve sustainable changes and results, we conduct consulting workshops and training courses accordingly.

We assist you in making a good thing even better

Customized training for your staff

Within PMC but also beyond, sharing expertise and knowledge is very important to ultimately produce excellent printing results – that is our philosophy. That's why we provide on-press training for our customers' employees. That includes knowledge transfer about the materials

used in the packaging production process – inks and coatings, adhesives and substrates. Apart from that we train our customers' employees in color management and colorimetry. Last but not least product safety plays a key role in food or pharmaceutical packaging. We train customers

specifically to match requirements and packaging products in this area as well.

We are also happy to visit your site, because an on-press workshop enables plenty of questions to be answered and processes to be improved.



We assume responsibility for safe products

On the safe side with Siegwerk

When it comes to product safety, our customers can count on Siegwerk as a reliable partner. We place great value on the highest safety standards and environmental protection. The safe use of our printing inks and coatings and safe end products on the supermarket shelves have top priority for us.

Siegwerk offers suitable inks and coatings for many applications, especially for the sensitive segment of food packaging. Printing inks and coatings for food packaging must fulfill several legal requirements and a safety evaluation for migrants.

Located in a "sandwich position" of the packaging chain, the printer and converter has to deal with a multitude of aspects and parameters, whilst converting the various material streams (e.g. substrates, inks, coatings, adhesives) into the readymade printed packaging.

It is due to this multitude of parameters, all of which have an influence on the product safety profile in addition to the legal and brand owner compliance status of the final food packaging.

Expert knowledge as well as open and transparent information are key in order to produce a high quality, fully compliant and fit for its purpose printed food packaging.

Global Product Safety and Regulatory (PSR) + Sustainability stands for a high level of expertise, full transparency and professional support on questions around product safety.

Our guidance and support for our customers include:

- · Strict raw material selection process in order to avoid unwanted substances of concern
- · Risk Assessments for Non Intentionally Added Substances (NIAS)
- Pro-active distribution of Statements of Composition (SoCs) for food packaging inks which enables customers to perform a Declaration of Compliance (DoC)
- · Offering trainings and workshops and managing the content of the lnk Safety Portal which is an online platform to share and spread our PSR know-how along the packaging chain.

Siegwerk provides numerous important and informative documents ready to download from www.siegwerk.com, such as brochures, newsletters and information leaflets on product safety – everything at a glance. Are you interested in more technical details please register for our INK SAFETY PORTAL https://ink-safety-portal.siegwerk.com/

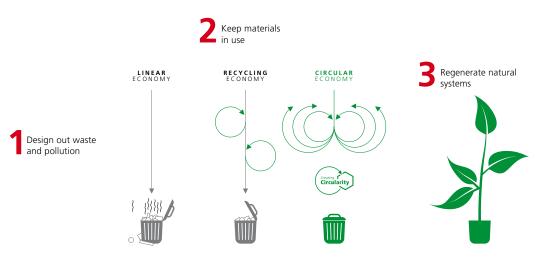
The needs of future generations in mind

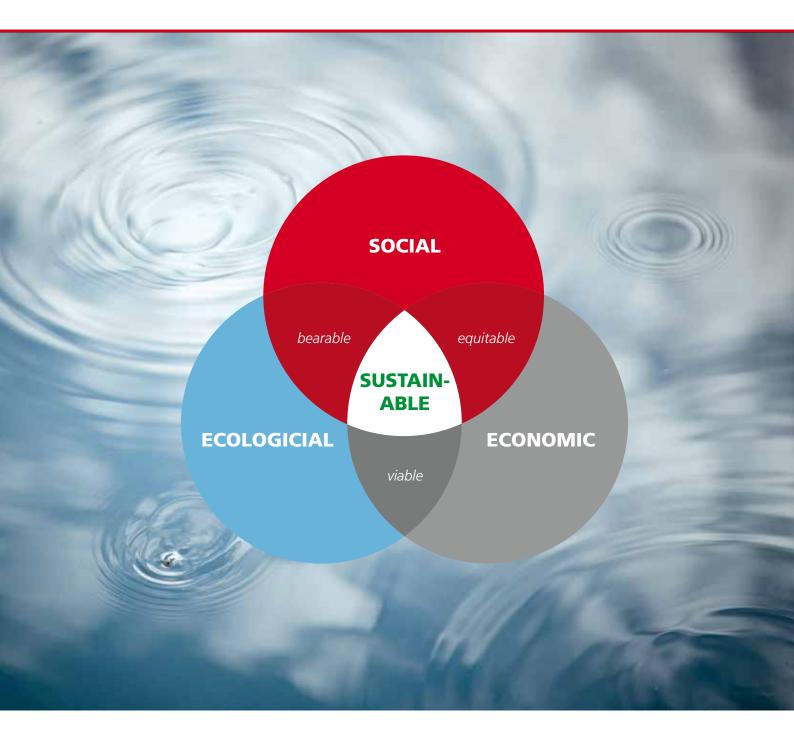
A failing linear system

At Siegwerk we believe that a world without packaging is not possible. Packaging is an integral part of our modern way of life. It provides safe water and food and keeps medical and hygiene products sterile, for example. While each packaging substrate has its advantages, plastic has become the most popular packaging material: it provides highest functionality at lowest production costs. In addition, it is lightweight and durable. Although, paper, glass and aluminum also have their advantages as packaging substrates, plastic has become the most popular packaging material due to its high functionality and its comparatively low production costs.

However, plastic packaging also comes with challenges as it enters a failing system. Our linear economy follows the principle "take-make-use-dispose." This results in losing about 90 percent of plastic after a single use, as only 10 percent of the world's plastic packaging has been recycled. And even more serious: Around 30 percent (>50m tons) of the annual plastic packaging waste is not formally disposed of, but leaks into the environment.

3 PRINCIPLES OF A CIRCULAR ECONOMY





Welcome to a Circular Economy

The linear system of "taking, making, using and disposing" has no future. It rather puts a risk on our environment and has negative economic consequences. That is why our approach is not only about improving existing packaging solutions but to transfer packaging to a new way of management. Away from a linear towards a circular model, that decouples economic development from using finite resources, allowing for wellbeing while respecting the natural boundaries of our planet. We see the Circular Economy as the solution to the growing packaging waste problem because it allows

to combine economic development with the protection of

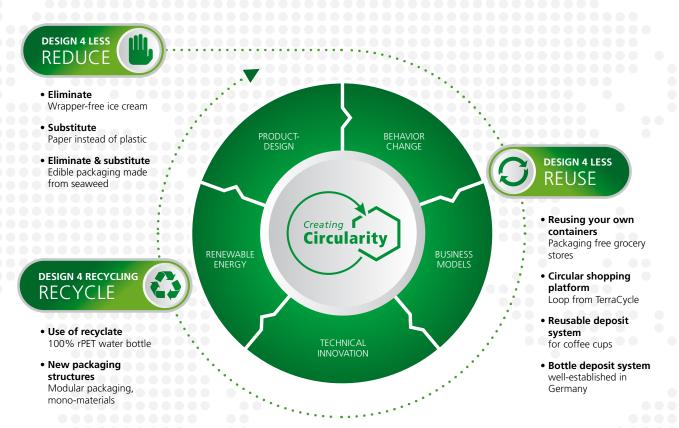
By moving from a linear to a circular model, the amount of resources entering the system is limited, their utilization along the value chain is maximized and the generation of waste is stopped. We achieve this by reducing waste and pollution when taking, making or using materials and products, keeping materials in use and regenerating natural systems.

Let's rethink packaging for a Circular Economy

At Siegwerk, we care for our environment and take responsibility for our planet. Thus, we want to become a true circular solutions company by enabling circular packaging through our ink and coating solutions, but also venture beyond our traditional business model. This creates eminent value for our customers, puts new packaging solutions on the market that drive the circular transformation, and ultimately reduces the waste we create today.

For the packaging industry, there are basically three pillars to build a Circular Economy: reduce, reuse and recycle packaging. Reducing means that the amount of resources, and in particular finite resources, entering the cycle is being reduced by waiving unnecessary packaging parts, like e.g. overpacks solely for marketing purposes, or substituting oil-based plastic through renewable resources, such as paper. Reusing means that all packaging entering the cycle is being used multiple times before disposal in order to utilize the resources to the fullest maximum of all used resources. Recycling means that packaging waste is converted into reusable material through respective sorting and recycling technologies (mechanical and chemical). In a Circular Economy, recycling is the only acceptable scenario for disposal, even though the need for any disposal should be prevented in the first place.

RETHINK PACKAGING FOR A CIRCULAR ECONOMY





Siegwerk's circular solutions

Inks and coatings play an important enabling role for the realization of circular packaging solutions. They may support the reduction, reuse and recycling of packaging. That's why Siegwerk is actively driving the formulation of inks and coatings concretely addressing the needs of circular packaging solutions.

Today, we have a strong track record in customer-specific ink development projects for circular packaging solutions that – among others – increase recyclability, enable composting, and support packaging based on renewable materials. Our circular solutions are flexible regarding substrates, printing technologies and ink systems. Here are a few examples:

- Inks, Over Print Varnishes (OPV) and barrier coatings enabling packaging designed for the paper recycling stream
- Inks, OPVs and barrier coatings equipping paper with highest functionality, including hot and cold sealing solutions, mechanical and chemical resistance properties
- Inks and OPVs providing flexibility and scalability for re-use models, including digital printing for last mile customization etc.
- Inks, OPVs and barrier coatings with a high and transparent bio-renewable content, examples include Nitrocellulose (NC), UV and water-based inks, reaching up to 80% renewable content
- Inks and coatings for recyclable polyolefins and polypropylene (PE and PP), examples include ink systems for lamination and surface print etc.

- Barrier coatings for plastic film for a high level of protection of packaged good, examples include oxygen barriers etc.
- Inks and OPVs certified for Cradle2Cradle, examples include Material Health Certificate Gold for UV-offset inks
- Inks and primers for easy de-inking in line with set process standards, examples include the Association of Plastic Recyclers (APR) accredited alkali strippable primer (water-based primer, UV ink) for PET shrink sleeves
- Inks and OPVs not interfering with compostability of paper or compostable plastic packaging, examples include ink series fulfilling guideline of EN 13432, OK Compost Home

We are constantly working on new sustainable ink technologies and functional formulations to further expand our circular solution offerings and enable new circular packaging applications. Thereby, all inks and coatings are designed to meet your individual requirements unleashing packaging's full potential and enabling its use in a Circular Economy.

In order to drive the concept of the Circular Economy forward, we are also an active member of leading initiatives such as CEFLEX, APR, Plastics Recyclers Europe, RecyClass, the European Plastics Pact and more. And we rethink our own operations and business, creating more circular productions and offices and developing new circular business branches beyond inks. To find out more about our memberships and partnerships, please have a look at our website https://www.siegwerk.com/en/circular-economy/our-partnerships.html

We place emphasis on responsibility

Initially at headquarters, today worldwide

We care! In everything we do, we keep an eye on our employees, their families, and on the environment – by ensuring occupational and product health and safety. Responsibility is part of our DNA. As early as 1843, our founders established Siegwerk's own company health

insurance, later supplemented by a disability, widows and orphans fund. In the 1850s, Siegwerk was one of the first companies in Germany to provide a factory canteen. And because we want to be a good neighbor, we have vastly extended our social commitment beyond our factory gates.

Lighthouse projects for the future of children

Since children are our future, our social activities are focused on the support, training and development of children and young adults. Once a year, Siegwerk donates 100,000 euros to a social project near one of our facilities worldwide. We call them "lighthouse projects" because we don't just hand

over a check but involve our employees in the long term to guarantee a deep commitment. For this, our long-time partner "SOS Children's Villages worldwide" awarded us the SOS Children's Village Cup three times.

Examples of our lighthouse projects:

- Mexico, 2010: Construction of a new house for eight children and their SOS mothers
- India, 2011: Siegwerkers equip a school for healthcare screenings, renovate classrooms and volunteer to give lessons and help with technical support
- Philippines, 2012: Construction of training center for SOS mothers
- Brazil, 2013: Maintenance of children's village, where they can live self-determined and learn
- Vietnam, 2014: Support for Hermann
 Gmeiner school in SOS Children's Village at

Ben Tre. Siegwerkers regularly bring gifts, prepare food, and play with the children

• Chile, 2015: Support for each child in the SOS Children's Village in Bulnes.

Siegwerkers support children to participate in school and community



YouthCan!

Since 2018, Siegwerkers around the world have provided their skills, expertise and time for the global employability initiative "YouthCan!" by SOS Children's Villages. The aim is to encourage young people to live self-determined and independent. Dedicated local Siegwerk employees

are committed to the professional qualification of the young people, to act as role models, trainers and mentors and to provide important insight into the corporate world.

Examples of our local social projects:

Our extensive partnerships with SOS Children's Villages are complemented by many smaller initiatives around the world, which are tailored to the individual needs of the local communities. They are as diverse as our Siegwerkers themselves:

- Germany: Sponsoring of Nikolaus Foundation, which supports language development of local primary students, and support of Technology and Natural Sciences in Schools ("TuWaS!") initiative
- **USA:** Siegwerkers package meals for Meals from the Heartland to feed people around the world

- Malaysia: Siegwerkers support children at the Kiwanis Down Syndrome Center
- **Switzerland:** Siegwerkers act as godmothers and godfathers for children at a local children's home
- **Italy:** Donation of a minivan for transporting local handicapped residents

If you want to learn more about our CSR activities, visit our website: www.siegwerk.com/our-responsibility/corporate-social-responsibility.html

Achieving more collectively

The whole is more than the sum of its parts

We are involved in a number of organizations, some of which pursue completely different aims. But one aim unites us all: we want to become better and better together with others – in the interests of our customers and in the interests of consumers!

Besides the active memberships in various industry associations, here are four over-arching examples:

1. CEFLEX

Siegwerk has joined CEFLEX to support the drive towards a circular economy. CEFLEX is the collaborative initiative of a European consortium of companies and associations representing the entire value chain of flexible packaging.

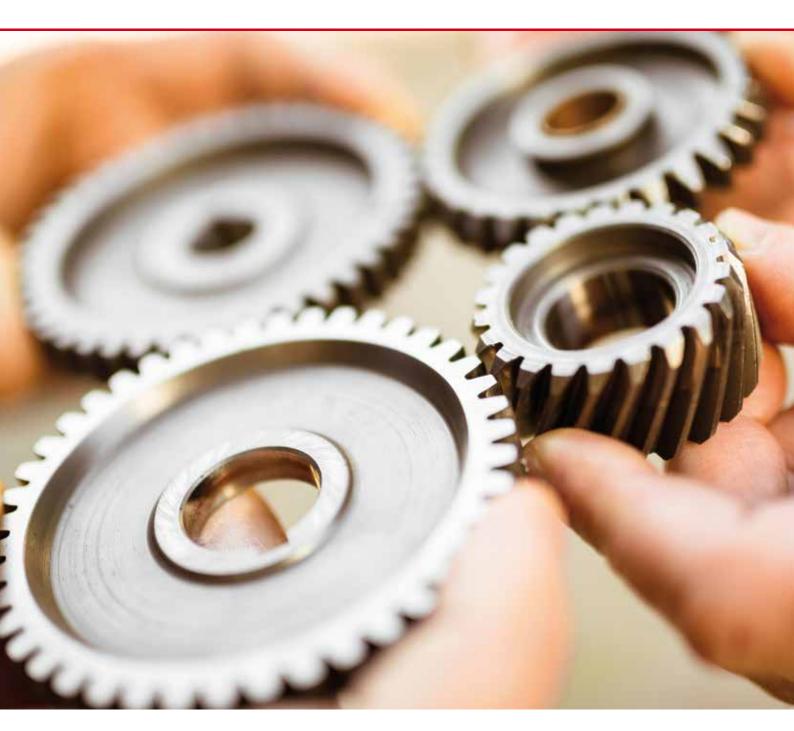
 The CEFLEX Mission is to further enhance the performance of flexible packaging in the circular economy by designing and advancing better system solutions identified through the collaboration of companies representing the entire value chain.

The CEFLEX Vision

 By 2020 flexible packaging will have a comprehensive sustainability and circular economy roadmap for flexible packaging, including widely recognized design guidelines and a robust approach to measure, demonstrate and communicate the significant value flexible packaging adds to the circular economy.

The roadmap will address:

- · Resource efficiency.
- · Waste prevention benefits.
- · Sustainably returning recycled flexible packaging materials to supply identified end markets.
- · Elimination of leakage into the environment.
- By 2025 there will be an established collection, sorting and reprocessing infrastructure/economy developed for postconsumer flexible packaging across Europe, based on end of life technologies and processes which deliver the best economic, technical and environmental outcome for a Circular Economy.



2. Sedex

Siegwerk has joined the Sedex global network. This is a non-profit organization which is committed to making improvements in global supply chains. Siegwerk is therefore the first printing inks and coatings manufacturer worldwide to commit itself to the continuous improvement of ethical behavior along its supply chain.

Sedex stands for "Supplier Ethical Data Exchange.": the exchange of data from suppliers on ethical questions, and as a web communication platform offers the opportunity to exchange views and information with industry representatives and customers on:

- · working conditions
- · health and safety
- · environment
- · business practices.

Transparency with respect to social and ethical responsibility is at the heart of the organization, which was founded in 2004 and now has over 36,000 members. Becoming a member of the world's largest association of its kind reflects the integrated approach which Siegwerk represents as a link between the supplier and its customers.

3. Project STOP

Siegwerk joined Project STOP (Stop Ocean Plastics) to combat plastic pollution in Indonesia. By becoming a strategic partner of Project STOP, Siegwerk actively supports the creation of sustainable waste management systems in Indonesia to eliminate leakage of plastics into the environment. In addition Siegwerks wants to underline its strong commitment to actively drive the realization of a global circular packaging industry by joining project STOP.

Project STOP is a frontline initiative, co-founded by Borealis and SYSTEMIQ, that designs, implements and scales circular economy solutions to marine plastic pollution in Southeast Asia. Since its launch in 2017, Project STOP has welcomed various industrial and governmental partners designing, implementing, and scaling circular economy solutions to prevent plastic waste pollution. Siegwerk is now joining this strong network of system relevant players that are committed to support the establishment of on the ground solutions in Indonesia.

4. Holy Grail 2.0

Siegwerk joined the Holy Grail 2.0 initiative in 2020 to improve sorting and recycling rates for packaging in the EU. The objective of the Digital Watermarks Initiative HolyGrail 2.0 is to prove the viability of digital watermarking technologies for accurate sorting and the business case at large scale.

Under the auspices of AIM, the European Brands Association, the initiative investigates a pioneering digital watermarks technology for packaging in the European Union. This smart technology could revolutionize the sorting of packaging waste and the quality of recycling. Siegwerk is one of more than 85 companies and organizations from the complete packaging value chain which are part of HolyGrail 2.0. The ultimate goal is to achieve a truly Circular Economy.

To find out more about our partnerships and memberships please check our website https://www.siegwerk.com/en/circular-economy/our-partnerships.html



 $\textbf{Siegwerk Druckfarben AG \& Co. KGaA} \cdot \textbf{Alfred-Keller-Str. } 55 \cdot 53721 \ \textbf{Siegburg} \cdot \textbf{Germany} \cdot \textbf{Phone +} 49 \ (0) \ 2241 \ 304 - 0 \cdot \textbf{info@siegwerk.com}$