

2020

GLOBAL SOLUTIONS OF HELIOS

TrueColours



**PUTTING ENERGY
INTO INNOVATION**



YOUR WORLD OUR NEW SHADES

CHOOSE YOUR OWN AMONG
1200 NEW SHADES



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True Colours

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Editor in chief:

Maša Bantan Marot

Editorial board:

Hitoshi Nishibayashi,

Yasuo Horibe, Dietmar Jost,

Hubert Culik

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Tjaša Kastelic

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Contact:

HELIOS Corporate

communications department

Maša Bantan Marot

Phone: +386 1 722 4075

masa.bantan@helios.si



True Stories

In the past, stories commonly began with the phrase »once upon a time«, but the year 2020 gave a new meaning to all the narratives. Amid the global coronavirus pandemic, the line »in challenging times like this« has been the most used opening, written too many times.

As well at HELIOS, health and safety of employees and other stakeholders became our primary concern, and responsible behaviour was even more reflected in all our activities. Even though we have to stand physically apart, we have stepped together and built even stronger connections. Corona story itself has no silver lining, however it encouraged us to think beyond the health crisis and further strengthen our societal and environmental commitments.

Although HELIOS is a coatings and chemicals producer our aim has never been just to make things green. We would like to turn them green with tangible actions reducing the impact on the environment along our entire value chain. With improved environmental performance we are accelerating our transformation to a carbon-neutral business. In this year's issue of True Colours we are proudly presenting our efforts we have put into development of innovative products and processes that present the future of our industry. We are picturing true people, true energy and true stories in the background.

Take care, be safe and stay healthy!

Hitoshi Nishibayashi

CEO of HELIOS

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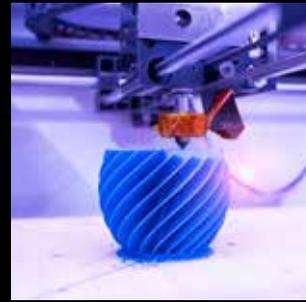


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PROGRESS

“Without continual growth and progress, such words as improvement, achievement, and success have no meaning.”

Benjamin Franklin
Scientist and statesman



Designing green coating solutions

Karla Rončević

Green coating solutions and systems are designed from the ground up to reduce their environmental impact and save resources. Their use will play the main role in the selection of processes and products, and the need for them generates continuous innovations.

In recent decades, the chemical industry has made a major step towards environmental footprint reduction. Initially, trends in the paint and coatings industry were strongly connected with environmental protection. The main goal was pollution prevention or the reduction of VOC levels together with the shift towards waterborne coatings, powder, and UV curing coatings. Nowadays, besides the environment, the producers would like to take into account the total effect of products on the society and the economy.

When designing new products, the development of all stages is closely intertwined with the circular economy principles and the commitment towards nature and climate. This means that producers reconsider every stage of the coating's life cycle from raw materials formulation, application and curing to disposal at the end.

Renewable raw materials and sourcing
To ensure sustainable products and formulations, producers need to develop solutions that will be most appropriate at the end of the material's life cycle. That is why the first things to be reconsidered are raw materials from biological and other renewable sources. Most chemicals used in the polymer

industry, including coatings, are based on the fossil feedstock. That is why alternative feedstock, such as biomass, recycled chemicals and carbon dioxide have lately been gaining importance. Polymers made from renewables help save fossil resources and reduce the carbon footprint. Bio-based solvents, additives and pigments are already available as well. In addition to the ecological features, the products based on these raw materials need to excel in performance.

Solutions protecting things that matter
While paint and coatings are commonly known for providing aesthetic appeal to the materials they coat, their most important function is to protect and prolong the life of those materials. Coatings provide protection from degradation, such as corrosion, abrasion, high temperatures, chemical impact, moisture, or UV rays. In order to contribute to sustainability, researches are developing coatings that are more durable, thus minimizing the need for maintenance. Newly developed solutions also protect the environment in a more direct way: they save energy by keeping buildings cooler and they are an essential part of renewable energy systems, while also helping reduce carbon dioxide emissions.

NEWLY DEVELOPED SOLUTIONS SAVE ENERGY, WHILE REDUCING CARBON DIOXIDE EMISSIONS.



ROOF EXPERT AC, THE NEW ROOF COATING SYSTEM FROM HELIOS, PROTECTS THE SURFACE AND IS HIGHLY SUNLIGHT REFLECTIVE.

Functional coatings of the future

Many efforts have been devoted to the development of new functional coatings that represent the future of the coatings industry. Besides the protection and appearance, coatings provide additional desired functions and, in many cases, directly contribute to sustainability.

For example, the so-called IR reflective roof coatings offer environmental and cost-saving benefits for both residential and commercial roofs. Roofs protected with coatings that reflect the IR energy from the sun, absorb much less heat than traditional coatings. This process helps to reduce the “urban heat island” effect and at the same time helps to lower the indoor temperature.

Electrical insulation coatings play an important role in lowering the energy losses during transmission from the generation site to distribution centres. They

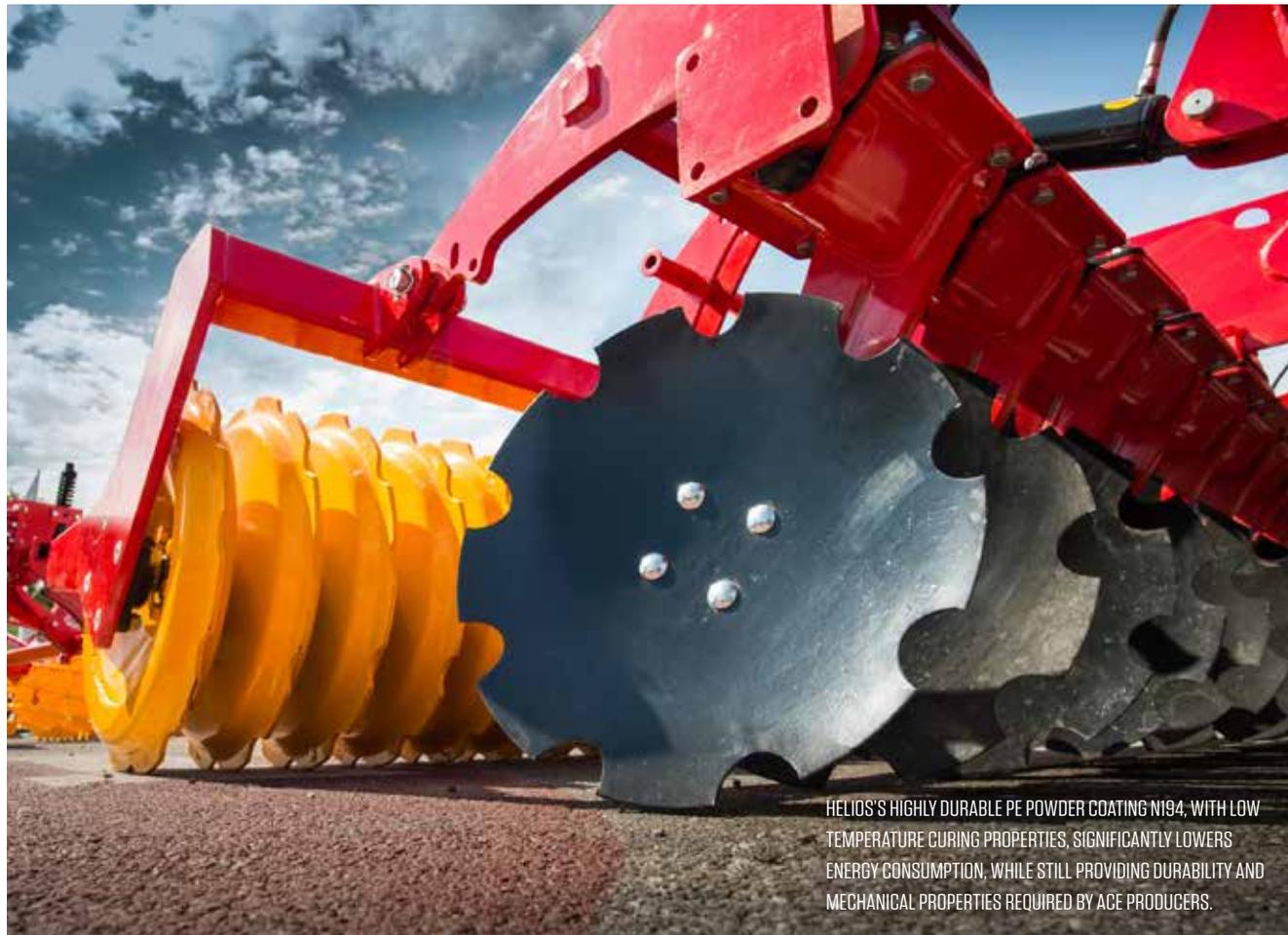
provide better heat dispersion in electric motors and transformers, thus enabling higher efficiency, and enhancing the lifetime of the components.

The fast-growing segment of renewable energy solutions needs coatings with additional functionalities as well. Protective coatings used on wind turbines enable blades to rotate under challenging conditions, by providing UV and weathering protection together with the protection against rain erosion or ice accumulation. Additionally, the solar energy market needs efficient coatings for solar panels. By providing special coatings that reduce the reflection of sunlight, the energy output of photovoltaics is increased.

The health and well-being of people are also some of the main drivers of sustainable commitments. With low-emitting interior coatings, the industry is contributing to the health and comfort of the



THE ANTIBACTERIAL POWDER COATING FROM HELIOS IS TESTED ACCORDING TO ISO 22196, AND OFFERS ADVANTAGES WHEN USED IN SPACES LIKE MEDICAL FACILITIES OR SCHOOLS.



HELIOS'S HIGHLY DURABLE PE POWDER COATING N194, WITH LOW TEMPERATURE CURING PROPERTIES, SIGNIFICANTLY LOWERS ENERGY CONSUMPTION, WHILE STILL PROVIDING DURABILITY AND MECHANICAL PROPERTIES REQUIRED BY ACE PRODUCERS.

THE NEW GENERATION OF ONE-LAYER COATINGS FROM HELIOS SUCCESSFULLY REPLACED THE TRADITIONAL MULTILAYER PAINT SYSTEMS.



PRODUCERS RECONSIDER EVERY STAGE OF THE COATING'S LIFE CYCLE FROM RAW MATERIALS FORMULATION, APPLICATION AND CURING TO DISPOSAL AT THE END.



WITH THE REMBRANTIN PROTECTIVE APP CUSTOMERS CAN SEARCH FOR PROTECTIVE COATING SYSTEMS SUITABLE FOR A VERY LONG DURABILITY PERIOD OF CORROSION PROTECTION.

sensitive population, like children, elderly people and patients. Specially formulated coatings go even further and purify the air by transforming harmful chemical into unharmed ones.

Surfaces around us presents an ideal environment for microorganisms to develop their colonies and endanger our health and well-being. Additionally, microbial growth can affect the functionality of the product, which leads to degradation, staining, bad odour and other unwanted properties.

One of the most energy consuming parts of the coating application process is oven curing. That is why development is focused on coatings that cure on lower temperatures or even tries to eliminate the need for oven curing completely. Modern coating systems need less layers to provide

the same or better protection, while simplifying the application process and improving efficiency.

Closing the green circle

Through commitment to sustainability, the coating industry recognized the concept of Life Cycle thinking. Our attention is devoted to the recent downstream industry developments, with efforts focused on coatings reformulation, raw materials or packaging used. Paints with higher life expectancy are developed to protect and prolong the lifetime of environmentally costly substrates, such as metal and wood, or to reduce the demand for energy. Along with sustainable packaging and recycling, the paint and coatings industry contributes to the reduction of waste and product loss in general. •

CORONAVIRUS LESSONS

Raw materials supply and coatings formulations

Hubert Culik

2020 is a year that will go down in history as a year of drastic developments. The rapid spread of the coronavirus from China all the way across Europe has brought unprecedented challenges to our societies and economies. Within the coatings industry, two factors form its backbone and are crucial for its success: the availability of raw materials and the art of coatings formulation. Both were confirmed during the coronavirus crisis once again.



Raw materials and logistics are crucial

The current globalized raw materials supply and logistics system currently works in a way that production sites in Asia ensure that a wide range of critical products are available in Europe as cheaply as possible. This system works well if production sites can keep up production and transport flows remain unhampered. However, the coronavirus pandemic temporarily closed borders worldwide and across Europe, posed export restrictions, shut down factories in China and India which significantly affected supply chains and logistics – vital parts of the chemical industry. The crisis revealed the existing system’s vulnerabilities and demonstrated great risk of overdependence on global supply chains, which was particularly unsettling for the pharmaceuticals industry.

At HELIOS, we mastered raw materials supply during the critical months. Thanks to our well-organised purchasing department, there were hardly any raw material shortages during the crisis and production mostly proceeded as usual. An occasional shortage of a raw material is common in normal times as well, so we are prepared for such cases.

“Glocalisation” is the future

To be prepared for a similar crisis in the future, we should consider whether it is a valuable advantage to import certain chemicals solely from China or India due to a slightly lower cost. Considering the time, effort and costs required to organise the necessary logistics, the benefit may not always be worth the risk. The pandemic has shown that we have to question global just-



in-time production around the world.

New conditions require new adjustments. For the coatings industry, this means bringing back development and production to Europe. Our own know-how and experience in raw materials production should be the basis to shift from globalisation to “glocalisation”. For instance, yellow pigments, high quality solvents, or additives currently made in China could easily be produced in Europe.

Advantages of local production

Local product development and production have many advantages. The biggest is avoiding long transport routes. Compliant with the framework of the Green Deal of the European Commission, transport efficiency is also a major step towards reducing CO₂ emissions. Additionally, locating production sites in Europe reduces the risk of interrupted operations as the capacities can easily be shifted to another site if needed.

Locally, it is much easier to monitor and ensure adherence to quality, environmental, and labour standards. Close cooperation

THE CRISIS REVEALED THE EXISTING SYSTEM’S VULNERABILITIES AND DEMONSTRATED GREAT RISK OF OVERDEPENDENCE ON GLOBAL SUPPLY CHAINS.

among local suppliers stimulates research and development, while direct communication along a local supply chain makes it easier to react quickly to a change in demand.

R&D and formulation after the coronavirus pandemic

Research and development as well formulation know-how have always been one of the key elements in the coatings business. The coronavirus pandemic has pointed out a new direction for innovation which could significantly contribute to a safer life.

THE CORONAVIRUS PANDEMIC HAS POINTED OUT A NEW DIRECTION FOR INNOVATION WHICH COULD SIGNIFICANTLY CONTRIBUTE TO A SAFER LIFE.



Since bacteria and viruses are often transmitted via surface contact, this crisis will put emphasis of research for antibacterial and antiviral coatings.

Antibacterial coatings have been on the market for some time and they are known for providing lasting and efficient protection against bacteria, fungi, and mould. There are various mechanisms of antibacterial action, e.g. preventing bacterial attachment, release of antibacterial agents, or killing bacteria upon surface contact. Currently, in most products the antibacterial effect is achieved by adding biocides to the coating's formulation. However, biocides are governed by the Biocidal Products Directive (98/8/EC), which means that newly developed biocidal coatings have to pass a time-consuming and costly authorisation procedure.

Consequently, research should also focus on exploring other possibilities of surface modification which would not require biocides but would remain its antiviral effects. One alternative are bionics that provide many fields of application. They are very useful in a medical environment but also public spaces, e.g. door handles, cars, public transport and furniture.

Lessons we have learned

We have learned several lessons from the coronavirus pandemic that will shape responses to future crises. Globalisation will not entirely be reversed but "glocalisation" will help us to become more independent, while it will stimulate innovation and contribute to the protection of the climate by reducing CO₂ emissions due to shorter transport routes. •

01

We need to ensure that we are not completely dependent on overseas suppliers and hence bring some of the raw materials production back to Europe.

02

We have to encourage local research, development and innovation in cooperation with local suppliers.

03

Research has to focus on new formulations and products in the field of antibacterial and antiviral coating materials.



The value of being able to react quickly was powerfully demonstrated in April when HELIOS, among several other chemical companies, switched production promptly from coatings to WHO approved disinfectants. Such impressive flexibility was possible due to our broad experience in the art of formulating.

HELIOS RESINS

The secret to sustainable raw materials

Dr. Martin Ocepek, Dr. Peter Venturini

A team of 25 dedicated R&D employees at Helios Resins is aiming to reduce environmental impact by developing advanced, green, and long-lasting materials. We have managed to reduce emissions of hazardous organic solvents, create a potential for energy savings, and incorporate bio-renewable raw materials.

All this while maintaining high-quality products aligned with the requirements of our most demanding customers. Our efforts are also recognized annually with the Responsible Care® certificate.

INNOVATIVE HELIOS RESINS REDUCE VOCs, BRING ENERGY SAVINGS AND EXTEND COATING LIFETIME.

Sustainable car refinish solutions

The European Union has adopted directives limiting Volatile Organic Compounds (VOC). Helios Resins, a separate HELIOS unit, has responded to the new set of standards with a range of High-solid (HS) resins, which enable final coatings producers to meet legislation limits with their ready-to-use products. Within the HS resins segment, we pay special attention to car refinish products, where resins and coatings must meet high performance expectations introduced by car paint shops.

During the past few years, over 30 different novel acrylic and polyester types of resins with 70-100% solid content have been developed and successfully launched into the market. We have achieved a 30-50% decrease in their VOCs compared to standard Medium solid (MS) products. Additionally, a set of unique high-

performance Domacryl brand types has been developed to enable our customers to stay ahead of their competitors.

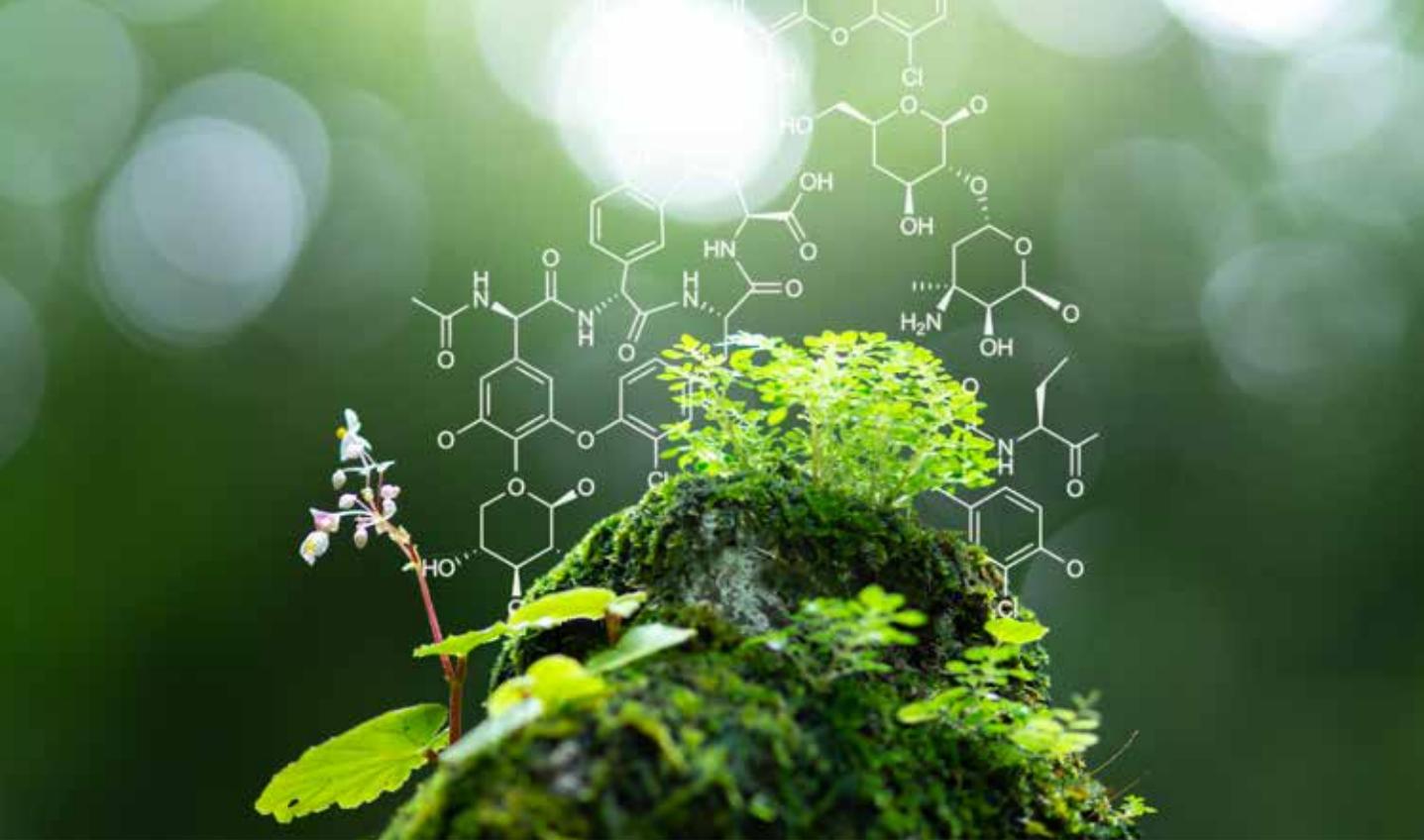
Patented technology has been successfully implemented in the market and has positioned us as a market leader in the segment of FAST-drying acrylic resins for car refinish, general metal and industrial wood protective coatings. In addition to reduced VOCs, our innovative resins bring energy savings through lower curing temperature and an extended coating lifetime. Importantly, up to 20% of fossil-based raw materials have been replaced by bio-renewables and increased material performance.

Alternative water-based resins

A significant part of R&D activities is related to the development of alternative solutions such as water-based resins, as water represents the “greenest”

solvent. The major challenge is water’s incompatibility with traditionally used polymers, which require a very high level of expertise. To provide commercially feasible materials, water-based resins must be high quality, stable, and price-efficient. We have developed and scaled more than 40 different water-based materials to the industrial level to cover various needs, especially in the segments of wood and metal coatings. VOCs have been reduced by as much as 95%.

R&D EFFORTS ARE FOCUSED ON ALTERNATIVES SUCH AS WATER-BASED RESINS, AS WATER REPRESENTS THE “GREENEST” SOLVENT.



HELIOS RESINS IS DEVELOPING ADVANCED, GREEN, AND LONG-LASTING MATERIALS FOR TODAY, TOMORROW AND THE DAYS TO COME.

WITHIN THE HIGH-SOLID RESINS SEGMENT, WE PAY SPECIAL ATTENTION TO CAR REFINISH PRODUCTS.



A tradition of bio-based materials

Recently in the paint and coatings industry, many efforts have been devoted to the development of bio-based materials. Bio-based products derive from plants and other renewable agricultural, marine and forestry materials to provide an alternative to conventional fossil-derived products. The conversion of biomass and bio-based ingredients into useful products for paints and coatings provides considerable and sustainable growth potential. The demand from customers, as well as the Helios Resins team strategy, is to increase bio-based content in produced materials.

The basic and most important bio-based Helios resins, continuously produced for over 50 years, are alkyds which are natural oil modified polyester

resins. They represent 7% of produced quantities of Helios Resins. Renewable oils which in nature derive from sunflower, linseed, soybean, castor, tall and others, are standard within the coating industry. Due to the VOCs limitations, alkyd water emulsions are gaining greater acceptance than conventional solvent borne (SB) ones, replacing up to 85% of fossil-based raw materials.

Dedicated to a green future

In addition to its established bio-based alkyd production, the Helios Resins team is constantly working on the development of new bio-based products. Close collaboration with the National Institute of Chemistry has resulted in a patent pending technology where bio-based

methacrylic acid was developed to replace fossil-based standard. Furthermore, Helios Resins is participating in COST Action, the European network of furan-based chemicals and materials for sustainable development (FUR4Sustain). The main objective is to catalyze a replacement for terephthalic acid, a widely used building block in resins for coatings and packaging. Furandicarboxylic acid (FDCA) and derivatives are considered a very promising replacement from a renewable origin. Lastly, Helios Resins is a member of the Strategic Research and Innovation Partnership for the transition into a circular economy, supported by the Slovenian Government. Priorities for the partnership are to reduce the amount of production waste and to reuse existing waste as raw material for new products. •

MOBIHEL

Energy efficient and highly productive car refinish products

Irena Tavčar

The latest R&D trends in car refinish prioritize sustainability as one of the main quality criteria, underlining the importance of improved coatings durability, next to energy and process efficiency. This is also mirrored at Helios Refinish.



THE NEW GENERATION OF MOBIHEL PRODUCTS IS A WINNING COMBINATION FOR ENHANCED WORKSHOP PRODUCTIVITY AND ENERGY SAVINGS.



Multi-layered modern car refinish paint system

A modern car refinish paint system consists of primer–filler/ basecoat/clearcoat, offering waterborne or solvent borne technology. The biggest challenge for car refinish paint producers is to reduce drying time of fillers and clearcoats. Fillers must dry quickly to enable the process of sanding instantly after application and overcoating with the basecoat afterwards. Clearcoat must be ready to polish immediately after a short time drying and cooling down.

Efficient raw materials solutions
Raw materials producers, especially

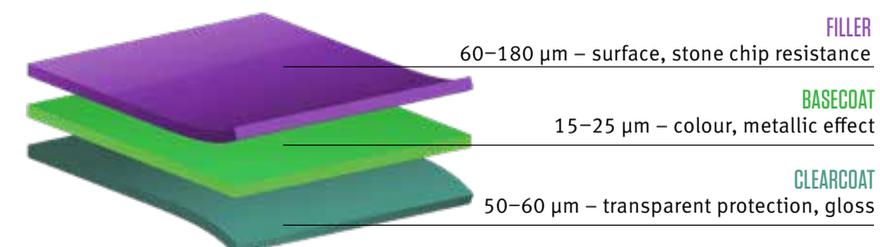
in the resins segment, provide various solutions. Among new materials are very reactive polyacrylate binders and polyaspartic binders. Polyacrylate binders enable faster curing or lowering the curing temperatures, while polyaspartic binders eliminate the need for elevated temperature curing or shorten drying time at higher curing temperatures. Polyacrylates in normal conditions increase productivity by 20% and reduce energy consumption by 50%, while polyaspartics perform even better.

A new generation of products
The Helios Refinish R&D department successfully follows industry trends.

In 2019, we launched the first two products of the new generation of highly productive and energy efficient clearcoats and fillers compliant with European VOC legislation, MOBIHEL 2:1 HS CLEARCOAT FastDry and MOBIHEL HS FILLER AirDry. This year the additional clearcoat MOBIHEL 2:1 HS CLEARCOAT AirDry joined the family of products.

Fast dry clearcoats for perfect end results
Our clearcoats excel in drying regime flexibility depending on the workshop equipment and conditions. Importantly, we did not compromise the quality of polishing or the drying time regime. Thus, the final appearance remains perfect.

LAYERS OF A REFINISH PAINT SYSTEM



DRYING TIMES UNDER DIFFERENT TEMPERATURE CONDITIONS

	FastDry CC	AirDry CC	New development
super-fast	15 min./60°	5 min./60°C	5 min./60°C
fast	30 min./40°C	15 min./40°C	10 min./40°C
energy efficient	120 min./20°C	60 min./20°C	40 min./20°C

New fillers for a four times faster drying process

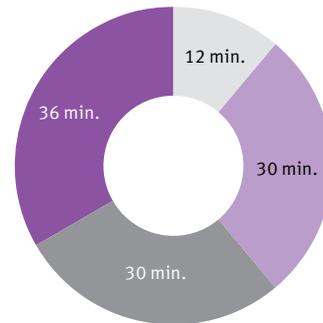
MOBIHEL HS FILLER AirDry is ready for sanding in approximately 20–30 minutes when following the room temperature criteria. The drying process is four times faster than with other conventional air-drying fillers. Different drying regimes can be achieved by choosing individual hardeners and thinners depending on the size of the painted car part and workshop conditions. After the drying and sanding process, the filler ensures a very

smooth and flat surface for the excellent basecoat/clearcoat optical features.

Advantages of the fast curing coating system

The new generation of filler/basecoat/clearcoat are a winning combination for enhanced workshop productivity and energy savings. The system also meets high quality standards and long-term durability. A car bonnet can be repainted in less than two hours, including preparation, sanding, application, flash off and drying. •

TIME EFFICIENT MOBIHEL SYSTEM



- Substrate preparation
- AirDry filler
- Basecoat
- AirDry clearcoat

Time for the complete repaint of a personal car bonnet with the super productive MOBIHEL System.



Remsolar: coatings for a greener future

Mag. Petra Gomez Alfaro-Kalteis

Today, photovoltaics continue to be a hot topic on the world stage. Extensive information, literature and research is available in the media and online, while many roofs are already fitted with solar panels. However, applying coatings to solar panels, specifically to the backsheets, is pioneering work.

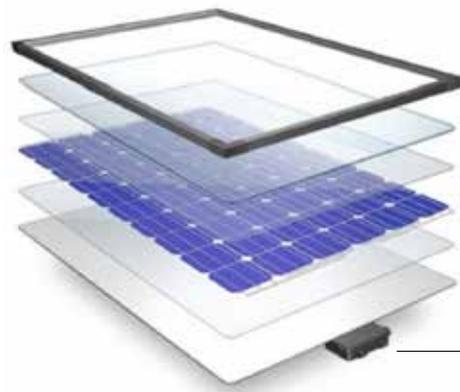
REMSOLAR PROVIDES A COST-EFFECTIVE AND SUSTAINABLE SOLUTION FOR RELIABLE SOLAR ENERGY.



PHOTOVOLTAIC INTEGRATION IN BUILDINGS

At Rembrandtin Coatings, a company part of the HELIOS, a dedicated team together with external partners and experts have taken on the challenge to formulate and develop Remsolar, a new series of coatings designed to protect backsheets. Remsolar provides a cost-effective and

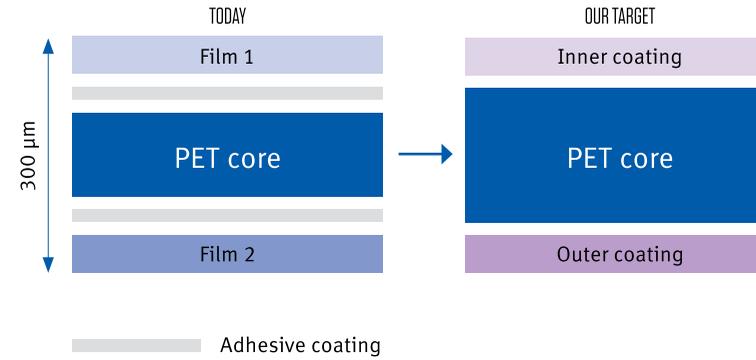
sustainable solution for reliable solar energy. New backsheet coatings offer functionality of currently used multilayer film technology, while providing the same level of performance for a considerably lower price. This revolutionizes the process efficiency of backsheet producers and significantly reduces the CO₂ footprint.



THE STRUCTURE OF A PHOTOVOLTAIC MODULE

- Frame
- Glass
- Encapsulant
- Solar cells
- Encapsulant
- Backsheet
- Junction box

NEW BACKSHEET COATINGS OFFER THE FUNCTIONALITY OF CURRENTLY USED MULTILAYER FILM TECHNOLOGY, WHILE PROVIDING THE SAME LEVEL OF PERFORMANCE AND REVOLUTIONIZING THE PROCESS EFFICIENCY OF BACKSHEET PRODUCERS.



CAR WITH SOLAR PANELS ON THE ROOF



- Remsolar coatings ensure:
- Long term protection from humidity
 - Long term protection from UV radiation
 - Good adhesion to the encapsulant
 - Thermal and dimensional stability
 - Optical aspects (color)

Since this field represents a new market for coatings, a lot of time has been invested in defining appropriate test procedures to ensure the performance and quality of the backsheet and the photovoltaic module throughout their entire lifetime of 25+ years.

The evolution of the global photovoltaic market

The photovoltaic market is truly a

global one. With many backsheet and module producers based in China, Asia is clearly a focus. However, Europe shows significant growth rates in this field as well. The European Union Market Outlook for Solar Power 2019 – 2023 estimates + 26% growth in 2020. The biggest growth is expected from Spain, followed by Germany, Netherlands, France, and Poland. Additionally, emerging markets such as India, Saudi Arabia, and Egypt have set very ambitious renewables targets which leads to increased demand for photovoltaic installations.

The “bright” future of photovoltaic coatings

The share of energy from photovoltaics will grow significantly worldwide. In the future we expect photovoltaic

structures to be integrated into buildings during the construction phase (e.g. facades, balconies etc.) as well into cars. This will lead to new requirements of coatings’ color availability, and warranty period.

At HELIOS and Rembrandtin, we believe that the right policies will give a push to renewable and green energy. The same applies to the growth of the photovoltaic sector, where attributes such as sustainability and low costs will be the main drivers of the solar energy market. As of now, our aim is to dive further into this market, visit industry events, connect with potential customers, expand our knowledge, and increase our brand recognition. We are confident that our Remsolar will have a bright and shiny future and we will keep you updated on our success story. •



PARTNERS ON THE PROJECT



Rembrandtin innovation powering the electric vehicles market

Dietmar Jost

As technological progress in the electrification of two- and three-wheelers, buses and trucks advances and the market for them grows, electric vehicles are expanding significantly.

Electric cars, which accounted for 2.6% of global car sales and about 1% of global car stock in 2019, registered a 40% year-on-year increase. HELIOS is proud to be a frontrunner and key innovator in this segment with its core plate varnishes which increase the efficiency and power of electric engines. Together with our innovations in the field of wind-energy, photovoltaics and hydro power plants, we are continuously striving to contribute to a sustainable and green future.

Remisol core plate varnishes are environmentally friendly and chromium-free with low emissions. Water-based, hot curing varnishes were developed for the electrical insulation of electrical steel sheets. Their excellent insulating properties reduce eddy current losses during the operation of electrical machines and thus increase their efficiency. They improve punchability in the further processing of the sheets and offer other important properties, such as weldability or annealing resistance. As the

market leader in this sector, we have been supplying well-known electrical sheet producers and generator manufacturers worldwide.

Rembrandtin also has a portfolio of bonding and C5 varnishes which are already in use or in the process of homologation for the top car making companies, such as Audi, BMW, Daimler, Tesla, Toyota, or Volkswagen.

The focus of current developments in the electric and hybrid vehicles market is on thinner steel grades and less dry film thickness of the varnish in order to improve the performance of the electric engine.

Worldwide volumes are believed to increase dramatically as new environmental policies are being put in place and as series production of new models begins. Thanks to our ongoing developments in the field of batteries and the rapid build-up of infrastructure for electric vehicles in combination with smart grids, we strongly believe in the positive power of this transformation. •

**REMISOL CORE PLATE
VARNISHES ARE
ENVIRONMENTALLY FRIENDLY
AND CHROMIUM-FREE WITH
LOW EMISSIONS.**

UV/EB curing coatings at a glance

Mateja Šlibar

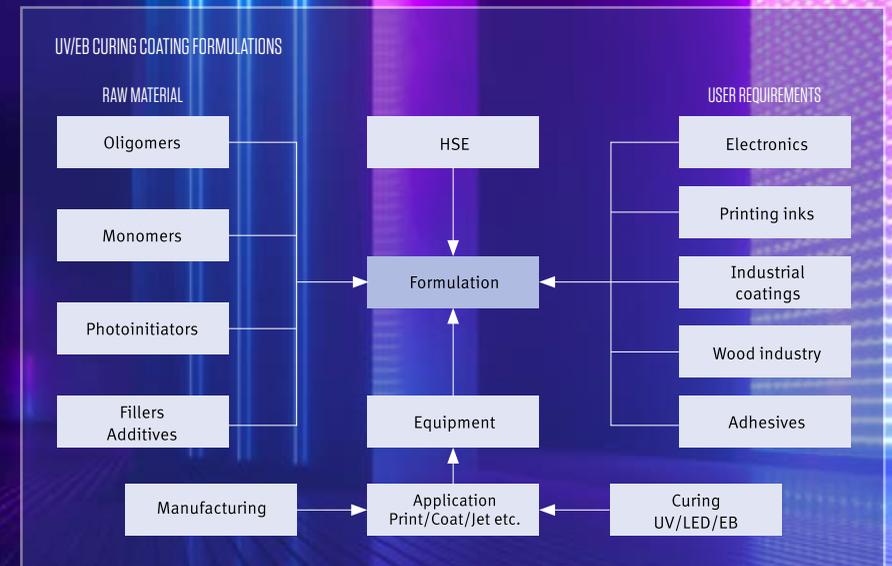
Since their introduction in the seventies, radiation-cured coatings and inks have been on the rise. They have now become a generally accepted fast-growing sustainable technology within the industry.

UV/EB-CURABLE COATINGS SIMPLIFY PRODUCTION, ELIMINATE SOLVENT EXTRACTION STEPS, REDUCE COSTS, AND HAVE A LOW ENVIRONMENTAL FOOTPRINT.

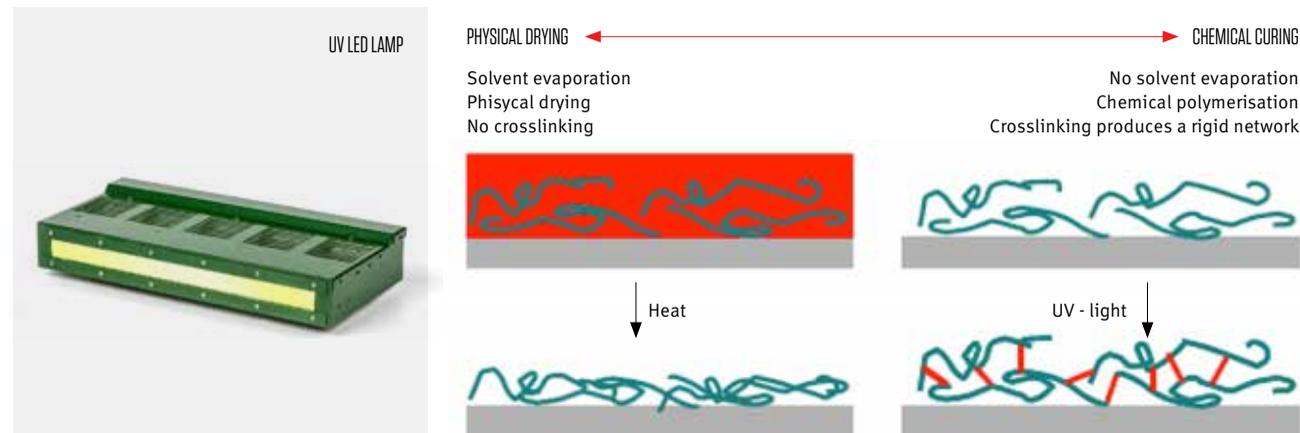
The high growth of radiation-cured coatings, known also as UV/EB curing coatings, is due to their several advantages, such as performance, productivity and low environmental impact. The use of radiation-cured coatings can simplify production, eliminate solvent extraction steps and consequently reduce the cost. Moreover, UV/EB technology does not produce CO₂ and is consequently not subject to any carbon tax. Existing coating units can be easily retro-fitted with UV/EB technology given the small footprint. Due to the immediate drying mechanism, UV/EB technology reduces lead time and increases the coating throughput.

Curing with radiation

Radiation-cured (RC) coatings and inks are formulations of components that contain reactive groups that react with each other after exposure to energy-rich radiation. In general, there is no physical drying involved in the curing mechanism, while recent coating formulations tend to be free of organic solvents. Even though many types of radiation would theoretically be possible, the industrial application is mainly limited to the curing by ultraviolet light (UV) and electron beam (EB).



UV CURING VERSUS TRADITIONAL COATING TECHNOLOGY



Difference between UV and EB curing

In UV curing technology, multifunctional resins are polymerized or cross-linked by exposure to UV light. UV light triggers a UV photoinitiator in the formulation to generate polymerization initiating species which very rapidly convert the liquid UV resins to a fully cross-linked coating. There are two main curing technologies used in practice. The first is a free radical cure of mainly acrylic resins, and the second is a cationic cure of mainly epoxide ring opening curing reactions triggered by a UV cationic photoinitiator. The vast majority

of applications use acrylic functional resins cured with a UV photoinitiator. In EB curing technology, the same multifunctional resins can be used, but no photoinitiator is needed. The electrons initiate the polymerization and the end result is also a highly cross-linked coating.

Formulations of UV/EB curing coatings

Formulations of coatings appropriate for UV/EB curing are usually made up from oligomers and monomers in a 1-1 ratio depending on the required application viscosity. A broad range of different resin

and monomer types then define the final coating properties. UV/EB formulations also need 1-10% of photoinitiator in case of UV curing and 1-3% of additives to promote flow, levelling, cratering, slip or other properties. Such coatings or inks can be pigmented or can contain fillers. In pigmented coatings or inks with UV curing, the photoinitiators and lamps may need to be chosen correctly, not to overlap too much with the absorption spectrum of the pigments. Many different types of photo initiators exist, with different absorption spectra.



HELIORES 3D IS A LIQUID PHOTOPOLYMER FOR 3D PRINTING INTENDED FOR GENERAL USE WITH VARIOUS TYPES OF SLA AND DLP PRINTERS.

Different treatment and application types

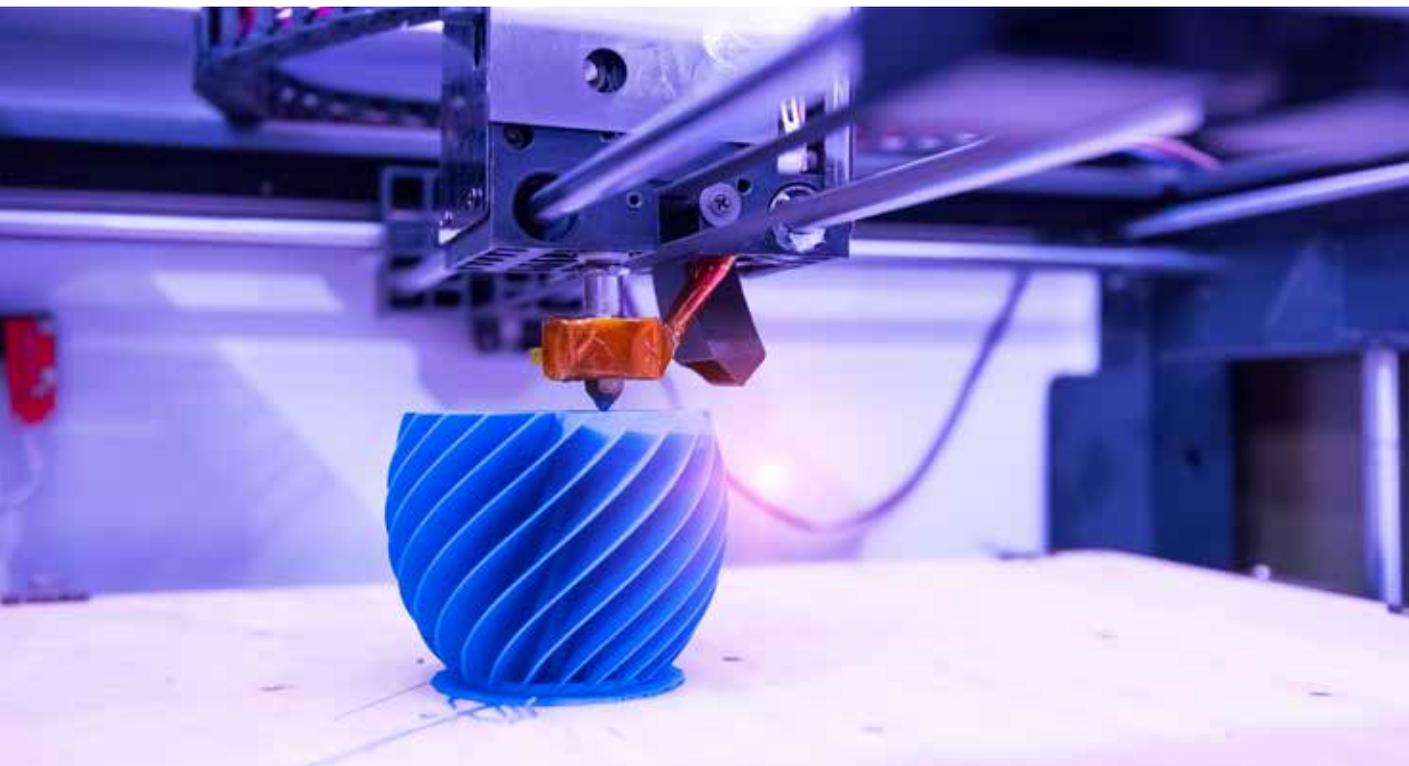
In most cases, conventional 100% liquid RC systems are intended for the treatment of flat surfaces with roller application due to some limitations in application viscosity. With the development of alternative systems like radiation-curable water-borne and powder coatings, spray application and processing of profiled elements is possible as well. For complex 3D objects where UV light hardly reaches shadow areas, so-called dual-cure coatings are used. Radiation-curable water-borne and powder coatings combine the flexibility of the higher molecular oligomers with the hardness and resistance resulting from the high crosslink density through the acrylate groups. Meanwhile, dual cure coatings have two curing mechanisms, where the radiation curing mechanism complements the curing of polyisocyanates with polyols.

Radiation-curable water-based, powder, and additionally dual-cure formulations are treated under “Special Systems” and while water-based and powder RC coatings are already well established, the dual cure technology is still a niche area.

UV/EB-curable coatings simplify production, eliminate solvent extraction steps, reduce costs, and have a low environmental footprint.

Special UV/EB curing equipment

Standard UV lamps are mercury lamps and can be doped with iron or gallium to control emission spectra. The lamps typically have an output of 80-120W/cm² and are available in many lengths. There are 3 main types of UV lamps – standard mercury lamps, iron-doped mercury lamps and gallium-doped mercury lamps. Recently, LED lamps have been added to the selection.



DRIVERS FOR THE IMPLEMENTATION OF UV LED SYSTEMS

Technology features	Environmental benefits
Instant on and off	Ready to use or no warmup time, energy savings and positive impact on lifetime
Low electricity consumption	Energy savings
Low heat output	Positive impact for heat-sensitive substrates
No ozone, no mercury	Environmentally friendly and easier integration
Long lifetime, constant output	Lower maintenance costs and better process control



Fast growing market

The whole segment of RC coatings has shown significant growth rates in the recent years. While China remains the leader in UV/EB technology, there is a fast growth of UV/EB in coating application in the more mature markets of North America and Europe. There, application segments with a higher market penetration of UV/EB, such as furniture and floor coatings, printing inks and overprint varnishes, show a moderate growth rate of about 2-4%. In addition to the industrial coatings application in wood and paper coatings segments, UV/EB curing technology can be found also in other emerging areas. It is applicable with

plastic coatings, resilient flooring, metal coatings, opto-electronics and adhesives. In graphic arts, UV/EB is mostly used in lithographic and flexo printing, as well as in screen printing, letterpress, and ink jet printing. In electronics, UV/EB is used in printed circuit boards as a photo resist coating, in displays both on the inside of the electronics as well as on the outside as a hard coat. On plastics, the technology works in the form of wear-resistant coatings (Gagro, EC), May 2020).

Helios’s UV/EB portfolio and its future development

HELIOS UVEHEL/UVEHEL AQUA UV curing systems offer a complete solution

for advanced manufacturers of flat interior furniture, which includes wooden doors, tables, cupboards, shelves, and parquet. The systems present an optimal combination of putties, base coats, top lacquers and enamels, processed with modern UV curing procedures for the care of wood veneer, solid wood, MDF and different decorative foils. In the future, we will continue to invest in the development of innovative products, for example, invest in UV LED technology for heat-sensitive substrates, extend UV curing coatings also to exterior joinery and try to find interesting fields of using UV coatings on other segments, such as car repair coatings, coatings for metal and plastic. •

Biocidal regulation as the driver of continuous development

Cirila Colnar Mikeln, Hubert Culik

The paint and coatings industry is closely related to the use of biocides, substances that have undergone stricter regulatory measures in the past years.



BIOCIDAL PRODUCTS EXERT CONTROLLING EFFECT ON HARMFUL OR UNDESIRE MICRO-ORGANISMS.

Lately, producers of paints and coatings have come under pressure as regulatory trends for biocides significantly limit options and ways of usage. With new measures, regulators tend to improve the functioning of the internal market through the harmonisation of rules on the production and usage of biocidal products. Furthermore, the new regulation also ensures a higher level of environment and health protection. Therefore, formulators are faced with the challenge that ever fewer biocides are available, and biocide concentrations have to be reduced. At the same time, the quality of final products shall not be compromised. That is why the industry as well as the stakeholders along the value chain have to develop new sustainable solutions.

Understanding biocidal products

Biocidal products are widely used agents, with an active substance that is intended to destroy, deter, render harmless, prevent the action of, or otherwise exert a controlling effect on harmful or undesired micro-organisms. They are regulated by



the European Union Biocidal Products Regulation (BPR) and classified in 22 Product Types (Pts) depending on their function. Only the active substances or their mixtures, which are authorised for certain purposes, can be used in biocidal products, produced and sold by the coatings industry. Each biocidal product must be registered by the responsible body in the EU country where it is sold, while some of these products should be authorised as well.

Biocides in the paint and coatings industry

In the paint and coatings industry, biocides are used in a wide variety of procedures. They can be found in wet water-based paint, wood impregnations, fungal or anti-microbial products, disinfectants and hygiene coatings, and are widely used for plant hygiene, too. That is why at HELIOS, we use a wide selection of biocidal products and continuously research new possibilities.

Biocidal protection of wet water-based paint

An average water-based paint contains about 10 – 15 components, and nearly all of them can be a source of bacterial infection. The production equipment is also an additional source of bacterial infection. To destroy all sorts of bacteria and to achieve long term biocidal protection of wet paint, it is necessary to add bactericides. This is achieved with a process called in-can preservation, which serves as a precondition for safe and high-quality coatings with a long shelf life. An in-can preservation is a mixture of 2 to 3 active biocidal substances with broad pH and T stability and a broad antibacterial activity. The need for in-can protection very strongly depends on the components of the paint. The most susceptible to bacterial infection are wall paints, which require a very carefully chosen in-can protection.



IN COOPERATION WITH OUR EXTERNAL PARTNER MICROBIUM, WE ARE DEVELOPING SEVERAL FORMULATIONS WHICH DO NOT CONTAIN ANY IN-CAN PRESERVATIVES.

Impregnations for wood

As wood is a live substrate, influenced by humidity and different mechanical stress, it needs to be properly protected. To avoid deterioration and extend the life of wood, impregnations containing a well-defined mixture of fungicides, algicides and insecticides are in use. When developing this type of biocidal formulations, producers need to follow strict regulative requirements and the formulations have to be authorised as such. For this purpose, an extensive dossier has to be prepared, comprising of physical, chemical, toxicological and efficiency data for each individual formulation. Only after the formulation is authorised and approved by all the EU members, it can be produced and sold on EU markets. Any change of the authorised formulation needs to be approved again, as according to BPR, this represents a new biocidal product.

Paints containing dry-film protection

External and internal painted surfaces, which are exposed to high humidity, are usually attacked by fungal and algal growth,

causing the decay of the paint film that results in a poor aesthetic appearance. Indoors, harmful micro-organisms can also be spread into the air, causing health problems. This can be prevented by adding fungicides and algicides to the paint, which temporarily very effectively decreases the growth of micro-organisms. Paints with dry-film protection are not submitted to the authorisation process of biocidal protection as their primary function is to protect the substrate. They are defined in the BPR as »treated articles«, which is why producers must label them with a description of active substances and a claim that the paint contains dry-film protection.

Disinfectants

Disinfectants contain one or more active substances with a very broad antimicrobial activity. They destroy fungi, algae, lichens, bacteria and yeast. Therefore, they are very effective for the disinfection of surfaces attacked by any microbial growth. These products are not suitable as an additive to the paint as they act directly on the infected surface and lose their activity when mixed

into the paint. Additionally, they are also not suitable for skin disinfection, as they are irritative for skin. Disinfectants are not yet submitted to the authorisation, but it can be expected in the future.

Plant hygiene care

When it comes to plant hygiene, each plant has its own protocol of disinfection and cleaning, depending on the technology specifics and product quality. This protocol defines in detail the periods and ways of disinfection for each part of the technology. Special care is applied to the equipment used for the production of water-based paints, where all equipment needs to be cleaned properly, disinfected and additionally protected by a bactericide. Plant hygiene is also subjected to special yearly audits that prove the efficiency of our procedures.

Hygienic coatings

In hygiene-sensitive areas, such as healthcare and pharmaceutical facilities, there is a need for effective hygiene coatings. These paints destroy dangerous bacteria, viruses, and fungi, which are present in the air, walls or ceilings, providing easy-to-clean surfaces that comply with the rigorous

hygiene legislation. Our R&D team at HELIOS is currently developing the products for this field too.

Regulations – continuous development driver

The obligations of paint and coatings producers, producing and marketing biocidal products are not regulated only by the BPR, but also by the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) and the EU Regulation on Classification, Labelling and Packaging of substances and mixtures (CLP). The latter allows for the identification of hazardous chemicals and the communication of these hazards to users through labelling. It also provides the basis for safety data sheets regulated under the REACH regulation and sets requirements for the packaging of hazardous chemicals. Under this legislation, certain biocidal active substances have been reclassified in the last years in a way that they can no longer be used or that the allowed quantity should be significantly reduced. This applied especially to our DIY products for which we had to find new biocidal ways. In addition to all the necessary tests, the labelling of products had to be changed as well. •



DISINFECTANTS ARE NOT SUITABLE AS AN ADDITIVE TO THE PAINT AS THEY ACT DIRECTLY ON THE INFECTED SURFACE AND LOSE THEIR ACTIVITY WHEN MIXED INTO THE PAINT.



SPEKTRA INTERIOR WALL PAINTS CONTAINING NEW MIT-FREE IN-CAN PROTECTION, THANKS TO WHICH NO CHANGE IN THE LABELLING WAS MADE. AT THE SAME TIME SLIGHTLY HIGHER LEVELS OF MIT-FREE IN-CAN PROTECTION IN OUR FACADE PAINTS AND LEVELLING COMPOUNDS RESULTED IN NEW LABELLING.



TO PREVENT WOOD DETERIORATION, WOOD SURFACES NEED TO BE PROTECTED WITH IMPREGNATION THAT CONTAINS A WELL-DEFINED MIXTURE OF FUNGICIDES, ALGICIDES AND INSECTICIDES.



THE AUSTRIAN COATINGS INDUSTRY HAS LAUNCHED THE NEW INCANPRES PROJECT TO RESEARCH NEW APPROACHES TO IN-CAN PRESERVATION. THE INCANPRES INNOVATION PROJECT WILL INVESTIGATE A BROAD SPECTRUM OF POSSIBILITIES TO PREVENT IN-CAN SPOILAGE.



ALL HELIOS RENDERS AND SOME OF OUR FACADE PAINTS, WOOD STAINS, ENAMELS AND INTERIOR WALL PAINTS CONTAIN DRY-FILM PROTECTION.

A smart thermal insulation system

Cirila Colnar Mikeln

For DIY users, the development of paints for the decorative protection of mineral, wood and metal surfaces has long been focused on the use of the most people and environmentally friendly raw materials possible.

Due to a lack of knowledge in handling coatings, non-professional users are most exposed to their potential harmful effects. European legislation protects non-professional users very well with various regulations and laws, as it prohibits the use of carcinogenic, mutagenic and reprotoxic substances in such paints. Any substance classified as hazardous must be properly labeled on the packaging. In addition to H-phrases, which describe the hazards due to certain substances in the coating, P-phrases on the packaging represent instructions on how to protect or act to prevent any harm.

Development is to some extent guided by legislation, but we also develop products with added value, with properties that in various ways contribute to effective, economical, health and nature-friendly solutions for the decorative protection of wall, wood or metal surfaces. The toolkit of HELIOS' sustainable solutions in the field of architectural coatings includes thermal insulation interior wall coatings, which combine the coating's decorative and functional properties at the highest level.

Thermal insulation interior wall coating
The interior wall coating SPEKTRA Termo

Top in combination with SPEKTRA interior putty Termo form a thermal barrier, thanks to which the surface is warmer and more pleasant to the touch. This is made possible by the hollow fillers found in both products. The system keeps rooms cool in the summer and warm in the winter, which significantly decreases the cost of energy sources for heating and cooling. Using the system of both products effectively prevents the formation of condensation and consequently also the formation of mould. At the same time, their use avoids the frequent use of disinfectants and renovation.

A healthy and friendly living space
Mold is not only an aesthetic problem; it is primarily a harmful phenomenon. Inhaling mold spores present in such spaces can cause inflammation in the lungs, coughing, difficulty breathing and can exacerbate asthma. When such wall surfaces are treated with SPEKTRA interior putty Termo up to 4 mm thick, the heat transfer through them is significantly reduced. The walls remain warm, preventing condensation of water vapor from the air, which in turn

eliminates the conditions for mold growth. SPEKTRA Termo Top thus creates a human-friendly living space with a positive impact on health. SPEKTRA interior putty Termo contains less than 1 g/l of volatile substances, so emissions during application and drying are minimal. Its elasticity also makes it suitable for covering small cracks on wall surfaces.

Before the final paint, we recommend a layer of the levelling compound SPEKTRA Level Fine, which is easy to apply and can

be sanded. For the top coat we recommend SPEKTRA Termo Top, which further helps to reduce the transfer of heat through the wall and retain heat. In addition, it also helps regulate the room's humidity and reflects more than 90% of the visible spectrum of light back into the room, creating more light. The interior wall paint SPEKTRA Termo Top is available in light shades, and the system is also compatible with any other interior wall paint from the SPEKTRA family. •



REDUCES HEAT TRANSFER THROUGH THE WALLS.



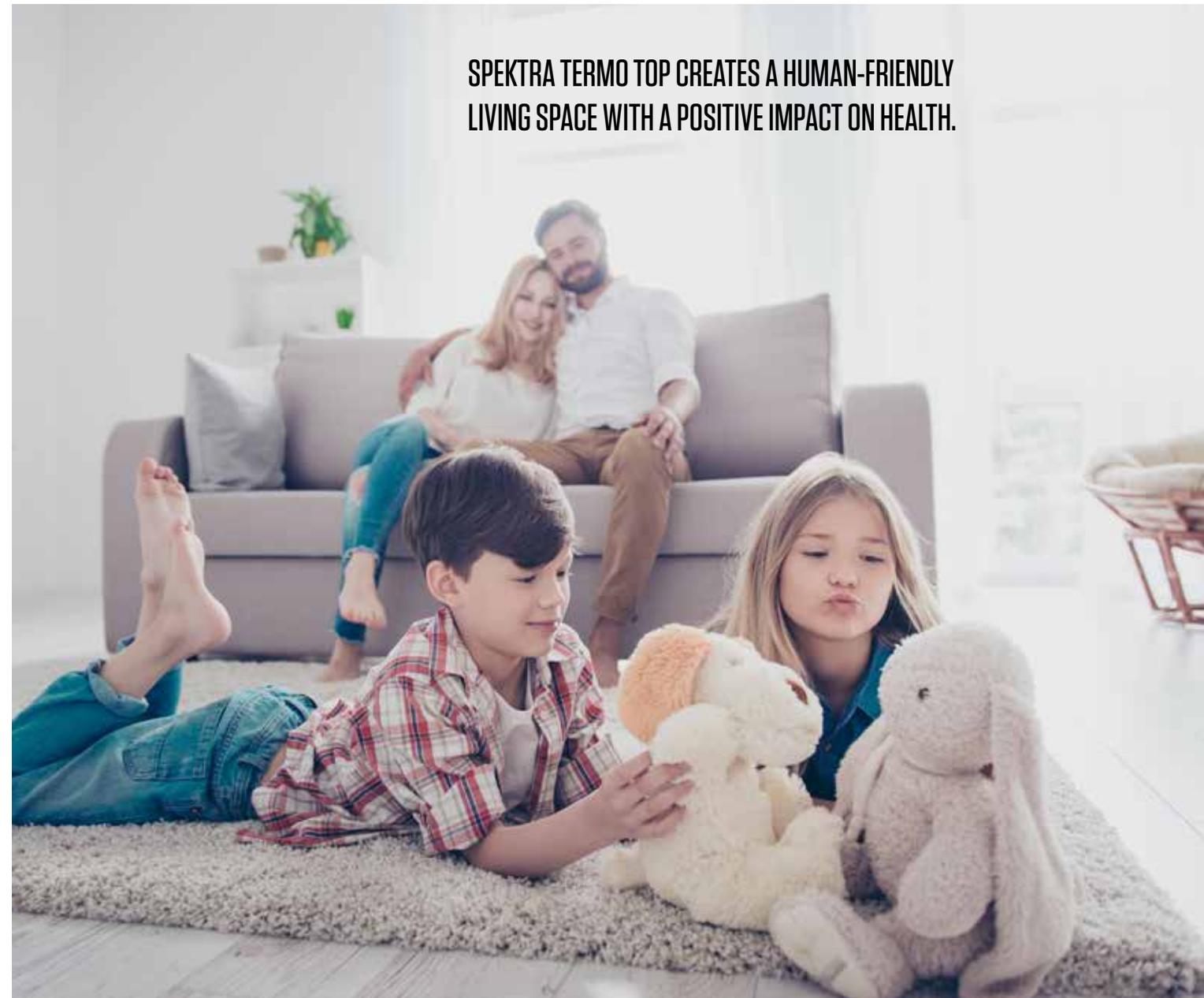
REFLECTS MORE THAN 90% OF LIGHT BACK INTO THE ROOM.



PARTIAL SAVINGS IN HEATING, COOLING AND LIGHTING COSTS.

SPEKTRA TERMO TOP AND SPEKTRA INTERIOR PUTTY TERMO

SPEKTRA TERMO TOP CREATES A HUMAN-FRIENDLY LIVING SPACE WITH A POSITIVE IMPACT ON HEALTH.



Reusing CO₂ to produce green products

Matija Mencinger

The European Union has introduced emissions trading system years ago with the aim to strategically reduce carbon dioxide emissions. Belinka Perkemija is one among more than 11,000 companies from all over Europe taking part in the system. Next to emissions reduction, the company has identified CO₂, formed as by-product in the production of hydrogen peroxide, as a product with wide use value.

BY REUSING OR INCORPORATING THE CO₂ IN NEW PRODUCTS, BELINKA PERKEMIJA CONTRIBUTES TO THE CARBON FOOTPRINT REDUCTION.

As part of its climate and energy policy, in October 2014 the European Council has adopted a binding agreement that the European Union will achieve a minimum 40% reduction in greenhouse gas (GHG) emissions by 2030 compared to 2005. All economic sectors are expected to

contribute to the reduction of GHG emissions. The most cost-effective way to achieve such goal is through the EU Emissions Trading System (EU ETS). In Slovenia, 49 companies are included in the system. In addition to Belinka Perkemija, a company part of the HELIOS, there are also thermal power plants and heating plants, producers of steel, glass, ceramics, cement, lime and paper, and others.

The EU Emissions Trading System

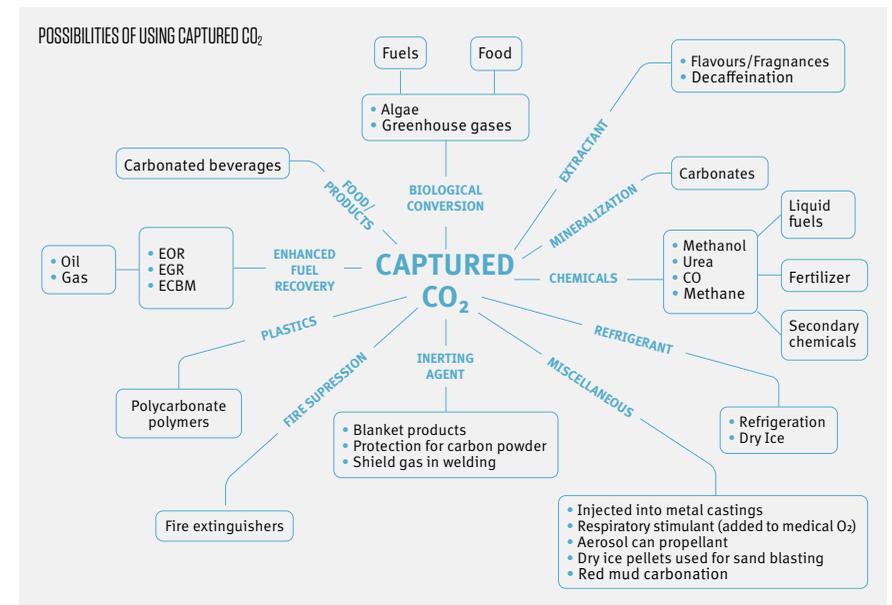
The EU ETS consists of trading permits for greenhouse gas emissions and entered into force with the first trading period in 2005; the third trading period will end in 2020. The basic trading unit in the EU ETS is the emissions allowance, which represents 1 tonne of carbon dioxide emitted into the atmosphere. In the event of a deficit or surplus of emissions allowances, companies participating in the EU ETS can buy or sell permits on the exchange.

The price of emissions allowances is influenced by factors such as the number of emission allowances allocated free of charge, the cost of measures to reduce

greenhouse gas emissions, and the increase in the energy efficiency of facilities that have obtained a greenhouse gas emissions permit. Fuel price parities, especially of coal and natural gas, electricity prices and demand for it are also important factors.

Objectives and responsibilities of companies involved in trading

Trends in European policy and the economy look at reducing CO₂ emissions as much as possible. These can be a significant cost for companies, which have to reduce their carbon footprint while maintaining production capacity. EU ETS trading leaves it up to companies to assess how many emissions they can afford based on what is financially viable. At the same time, it equates the costs of reducing GHG emissions across the EU by allowing cross-border trade. This minimizes restrictions on competition between companies, operators of facilities that produce GHG emissions in the European single market. Last but not least, the aim of the system is to help reduce GHG emissions in the future and to reward innovation in reducing emissions. Companies must obtain a GHG emissions permit before they start operating, and must regularly monitor emissions, produce an annual report and hand over the appropriate number of emission allowances.



Carbon capture and storage technologies

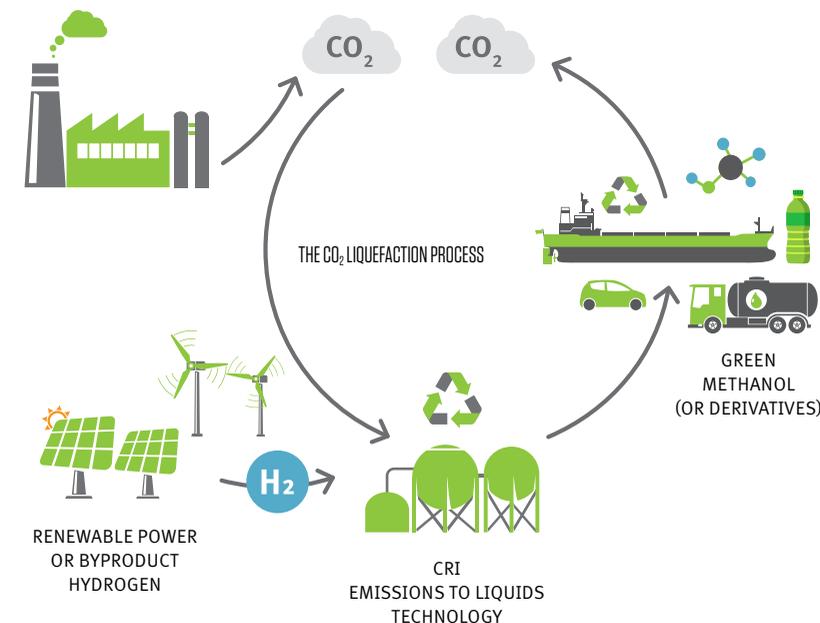
In the coming trading period from 2021 onwards, a combination of new carbon capture and storage (CCS) technologies will also be available to companies involved in the EU ETS. This technology captures up to 90% of CO₂ emissions produced from the use of fossil fuels in industrial processes or electricity production, and prevents CO₂ from entering the atmosphere. The EU also offers significant subsidies for the installation of CCS-enabled facilities for

companies that choose to capture their CO₂. Through various processes, emissions caught and stored are then deducted from the amount of emissions produced at a company. A smaller final amount of emissions allows savings on permits and consequently on costs.

Possibilities to incorporate CO₂ in green products

At Belinka Perkemija, carbon dioxide, which is formed as a by-product in the production of the otherwise green and widely used chemical hydrogen peroxide, has been identified as a product with wide use value. Direct CO₂ emissions formed in the companies' industrial processes can be captured and processed or liquefied using special processes. By reusing or incorporating the CO₂ in new products, Belinka Perkemija is consequently contributing to reducing the carbon footprint. CO₂ enables processing to food industry purity and use instead of natural sources, whose emissions are similar to those from synthetically produced products. At Belinka Perkemija, experts are actively working on the development and possibilities of incorporating CO₂ in new green products in addition to further supplementing the capacities of the existing CO₂ liquefaction process. •

FLUCTUATING MARKET PRICES OF EMISSIONS ALLOWANCES OVER THE TRADING PERIODS



SUCCESS

“Action is the foundational key to all success.”

Pablo Picasso

Painter



"ENERGY SHOULD BE AIMED IN THE RIGHT DIRECTION"

Maša Bantan Marot

Aljoša Tušek is a former Slovenian race car driver, who has been for the last fifteen years manufacturing supercars under the Tushek brand. It's a boutique segment in which every step of the way is distinguished by exclusivity. Cars are mostly made manually from highest-quality materials, and belong among the most extreme ones in the world.

"THE THINGS THAT DRIVE US ARE THE PASSION FOR INNOVATION AND OUR COMPETITIVENESS."

What led you to establish the Tushek Supercars company, and why did you decide to take part in this challenging field?

It was the love for fast cars that drove me into the world of supercars, along with experience and of course the team from my racing times. To be completely honest, nobody ever imagined that we would become so deeply involved in the development of these extreme cars. The things that drive us are the passion for innovation and our competitiveness. Our deep understanding of the technique, and above all the desire to create, master and understand these machines, give us strength and perseverance.

What is the difference between a race car, a sports car and a supercar?

The biggest difference is in the materials used, the design subjected functions and the open settings options for the teams and racers. With race cars, everything is subject to functions and capabilities. Sports cars are usually serial products of major manufacturers, which are also intended for everyday use, meaning they are also more comfortable. Supercars, on the other hand, are made of materials which are too expensive for mass production, and are mostly made manually in small series. This is how they remain exclusive and, of course, they are also very powerful and attractive, and usually not something you would see every day.



Photo: Tushek Supercars

How much time passed between idea and the actual realization or launching of the first car to the market in 2012? How many different models have you launched to the market so far?

Work on and testing of our first model, the Renovatio T500, began in 2008. In the meantime, we established the Tushek brand in 2011. The TS 600 was made in 2014, followed by the TS 900 Apex model in 2018, for which we are now also preparing a small-series production.

What is the price range of your cars, and who are the buyers?

Our cars belong to the Hypercar group, which is the highest price range of extremely powerful and exclusive sports cars, which are mostly hybrids and have more than 1000 Horsepower (HP).

You are a boutique manufacturer. How many cars have you produced and sold so far?

Our TS 900 is the eighth prototype from our workshop. Next year, we intend to start producing pre-ordered cars for our end buyers.

You moved the production of your cars from Slovenia to Graz in Austria, yet you are still cooperating with several Slovenian experts when it comes to development and engineering. Who do you work with?

That is true, but we returned to Slovenia in 2017. Here, we cooperate with Helios, AVL, Emrax, Emsis, and some other smaller contractors.

Last spring, you introduced the currently lightest hybrid vehicle, the TS 900 Apex sports car, which weighs 1.440 kg with all its equipment and liquid. How did you achieve this, and what kind of adjustments were needed?

This was possible thanks to a modern approach, innovative technology, topology and, in particular, simulation tools for the optimization of weight and statics. We used the best possible materials, as we make no compromises when it comes to choosing which ones to use.

Sports or high-performance cars are not usually associated with environmentally friendly or green technologies. What are the advantages of hybrid technology in cars of this type, or in your case?

With only 60 kg of batteries and a total electric drive weight of 190 kg, our TS 900 can offer the best power and weight ratio among electric vehicles. This means that the car moves 400 kilowatts of power from just 60 kilograms of batteries for as far as 70 kilometres, without the help of a petrol engine. In our industry, this is an essential piece of information.

You trusted Helios experts with the exterior of the TS 900 Apex vehicle, who prepared a new pearl-white shade for Tushek Supercars, and completely coated it with Mobihel car refinishing coatings. How did our experts and products convince you?

We are proud and glad that as a small company we can use innovative technologies and can also take advantage of the help, knowledge and the experience of Helios colour experts and trainers. This helps us achieve originality, exclusivity and quality. And these characteristics are key in our industry, so we would like to thank the Helios team, and hopefully we will be able to do them justice with our vehicle.

The conditions related to the outbreak of the coronavirus have strongly impacted the car industry in 2020. What are the consequences in the luxury sports/supercars segment?

There are consequences also in this segment, but to a lesser extent. I believe the demand in this specific segment is stable.

You used to be a successful race car driver. Which values and principles did you have to follow both on the road as well as in your professional life? What does it take to beat the competition?

Both on the road as well as in business it is key to aim your energy in the right direction, and to be as innovative and competitive as possible. Competitiveness on the road is only possible under controlled conditions, but we currently do not have an active racing circuit in Slovenia. If you decide to race, do it on so-called "track days" organized by racing circuits, and most definitely not on the road. In fact, once you experience driving on the limit, which is only possible under controlled conditions, the road becomes uninteresting for racing. •

“WE ONLY USE THE BEST POSSIBLE MATERIALS AND MAKE NO COMPROMISES WHEN IT COMES TO CHOOSING WHICH ONES TO USE.”



Photo: Tushek Supercars



Photo: Tushek Supercars

HELIOS REFINISH

First impressions from Africa

Gregor Vodlan

For Helios Refinish, 2019 will be remembered as the year when we entered the South African, Botswanan and Zimbabwean markets with our MOBIHEL and COLOMIX brands.



Over the last two years, Helios Refinish has managed to enter a variety of new markets with our car refinish products. In addition to the new markets in Europe, the Middle East and North Africa, we have set foundations to further spread our wings in the markets of Central and South Africa.

South Africa accounts for one of the biggest car refinish markets, with the total market size evaluated at approximately 125 million euros. In terms of segments, VFM or the Mid-Tier Segment is the biggest with

approximately 49 million euros, followed by the C Tier Market, where the Economy segment accounts for 44 million euros and the Premium segment for 32 million euros. Helios Refinish participates in the Mid-Tier Segment with the MOBIHEL brand and the C tier Segment with the COLOMIX brand with the help of the Kansai Plascon footprint in the whole region. We have already started with the installations and have managed to install 15 MOBIHEL mixing schemes and 10 COLOMIX mixing schemes so far.

Only a few months after installing the first MOBIHEL and COLOMIX mixing schemes in South Africa, we have already received positive remarks from our end customers. The African market represents a great potential for Helios Refinish, which is why we will further strengthen our presence there. Our focus is already on Botswana and Zimbabwe where we will further creating strong local stories and strengthen our team of instructors to offer the best technical support. •



IN ZIMBABWE, WE SET UP OUR FIRST MIXING STATIONS AT THE END OF JULY THIS YEAR AND CURRENTLY HAVE TWO MIXING STATIONS INSTALLED THERE.

A MASTERPIECE MADE BY ETIENNE DU TOIT, PAINTED ENTIRELY IN MOBIHEL PAINTS, WHICH WAS PRESENTED AT THE AUTOMECHANIKA JOHANNESBURG TRADE FAIR IN 2019.

HERE IS WHAT HELIOS REFINISH CUSTOMERS IN AFRICA ARE SAYING:

SOUTH AFRICA

"Mobihel has the best coloristics and offers a beautiful finish on each job."

Thagren Odayan, KZN General Panel Beater & Spray painters

"Mobihel should have been introduced into the country a long time ago. We are really happy with the easy-to-use system and its coloristics."

Aadie, KZN Daytona Panelbeaters

"Mobihel is user friendly, very easy to work with, cost efficient and a brilliant product overall. We have not had any returns or paint failures so far."

Danie, GP Danie's Panelbeaters

"Mobihel is one of the most cost effective paint brands for Out of Warranty Repairs. What is amazing is that it maintains the efficiency of my business due to the colour accuracy and reduces the material cost. Brilliant."

Johan Robbertze, CPT Stikland Body & Sprayworks

BOTSWANA

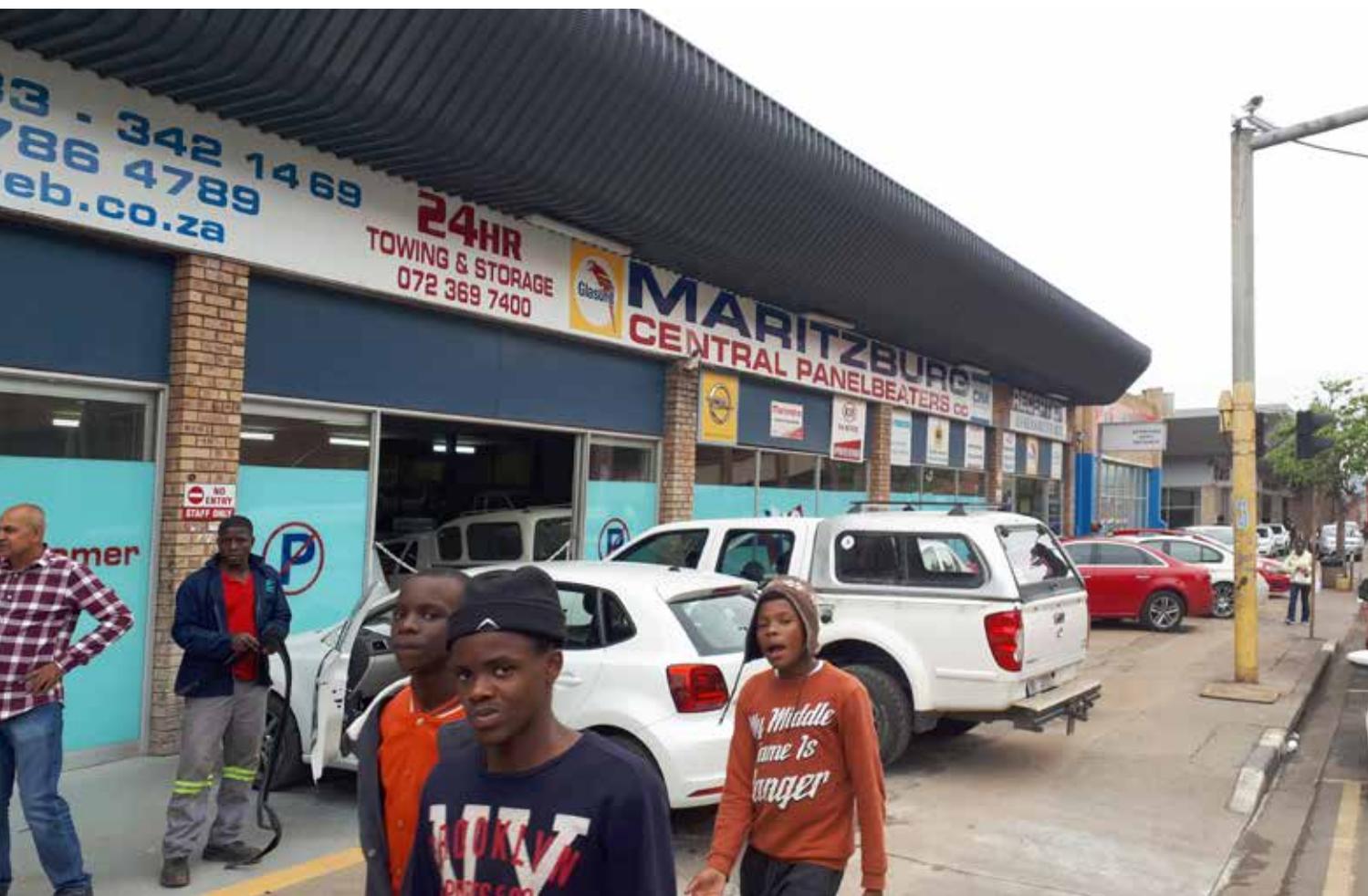
"All the colours mixed are very accurate and have great coverage. The Clearcoat V5 finish is smooth and shiny, and the matt clear finish is good as well. The product finish has high gloss."

Mr. William Kedireng, Techno Squad

ZIMBABWE

"We mixed 48 colours in three weeks easily and had no issues with the silicone remover, solvents or plastic primer. We are proud of the fact that none of the colours sold were returned. As for the full use of the products, we would prefer the training for technicians and colour matchers to be together with the technical personnel for consultations."

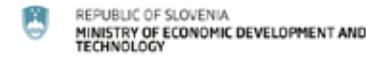
Helios Refinish importer from Zimbabwe



Wind energy enhanced with Helios Resins

Dr. Peter Perdih

HELIOS traditionally holds a strong market position in the composite segment, more specifically the segment of DCPD unsaturated polyester resins.



Recognized high standards have made our gelcoat and topcoat products widely applicable for the production of composites in several industries, e.g. wind power, transportation, sanitary equipment, marine, engineering and filament winding. With an extra focus on the wind power industry and its specific requirements, HELIOS's products excel at making composites lightweight, strong and durable, while meeting high standards for fire safety and weathering resistance.

Entering the wind power market

Wind is globally used as a sustainable and renewable source of electric power. In the European Union, 15% of its power demand is reportedly provided by wind power, with the exception of Denmark where the number is significantly higher and amounts to 48%. In the recent years, Europe has annually invested approximately 20 billion euros in wind power production. The production of large parts required to build wind power plant constructions has importantly influenced R&D activities in the resin and composite segments. Suppliers have sought to offer the industry excellent, durable, and light-weight materials combined with advanced technological solutions.

To boost development activities and the market position with new, better, and optimized products, Helios Resins established close cooperation with Slovenian client Elan in 2018. As Elan has very advanced wind power and marine divisions, HELIOS offered them the development of high-quality products within these segments. Together we have created a portfolio of products needed for a

HELIOS'S PRODUCTS WERE DEVELOPED TO PROVIDE PEOPLE AND THE ECONOMY WITH SUSTAINABLE ELECTRICITY FROM RENEWABLE SOURCES.

well-controlled production of high-quality nacelles – housing for power generators, gearboxes, and other vital parts. The project (ADCOMP4MWI) was co-funded by the Ministry of Economic Development and Technology of the Republic of Slovenia and supported by the European Regional Development Fund.

Long-term cooperation with Elan

“We have been using HELIOS's resins, gelcoats and topcoats for many years now. Our long-term cooperation is the result of extremely high-quality materials,

competitive prices, as well as other advantages – such as great responsiveness, proximity, adaptability to individual needs, professionalism, and highly trained staff,” stated Igor Zupan, R&D Director of the Elan Composites Division. The joint new project only intensified the cooperation. The goal of the project was to develop various advanced composites for use in both the marine and wind divisions. Mr. Zupan added: “We can say that the project is a success in its entirety. During the project, HELIOS has successfully followed the requirements of our international end

THE EUROPEAN WIND INDUSTRY IN 2019: FINANCING AND INVESTMENT TRENDS.

New asset finance in wind energy 2010 – 2019 (GW and €bn)¹



1. Analysis of the history of installed capacity in Europe indicates that a number of FIDs are not made public and new asset investment figures are likely to be understated.

■ Offshore new assets financed (€bn)
 ■ Onshore new assets financed (€bn)
 —●— New capacity financed (GW)

Source: Windeurope 2019.

customers of vessels and wind plants, as well as our needs. The results of the project are fully developed and serially reusable advanced materials, which provide us and HELIOS with the necessary competitive advantage in the demanding international market of composite products.”

Setting of wind power division coatings

The development and production of HELIOS’s thermoset resins for composites is located in the Preska plant in Slovenia. After highly demanding testing at HELIOS and Elan, we were ready to enter the market with the set of new products. Applicable to the wind power industry, Helios Resins has developed: Colgel GC 610, a gelcoat with increased UV-light durability; Colpoly 7200 Al-LV, a DCPD unsaturated polyester resin

for advanced vacuum-infusion application exhibiting low viscosity as well as long gel-times with excellent mechanical properties; and fire retardant coating products, namely the Colgel TC 639 FR topcoat and the Colgel GC 647 FR gelcoat.

AFTER HIGHLY DEMANDING TESTING AT HELIOS AND ELAN, WE ENTERED THE MARKET OF THE WIND POWER INDUSTRY.

High-quality custom-made products

HELIOS’s products were developed to provide people and the economy with sustainable electricity from abundant

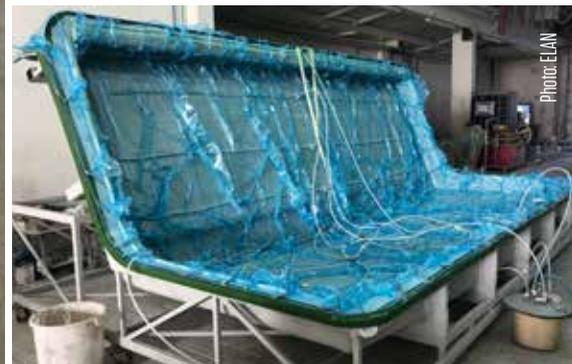
renewable sources. Brands such as Colpoly, Colvinyl and Colgel are synonyms for high quality, and are in many cases custom-made products, i.e. unsaturated polyester resins, vinyl ester resins, and gelcoats, topcoats, and pigment concentrates.

Additionally, we addressed working conditions related to the production of large composite parts. To minimize Elan workers’ exposure to styrene vapours, large composite parts are being produced by the vacuum infusion process that has been mastered by Elan. During this process, resins developed for this specific application process are introduced into a laminate covered by a vacuum bag, consequently effectively eliminating the occupational exposure to vapours. •

Elan, a Slovenian company founded in 1945, is a global manufacturer of sports equipment, leisure equipment and technologically advanced composites exporting to more than 60 countries worldwide. Their products are distinguished by innovation, advanced technologies, and advanced design. In 2010, Elan developed a wind power division, which has ever since become the second biggest division within the Group.



CONSTRUCTION OF A NACELLE.



Two experts, one green mission

Katrin Willenshofer, Alena Ehrenberger

Efficiency, innovation and tailored customer solutions wrapped in green technology development – this is what you can immediately see and feel with our long-term customer Komptech.



The international technology supplier of machinery and systems for the mechanical and mechanical-biological treatment of solid waste and biomass as a renewable energy source, focusses on sustainable and environmentally friendly technologies and the closest cooperation with its customers in product development. In more than 70 countries worldwide, the green Komptech machines are in use for composting, fermentation and all key process steps in modern waste handling.

More than a supplier

The commitment to sustainability is just one value shared by Komptech and HELIOS. Both companies strive for long-term and efficient alliances with associates, quick customer service and further developments of products to achieve optimal requirements. Dr. Christian Oberwinkler, CTO

of Komptech GmbH, describes his experience with HELIOS: “From the beginning of our collaboration, HELIOS has supported us with the implementation of their products. Our employees had the opportunity to undergo training and further education in their Technology Center. This showed us that Helios is not just a supplier, but an essential partner in the field of painting”. With HELIOPUR 4I-03 – a high solid one-layer coating system for agricultural machines – the best possible solution for Komptech machinery was found. The energy-saving production, low material consumption and low content of organic solvents increase productivity and certify the coating as environmentally friendly. At all Komptech production sites and those of their certified suppliers, the same HELIOPUR coating system is used to ensure the same quality standards.

“FROM THE BEGINNING OF OUR COLLABORATION, HELIOS HAS SUPPORTED US WITH THE IMPLEMENTATION OF THEIR PRODUCTS.”

More than a green color

Sustainability plays an important role throughout the entire product life cycle, especially in production. Therefore, massive investments have been made in the Komptech Group's infrastructure in recent years. A key element is the new state-of-the-art coating line. This change has significantly increased efficiency and contributed towards environmental improvement: the new coating system allows energy savings in production and a reduction of material losses.

The optimization of the coating process by switching from water-based solutions to a high-solid coating system was enhanced by reducing the drying time in combination with a low drying temperature. This led to an increase in efficiency and a minimization of energy consumption. To ensure the products' longevity - even perpetuity - the preparation of the surface is an essential factor for success, which is guaranteed by sandblasting the parts. This ensures optimal corrosion protection, weather resistance, uniformity and a high quality over the whole product life cycle (no fading, flaking etc.). In the future, sustainability will continue to be a top priority at Komptech. The focus is on constant further development in all areas, increasing productivity and maximizing efficiency with HELIOS as essential partner. •

About Komptech

Komptech is a leading international technology supplier of machinery and systems for the mechanical and mechanical-biological treatment of solid waste, and for the treatment of biomass as a renewable energy source. The product range includes over 30 different types of machines, that cover all key process steps in modern waste handling - shredding, separation, and biological treatment. The focus is always on innovative technology and solutions that ensure maximum customer benefit.

Komptech business fields:

- Composting
- Fermentation
- Biomass treatment
- Mechanical and mechanical-biological waste treatment
- Treatment of refuse derived fuels
- Waste wood treatment
- Special applications for shredding and separation



MORE EFFICIENT COATING PROCESS – THE NEW COATING LINE AT KOMPTECH IS THE CORE OF AN OPTIMAL PRODUCTION PROCESS.

Photo: Komptech



HELIOS HIGH-SOLID COATING SYSTEM IS SPECIALLY DEVELOPED TO FULFIL THE HIGH QUALITY STANDARDS FOR KOMPTECH'S MACHINERY.

Photo: Komptech



Photo: Komptech

Water-borne makeover of the Sofia Metro

Olga Pavlinskaya

For the modernization of metro cars in Sofia, Bulgaria, HELIOS has developed a water-borne coating system in collaboration with customer JSC Metrovagonmash, part of the Transmashholding JSC group.



01

Water-borne coatings provide low toxicity and flammability due to low levels of volatile organic compounds.

02

Water-borne coatings help to reduce air emissions.

03

Painting equipment can be easily cleaned with water.

HIGHLY AESTHETIC FINAL APPEARANCE.



METRO CARS DURING THE PAINTING PROCESS.

In the segment of railway coatings, the main factors influencing the choice of coatings are the optimization of the application processes and the best quality. In other words, coatings should last longer, but provide increased workability. Furthermore, our customer JSC Metrovagonmash sought not only location-specific features, e.g. resistance to low temperatures, but also to follow current trends in the public transportation industry, such as high anticorrosive protection, great coverage, good anti-graffiti protection, resistance to chipping damage and various detergents, and great final appearance.

Green alternative for railway transport

Considering all the required features, experts from Helios Russia proposed Rembrandtin's water-borne coating system, which could provide an alternative to materials with solvent components, traditionally used in railway transport for painting passenger rolling stock. Water-based coatings stand out due to their low environmental impact, thanks to very low VOC emissions.

Meeting stringent requirements

Metromavgonmash JSC has been collaborating with the Sofia Metro for over 20 years, and in the beginning of December 2018 they signed a contract for the upgrade and repair of metro cars. While they selected Rembrandtin's water-borne coating system, several unique demands had to be considered, as water-borne anticorrosion protection is a demanding process that needs special experience. Additionally, all the main testing objectives had to be examined to verify and confirm the technological feasibility of this specific production process.

Exceeding customers' expectations

Normally, Helios Russia offers railway coating systems approved by the VNIIZHT Railway Research Institute, a company affiliated with Russian Railways. But to reach high standards in the Sofia Metro case, HELIOS has followed technological processes approved by other European railway manufacturers, such as OBB, Deutsche Bahn, MAV, Bombardier, Stadler, and Siemens. Among them, one of the

most important was the curing time, as water-borne coatings usually take longer to cure compared to solvent-borne coatings. The coating system, consisting of an epoxy primary primer, secondary acrylic primer, polyurethane enamel and varnish, additionally increased the production cycle of car coatings by 25–30% (10–12 hours) compared to the use of solvent-borne materials.

This project and the ability to work with water-borne coating systems gave Helios Russia the opportunity to strengthen their long-standing partnership with JSC Metrovagonmash, while emphasizing the excellent quality of the products and services of HELIOS. Once again, the HELIOS team has demonstrated its ability to develop comprehensive solutions for customers that meet their specific requirements. •

ADHESIVES AND SEALANTS

The perfect match for systems

Mateja Zore

The production of commercial transportation vehicles, agricultural construction and earthmoving (ACE) machinery is increasingly moving away from the use of mechanical fasteners, replacing them with adhesives and sealants.

The shift to adhesives and sealants in the assembly of these vehicles is driven primarily by the need for greater durability, shorter manufacturing times, the use of composite and lighter materials, aerodynamic design, and safety. Adhesives and sealants greatly extend the durability of the vehicle, as they prevent corrosion, unlike mechanical fasteners, which are prone to galvanic corrosion. At the same time, they can reduce the weight of the bus up to 80 kg, and increase the aerodynamics of the vehicle, which both contribute to lower fuel consumption. Special types of adhesives and sealants can also increase safety, e.g. by damping impact or acting as a fire retardant in the event of a fire.

Diverse usage of adhesives and sealants

During the production of vehicles and machinery, adhesives and sealants are

used in a variety of procedures, such as the assembly of the body structure, gluing and sealing of the roof, as well on various parts, such as floors, side panels, front and rear modules, bumpers, exterior plastic and other exterior parts. Sealants play an important role also in the direct glazing of these vehicles. In addition, they can be used for gluing of floor coverings, other interior elements, and where neat and watertight seams are required.

Adhesives and sealants most commonly used in the production of commercial transportation vehicles and ACE machinery:

1. Structural adhesives and sealants are body shop materials which are cured by adding heat (heat-curing products). One- or two-component hybrids of polyurethane and epoxy are often used for this purpose.

2. Adhesives and sealants based on the 1K PUR technology are characterized by outstanding mechanical properties and elasticity, high elongation and joint movement capabilities, good shock, peel, load and vibration resistance; they offer high dynamic stress absorption, good adhesion to a wide variety of substrates and paintability.

3. Adhesives and sealants based on hybrid technology (STP/MS polymers) are easy to process, one-component adhesives and sealants that represent one of the most environmentally friendly products for this purpose. They do not contain harmful isocyanates nor solvents, and their VOC value is zero or close to zero. They are distinguished by a very high resistance to UV degradation

ADHESIVES AND SEALANTS EXTEND THE VEHICLES' DURABILITY, REDUCE ITS WEIGHT AND INCREASE SAFETY.

and weathering, excellent primerless adhesion to a wide range of substrates, and are permanently elastic over a wide temperature range. Furthermore, they are paintable, with outstanding mechanical properties, good mould resistance and adhesion to wet surfaces.

Combinations and types of application
HELIOS has been offering excellent coating solutions for commercial transportation vehicles and ACE machinery manufacturers for decades, which is reflected in the enviable market share in this segment. In recent years, the same customers have become increasingly interested also in adhesives and sealants from the Helios Kemostik product range. Thus, in certain cases of applications, we can offer our customers system solutions that can increase the quality of the final products, reduce costs, save time and facilitate the choice.

In the production of commercial transportation vehicles and ACE machinery we encounter the following basic combinations of adhesives or sealants with coatings:

1. Adhesive or sealant applied to an existing coating
The compatibility of the adhesive or sealant with the coating must be preliminarily tested, as the adhesive or sealant should establish good adhesion to the coating, while no visual restriction



should arise. Usually, we have to achieve good adhesion on powder dry, dry to touch or dried through/fully cured surfaces.

2. The adjoining coating is applied after the adhesive or sealant
The adhesive or sealant must be paintable, although it comes into contact with the coating only at the edge.

3. The coating is directly applied on the adhesive or sealant ("painting over")
In this case, adhesive or sealant is completely painted over. According to DIN 52460, the appropriate sealant can be painted over the entire surface with one or more coats without harmful interactions. The application is usually carried out after skin formation or on a completely cured sealant or adhesive. Wet-on-wet painting is possible only with STP/MS polymer adhesives or sealants.

Prevention of side effects
Sometimes when painting over adhesive or sealant, some difficulties may occur. Most coatings are designed to be applied to hard, non-moving surfaces and usually do not match the elastomeric properties of adhesives and sealants. Adhesives and sealants are soft and will extend and compress if the painting film does not move in an identical manner to the adhesive or sealant, causing the paint to crack and peel.

The unwanted effects that could occur are:

- The paint film may crack.
- The paint film may not adhere to the sealant surface.
- The paint film may discolour.
- The paint film will not cure or dry properly

To avoid the unwanted effects, the following laboratory tests are most frequently carried out:

- Tests of the influence of temperature and humidity, which are performed in the climatic chamber (T an R.H. control), ovens and deep-freezer (up to -60 ° C).
- Paint adhesion testing (cross-cut test, scrape adhesion, pull-off test).
- Paint shade stability.

The perfect match of different systems
To combine adhesive and sealant with coating applications is a challenging task that requires caution and preliminary compatibility testing, while painting over sealants is the most demanding one. That is why our dedicated teams at HELIOS provide all the necessary support with field mock-ups and laboratory testing to ensure good end results for producers of commercial transportation vehicles and ACE machinery. We can ensure all the necessary resources, knowledge and equipment to successfully develop and manage system solutions for this segment of customers. •

Helios Master Classes for the latest coating trends

Katrin Willenshofer, Davor Sladoje

At HELIOS, we focus on high-tech coating technologies and innovations to contribute to our customers' success. Not only is their success the result of our high-quality products but also a byproduct of technical skills and know-how transfer. With Helios Master Classes, we improve know-how transfer with a platform for learning, networking, and keeping up-to-date in all fields of the coatings industry.



HELIOS WEBINARS ARE ACCESSIBLE FROM ANYWHERE IN THE WORLD.

Join Helios webinars from anywhere in the world

Helios Master Classes is a series of unique, high-level training courses, renowned IKI Symposia, and webinars. Due to this year's exceptional situation with the coronavirus pandemic, the main focus of the program is on HELIOS Webinars, which provide access to knowledge from anywhere in the world via your smartphone. Several events like IKI Symposia and technical workshops remain planned for 2020, while their execution depends on the further development of the coronavirus in Europe.

Each webinar in a series is dedicated to a specific topic or segment. Our coating experts share detailed information on new coating systems and product developments as well as changes in regulations such as DIN EN ISO 19944. During the webinars we aim to spend time productively to broaden our horizons, and to discuss possible future developments. Therefore, all training courses, events, and webinars are free of charge.

HELIOS MASTER CLASSES IS A SERIES OF UNIQUE, HIGH-LEVEL TRAINING COURSES, RENOWNED IKI SYMPOSIA, AND WEBINARS.

Please find additional information and current events at www.helios-group.eu/masterclasses.

KEY ADVANTAGES OF THE HELIOS MASTER CLASSES

01

Highly skilled expert lecturers.

02

Excellent technical and theoretical know-how.

03

Comprehensive and practice-oriented training courses – many of which will be held on our production sites.

04

Many years of experience in all industrial coating segments.

HELIOS MASTER CLASSES PROVIDE PRACTICE-BASED TRAINING COURSES.



FOUNDATIONS

“It is not by muscle, speed, or physical dexterity that great things are achieved, but by reflection, force of character, and judgment.”

Marcus Tullius Cicero
Statesman, scholar, and writer



Building relationships based on trust

Uroš Primožič

Trust is the important essence of each relationship and is especially important when cooperating with our suppliers. That is why sustainability and environmental focus represent one of the main bonds connecting us with our partners.

Sometimes we are all challenged with profound questions from small children. In such cases you can expect many whys which demand simple and thoughtful answers. To a question why we are producing paint and coatings and why they are actually good for there is a simple answer with two main motives: with paints objects look nicer and they last longer. The later represent worthy motives which we, involved in paint production, should be more often aware and proud of. However, even the worthiest motives are rarely one-sided.

The fact is that paint and coatings production are based on chemicals and chemical reactions. They are connected with use of solvents and their evaporation, with consumption of different resources, with formation of waste and similar.

This less bright side we must take into consideration and manage in most responsible way. Environment conscious and future oriented actions can be thus translated in today very popular word – sustainability. We are sustainable when we balance social, environmental and economic factors. When all three aspects are harmonized, we can be sure we are doing right things in the right way.

With our products and production, we cannot avoid our influence on the environment, but we can surely minimize their negative effect as much as possible. Observing it from purchasing perspective we have here the most important influence through cooperation with suppliers and supply of raw materials. One positive example is our supplier, company Perstorp. Their regular supply of Pro-environment

polyols to our resin production has significantly lowered our CO₂ emissions compared to standard materials we purchase. The most important is that the results are concrete, they can be measured and there are further opportunities to do even more.

Our investments today are already focused on the reduction of energy consumption and waste during the production processes. For some years, we are collecting waste solvents from the production and reusing them with special distillation procedures, while this year these capacities will be significantly increased. Many of our production sites are already using electricity from renewable sources. On top of that, we are preparing the project documentation to build our own solar power plants at different sites

that will further increase our share of renewables in the following years.

Our road markings are partly using resins produced from recycled plastic. We are further considering options to use recycled plastic in plastic packaging for our final products. These are just few examples of our today's responsible acting which are showing how different and versatile our opportunities are.

Important task remains communication and promotion of mentioned activities to our customers. Here we should proactively promote our products and services, to explain and differentiate them from standardized solutions. Information should be together with products spread through supply chain to the final customer.

And at the end it will be always us, individuals, who are deciding and making

WITH OUR PRODUCTS AND PRODUCTION, WE CANNOT AVOID OUR INFLUENCE ON THE ENVIRONMENT, BUT WE CAN SURELY MINIMIZE THEIR NEGATIVE EFFECT AS MUCH AS POSSIBLE.

the difference. If we will all acknowledge, respect and demand sustainable acting in our daily lives, there will be soon no other alternative, it will become our new normality. Everyone can contribute and make the difference. Today.

Trying to answer the never-ending questions from small children, we can further explain why we will always need paints and coatings in the future - as we simply cannot live without colours around us. Our future paints will last longer and with smarter solutions we will contribute to a greener planet. We will take our part of responsibility and we will produce them in environmentally most friendly manner. It will be a long journey and we are already making important steps. •

Responsibility for tomorrow with thoughtful chemistry today

Anna Berggren

Perstorp is a specialty chemicals company dedicated to improving everyday life through thoughtful chemistry. Their innovative chemicals are found everywhere, on the walls of houses, on the screens of digital devices, on roads etc. Thus, Perstorp's products are used in numerous end products, with the largest market segments being resins and coatings.

USING NATURE'S TINIEST BUILDING BLOCKS TO DRIVE A SUSTAINABLE TRANSITION.

Founded nearly 140 years ago in the woods of southern Sweden, sustainability has always been close to the heart of Perstorp and is one of our guiding principles. The essence of our sustainability work entails doing the right things in the right way. This is why we focus our innovation to create more sustainable products and offer products that help our customers, and the end products they are used in, to become more sustainable," says Anna Berggren, Business Development Director at Perstorp.

Consumers in the green transition

The effects of climate change have become a global matter of survival. Organizations play a crucial role in mitigating these challenges. End consumers' concern for the environment, legislation and

commercial viability are all predicted to drive strong growth of renewable and recycled raw materials, as well as more sustainable products in the coming years. As part of this highly important transition, Perstorp is constantly developing and updating its Pro-Environment portfolio and continuously striving to become Finite Material Neutral.

Becoming Finite Material Neutral

In November 2017, Perstorp set the bold sustainability ambition to become Finite Material Neutral. The ambition involves switching to alternative resources that are abundant and/or renewable, to close the loops and recycle or reuse those that are finite. The initiative is intertwined with the company's entire business and production as it focuses on the five main



areas: raw materials, energy, water, waste and catalysts. Perstorp is moving away from finite fossils or scarce materials, reducing its water footprint, and enabling zero waste from production sites. "Currently we are developing roadmaps for action and additional investments that we need to make to achieve this bold ambition. It is such exciting and inspiring work!" adds Anna Berggren.

The transition to Finite Material Neutral requires close collaboration throughout the entire value chain; from suppliers who provide the raw materials, to customers and brand owners with similar goals. All parties in the value chain need to unite and drive a sustainable transition together to reach all the way to the end-consumer products. Producing products in line with Perstorp's Finite Material Neutral ambition results in the kind of products with the renewable or recycled content and low carbon footprint that end-consumers and brand owners are increasingly looking for. At Perstorp, we call such products Pro-Environment Solutions.

Shifting to Pro-Environment products

Perstorp's Pro-Environment products are so-called drop-in products as they consist of exactly the same molecules with the same quality as their fossil equivalents but are produced from a sustainable source. This makes it easy for Perstorp's customers to shift from a fossil product to a Pro-Environment one and, consequently, reduce the environmental impact. The products are drop-in products with the same quality and performance because they are produced according to the mass balance concept. Mass balance means mixing fossil and sustainable materials while keeping track of the sustainable quantities and



THE GLOBAL ECONOMY TRANSFORMING INTO A GREEN ECONOMY.



USING NATURE'S TINIEST BUILDING BLOCKS TO DRIVE A SUSTAINABLE TRANSITION.

allocating them to the specific products. The mass balance, carbon footprint product calculations and products themselves are certified according to the global sustainability system ISCC (International Sustainability and Carbon Certification), where Perstorp is also a member.

Increasing demand as a change driver

As customers aim to reduce their environmental impact and develop more sustainable products, interest into Pro-Environment products is increasing rapidly. Over the last years, Perstorp has expanded its Pro-Environment products portfolio to cover base polyols, specialty products, deicer, plasticizer and soon also acids and alcohols. The products are sought by customers from a variety of markets in Europe, America, Asia, and the Pacific area. Our ultimate goal is to transform all of our products to Pro-Environment ones

and implement such a production concept, currently implemented at three of seven production sites, to all our sites globally.

Sustainable innovation and development

To continuously support customers and markets in their sustainability transition, Perstorp is eager to find new ways and solutions. Our innovation team has developed a tool to keep the focus on different aspects of sustainability and sustainable products within the project portfolio. Roughly 80 percent of our research and development initiatives focus on finding new solutions to reduce environmental impact and to meet the market demand for more environmentally responsible products. We seek input early on, to examine whether our developments are relevant and valuable. We believe that keeping close ties and working together with our customers is the way forward. •

A lean and green approach for a better performance

Maša Bantan Marot, Yulia Plosinjak

At HELIOS, we continue to invest in new methods and technologies, moving us towards more sustainable manufacturing practices. With the combined lean and green approach, our goal is to improve our operation's efficiency.



IN 2020, WE SET OUR GOAL TO INCREASE OUR ENERGY EFFICIENCY BY 3% EVERY FOLLOWING YEAR.

LEAN AND GREEN CONCEPTS SUPPORT EFFICIENT RESOURCE USE, INCREASED ENERGY EFFICIENCY AND REDUCTION OF WASTE, WHILE SATISFYING CUSTOMERS' NEEDS IN A COST-EFFECTIVE MANNER.

Taking a closer look at our key resources, the most important ones are people, energy, machines, time, raw materials, as well as nature and climate. In this context, we are implementing lean and green manufacturing, combining lean practices focused on customers' demands and green practices focused on reducing the environmental impact of our operations. Both concepts support a more efficient use of resources, increased energy efficiency and reduction of waste, while satisfying customers' needs in a cost-effective manner. In line with our main strategic directions, continuous improvements of our processes and lean tools are part of our KAIZEN initiative which involves employees at all levels. As part of HELIOS's sustainability efforts that were transformed into the We turn it green initiative this year, we put special emphasis on projects reducing our waste and improving our energy efficiency.

Managing and reducing waste

At HELIOS, reducing the waste connected with the production and sale of our products is one of our key priorities. The overall goal in 2020 is to reduce waste in all production units by at least 5%. To achieve this goal, we have formulated two working groups with a special focus on waste arts from liquid and powder coating.

This year, two major investments were carried out at the location of Helios TBLUS at Preska, Slovenia. We invested into a new distillation plant, which modernizes the process of distillation of washing solvents and thus reduces waste. With the new distillation plant, we will reduce the usage of new solvents by at least 100 tons annually and improve distilled solvents for further use. Additionally, the unit for the oxidation of resin process water with H₂O₂ built in cooperation with our German partner EnviroChemie will potentially lead to the neutralisation of 1500 m³ process water from the Preska resin plant.

With lean tools, such as 6S, KIM, TPM, SMED, and VSM we are reducing eight waste arts related to overproduction, over-processing, motion, defects, underutilized manpower, waiting, inventory and transport. The implementation of all these methods confirms that successful business is possible without compromising the environment.

Improving our energy efficiency

In 2020, we set our goal to increase our energy efficiency by 3% every following year. With the clear objective in mind, we will devote our efforts to projects improving our infrastructure and technology. At the same time, we will promote energy saving behaviour among our employees.

We continuously invest into our infrastructure across all production sites to reduce electricity consumption. We are replacing existing halogen lighting with more efficient LED lightening that enables a better luminous efficacy. Among 70 projects to increase our energy efficiency, there are also investments into new bead mills and dissolvers, EMS systems and burners for boilers. In addition, we are actively working on the optimization of technology processes, such as cleaning and grinding processes. Additionally, we regularly provide our employees with useful tips on how they can contribute to energy saving at the workplace with simple practical actions.

Since renewable energy will play a fundamental role in the future, we will strive to increase the share of renewable energy within all HELIOS sites. As of this year, our production sites, Helios TBLUS in Slovenia, Chromos in Croatia and Rembrandtin in Austria fully operate using electricity obtained from renewable resources. On top of that, we are preparing the project documentation to build our own solar power plants at HELIOS sites in Slovenia, Austria, Croatia, and Germany that will further increase our share of renewables in the following years. •

HELIOS PRODUCTION

Environmentally friendly and smart

Radmila Wollrab

Standing still and waiting for others to lead the way is not how we at HELIOS approach business opportunities. We are investing smartly in digitizing our industrial assets that will lead to increased agility and ability to respond to customer requirements faster.

Call it Industry 4.0 or Smart Manufacturing, the manufacturing and process industry is undergoing a change brought forth by the innovation in computing, information and communication systems. Digitalization stands for the new possibilities that come

from the use of more and/or new types of data, communication infrastructure and computing power. Data and information on production have tremendous value but are not routinely shared, sometimes not even between different departments of the same company.

HELIOS's approach to digitalization is twofold:

1. Making current and real-time data more widely available across the organization to be used for research and development, business decisions and collaboration between various departments.
2. Collecting new data (smart sensors, for example) and, together with the already available large sets of data, analysing them to facilitate new knowledge, identify problems early, or create more accurate data-driven models.

Following the first step, we managed to combine the existing data with real-time measurements that lead to optimization of the production and ensuring consistent quality of products. One example is the use of the newly developed tool for tracking the synthesis progress of different resins that enables timely action in cases where synthesis does not follow the expected path.

The second step will enable predictive-preventative maintenance that a recent study by Accenture, New York City, and GE, Boston, found can generate a 30% reduction in maintenance costs and as much as a

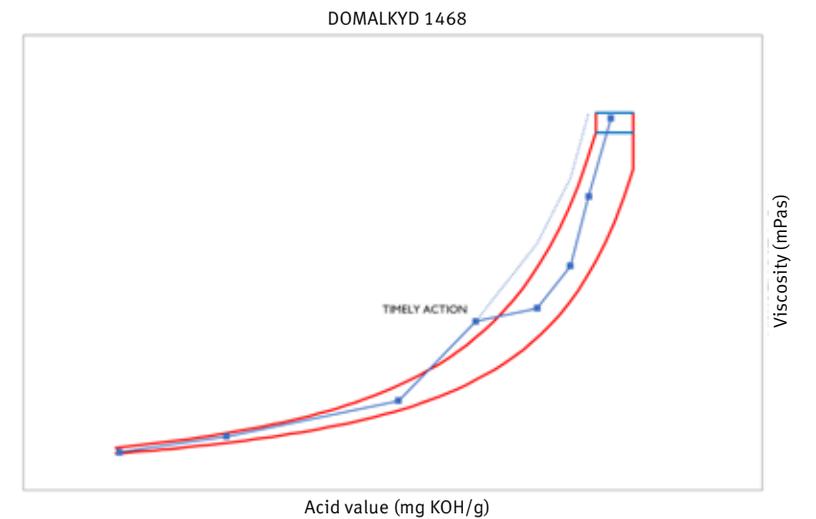
70% cut in production downtime due to equipment breakdowns. For example, vibration sensors, embedded at the right points in the process line, combined with tools to transfer data to a monitoring system, can predict the breakdown of equipment.

Another use of big data technology is identifying underlying problems in the production, causes, and effects that are not intuitively obvious.

Going further, process data analysis can lead to Model Predictive Control (MPC) that can switch between various control strategies that are necessary in the process industry with many different applications, such as polymer production.

And finally, case studies have shown that there is significant untapped flexibility and unused potential within production facilities and supply chains. To unlock this potential and use it in an efficient, cost-effective manner, digitalization and big data analysis are of paramount importance.

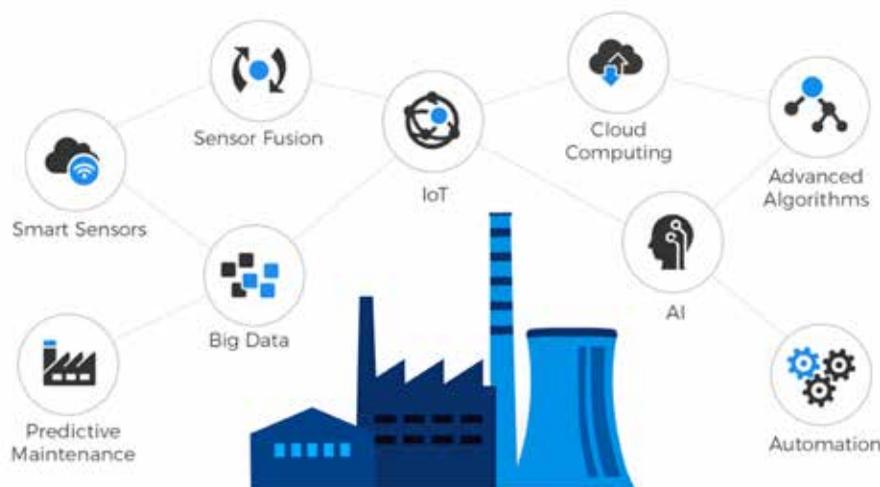
TOOL FOR TRACKING THE SYNTHESIS PROGRESS OF DIFFERENT RESINS.



Certainly, considering Industry 4.0 alone without environmentally friendly and sustainable manufacturing cannot bring a future that we can look forward to. The ultimate objective

is to incorporate sustainability into manufacturing, and technology can provide efficient solutions for energy savings, control of emissions, and equipment maintenance among others.

SMART MANUFACTURING



DIGITALIZATION STANDS FOR THE NEW POSSIBILITIES THAT COME FROM THE USE OF MORE AND/OR NEW TYPES OF DATA, COMMUNICATION INFRASTRUCTURE AND COMPUTING POWER.



FOR GENERATIONS.



Chromos celebrates the 100th anniversary

Gunther Vesko, Ivan Marković

This year, Chromos boje i lakovi d.d., a company part of HELIOS, celebrates its 100th anniversary. While Chromos is one of the leading producers of paints and coatings on the European market today, its history began with a small local paint production.



ESTABLISHED 100 YEARS AGO, THE LUXAL BRAND LIES AT THE HEART OF CHROMOS'S SUCCESS AND HAS REMAINED A SYNONYM FOR HIGH-QUALITY ENAMELS TO THIS DAY.

The Croatian synonym for **high-quality and reliability** Back in 1920, Bernard Moster, founder of the company, stated: “Produce only products of the best quality”, and ever since Chromos has worked towards high-quality products and first-class services within the painting industry. Today, Chromos has a 100,000 m² production site in Zagreb with a yearly production of 15,000 tons, and employs 150 people, who daily strive towards the common goal: to make painting with Chromos’s products a success. About 10% of the team focuses on research and development to successfully meet customers’ needs.

Local features intertwined with global know-how

Each batch of Chromos’s products is subjected to the strict quality control to ensure that only the best is delivered to the market. All the hard work resulted in Chromos becoming an integral part of HELIOS, and consequently part of Kansai Paint. The new

position on the market has granted the company access to worldwide trends and global know-how transfer in the field of R&D. Chromos manages to keep a steady growth in a demanding business environment by combining global trends and best practices with local excellence.

Widely recognized excellence

Throughout history, Chromos’s high-quality products have been helping to improve and protect the appearance of many renowned buildings in Croatia, such as historical buildings in the city centre of Zagreb, renowned hotels along the Opatija Riviera and a variety of others. However, usage of Chromos’s products can be found far beyond the borders of Croatia as well. The numerous awards received as well as domestic and foreign certifications are a recognition of the company’s innovative spirit, together with advanced product solutions under the renowned brands, such as Luxal, Chromoden, Fasadex, Chromolux, and Poliflor, which are well-known by several generations.

THROUGHOUT HISTORY CHROMOS'S HIGH-QUALITY PRODUCTS HAVE BEEN HELPING TO IMPROVE AND PROTECT THE APPEARANCE OF MANY RENOWNED BUILDINGS IN CROATIA.



FAÇADES OF PALACE BELLEVUE HOTELS IN OPATIJA, CROATIA

Dedicated to customers and communities

As of this year, Chromos has been putting a greater effort into environmental protection by further optimizing internal processes and plant safety, while also further supporting a more sustainable development. There are various projects planned and ongoing to support the local communities and institutions for children. This year it is all about the people that have accompanied the brand for so many years and this is also the key message of this year's campaign – "For Generations".

Based on the ten decades of continuous development, Chromos will continue to improve the appearance of each and every surface also for generations to come. Superior quality, knowledge, innovation and tradition will remain common denominators of success, together with the people that shaped Chromos into the company that it is today. •

CHROMOS LAUNCHED A SPECIAL ANNIVERSARY EDITION OF SELECTED POLIFLOR PRODUCTS, SUPPORTED BY MANY PROMOTIONAL ACTIVITIES OF THE HISTORICAL TOP SELLERS.



ECOPOLIFIX

Industrial future designed on powder traces

Bine Pangršič

Ecopolifix Srl is an Italian producer of powder coatings that was founded in 1994. The company has grown from a small manufacturing company to an internationally recognized supplier of industrial coatings that is part of the broader HELIOS and Kansai Paint network.



THE NEW POWDER PRODUCTION LINE WITH A CAPACITY OF OVER 2,000 TONNES PER YEAR AT ECOPOLIFIX.

Ecopolifix powder systems are used for application in the architectural market (aluminium), on office furniture, garden furniture, cladding panels, machine tools, valves, heaters, lights, and appliances. They open completely new perspectives for functional coatings of the future. Depending on the application, a modern powder coating can be resistant to chemicals, anti-bacterial, conductive, thin-layered, textured, metallic, or pearlescent.

The world of powder coatings

With two production sites in Riese Pio X (TV) and Tezze sul Brenta (VI), in northern

Italy, Ecopolifix ranks among one of the few powder coating producers in Europe to have more than 900 products permanently on stock. In the special production facilities approximately 10,000 tonnes of powder and PVC coatings are produced annually. All this enables the Italian company to achieve extremely short reaction times and to meet versatile customer demands. Thanks to worldwide production, distribution and sales activities, the opportunities for Ecopolifix have also grown proportionally. The company currently has 88 employees and generates 25 million euros of sales.

The company has gone under substantial

reorganisation in the last two years. After changes in the management team that were followed by a series of internal organisational changes in 2018 and the implementation of SAP in 2019, Ecopolifix announced the next step in its business development.

Combining industrial strengths

While Ecopolifix has been continuously and reliably providing top powder coatings to its customers, the company that celebrated its 25 years anniversary in 2019 is also looking ahead. New investments, expansion in other segments and a strong support from the



IN ADDITION TO THE TOP-QUALITY POWDER COATINGS, IN THE FUTURE ECOPOLIFIX WILL PROVIDE ITS CUSTOMERS ALSO WITH A FULL RANGE OF HELIOS INDUSTRIAL COATING SOLUTIONS.



ECOPOLIFIX SRL, AN ITALIAN PRODUCER OF POWDER COATINGS, PART OF HELIOS, MARKED ITS 25TH ANNIVERSARY LAST YEAR.



combined HELIOS and Kansai Paint network will bring new development opportunities for Ecopolifix.

Due to significant growth potential the company decided to invest in a new powder production line with a theoretical capacity of over 2,000 tonnes per year. With the acquisition of the trading company Helios Italia Srl. in 2019, Ecopolifix enriched its portfolio with car refinishing products as well as sealants and PU foams. Furthermore, the company has expanded its activities into industrial metal coatings to position itself as a full system and

solution provider in the field of industrial coatings in addition to the top-quality powder coatings.

The company will combine strengths from all areas of HELIOS industrial coating solutions by providing high-quality powder coatings, liquid metal coatings by HELIOS and Rembrandtin as well as E-coat solutions to the company's international clients. At the same time, the company will exploit the resulting synergies in R&D, logistics and sales for the benefit of our customers. Access to additional resources, new segments, faster

distribution channels, further product innovations and an international network of experts will enable the company to serve its customers even better in the future. •

At five production sites in Europe, HELIOS produces eco-friendly and efficient powder coating solutions that bring new surface functionality possibilities. With its two locations, Ecopolifix is the largest among them, next to Helios Coatings Deutschland, Helios TBLUS, and Helios Srbija. They are all known for their wide range of product assortment, the variety of colour shades, flexibility and tailor-made solutions for all industries. The group operates under the principle of continuous process improvement and investment in new equipment and technologies that create value for our customers.



ECOPOLIFIX Riese, Italy



ECOPOLIFIX Tezze, Italy



HELIOS SRBIJA, Serbia



HELIOS TBLUS, Slovenia



HELIOS TBLUS Preska, Slovenia



HELIOS COATINGS DEUTSCHLAND, Germany

Road markings produced in Russia

Olga Pavlinskaya

Local production of paint and coatings is among the main priorities of Odilak, a Russian company part of HELIOS.



IN ALMATY, KAZAKHSTAN, ROADS ARE COMPLETELY COATED WITH HELIOS ROAD MARKINGS PRODUCED AT ODILAK.

O dintsovskiy lakokrasochniy zavod (Odilak) from Odintsovo is one of the oldest Russian paints and varnishes plant, with its history dating back to 1907. While in the past Odilak used to be known as a producer of decorative coatings, today the companies' range of products includes industrial coatings, particularly for metals and road markings. Together with the trading

company Helios RUS, they represent a platform offering our customers the best quality of the whole set, within the global network of HELIOS and Kansai Paint.

The local in the global

After Odilak became part of HELIOS in 2006, the plant was reengineered, while product lines and the whole process of production were improved to enable the

production of road markings and industrial coatings for wood and metal. The next step was the introduction of a wide range of cold plastics materials based on resins, supplied from Helios in Slovenia, as an addition to the road markings segment. During the 2014 – 2020 period, coatings for metal and road markings were produced under the same roof, while in 2020 we started to launch a separate production line for road markings.

For more than six years, HELIOS has been the only foreign manufacturer in Russia with a 100% local production of road markings. The long term efforts made it possible for HELIOS to become one of the main European players in the field of road markings providing consumers in Russia and other CIS countries with high-quality local materials for a competitive price.

Adapting to different climatic requirements

Regions in Russia and other CIS countries are well known for their versatile climate conditions. While in the northern parts the temperature is well below zero, the southern parts are exposed to heat and humidity. Contractors and applicators in different regions are supported with products adapted to their special climate requirements: the Voronezh region, the



NEW MIXING MACHINES FOR ROAD MARKINGS.



ODILAK PRODUCTION OF ROAD MARKINGS.

THE MAIN HELIOS ROAD MARKING BRANDS ON THE CIS MARKETS

Paints	Cold plastics
SIGNODUR M – premium	SIGNODUR G – manual application
Klianosol QD – high-end	SIGNODUR – structural
Klianosol – mid-tire	SIGNODUR KSP 98: 2 – spray plastic
	SIGNODUR KSP 98: 2 (comp. A and B) – spray plastic

Rostov region, the Krasnodar region, the Murmansk region, Tatarstan, the Moscow region, the Saratov region, the Tver region, the Yaroslavl region, the Lipetsk region. HELIOS products can be found on the main traffic infrastructure such as the M4 highway in Russia, as well roads in the south of Russia, in Kyrgyzstan, Uzbekistan, and Kazakhstan.

Product modification for Russian conditions

The R&D team at Odilak adapted the products to the standards and requirements of the customers in Russia and other CIS

countries, including GOST standards. In line with that, several product modifications were made: a wide range of new colour shades for both road marking paints and cold plastics has been developed – including red, yellow, black, green, orange, blue; the drying time was reduced to ten minutes; whiteness was increased; conditional viscosity of materials was increased. Furthermore, a modified formulation of cold plastic without glass beads was made. Various raw materials (fillers, pigments) and binders were replaced with appropriate substitutes from domestic suppliers.

Through the years of development and hard work, HELIOS has established a strong position on the market, as a producer of high-quality materials, flexible enough to meet various customers' expectations. With the production plant in Odintsovo, HELIOS offers an effective combination of technical support and local production for customers in Russia and other CIS countries. •



Photo: U.S. Paint

Vibrant, high-quality specialty paints and coatings

John Duchardt

U.S. Paint, a company part of the Kansai Paint Group, has been delivering vibrant, high-quality specialty paints and coatings for original equipment manufacturers (OEMs) in the automotive, powersports, and other industries since 1931.



U.S. PAINT SOLUTIONS ARE RENOWNED FOR HIGH QUALITY, DURABILITY, AND EXCEPTIONAL RESISTANCE TO WEATHERING.

Developing specialty coating solutions for our customers requires a collaborative effort between our chemists, formulators and others that translates into a company-wide understanding of the need to communicate effectively with our partners – including those at HELIOS.

Developing solutions for various industries

U.S. Paint customers span the spectrum from multinational, industry-leading OEMs, mid-size manufacturers to smaller custom paint shops covering automotive interiors and exteriors industries, as well as those in the broad powersports market – motorcycles, ATVs, watercraft. Next to that, we are present in a variety of industrial markets including agriculture, heavy industry, mass-transit, freight, and more. Regardless of the size or the industry we put the exact same emphasis to all industries we sell our products to. We provide our

customers with the access to laboratories of coatings specialists and state-of-the-art testing equipment; meticulous color design and matching; rigorous research and development of paints and coatings to our customers' exact specifications; honest feedback, recommendations, and hands-on engagement regarding everything from paint line design to environmental impact to logistics. The U.S. Paint specialty is to give distinctive and eye-catching cosmetic finishes to a variety of products and applications.

Rigorously in-house tested paints & coatings

Our customers seek quality, durability, and exceptional resistance to weathering – U.S. Paint provides all that and more. Our extensive in-house testing laboratories are equipped with state-of-the-art equipment allowing us to rigorously test our paints and coatings in environments simulating UV exposure and a host of other stressors.



Photo: U.S. Paint

THE U.S. PAINT SPECIALTY IS TO GIVE DISTINCTIVE AND EYE-CATCHING COSMETIC FINISHES TO A VARIETY OF PRODUCTS AND APPLICATIONS.

We invest in industry-leading robotic sprayers to provide pinpoint coverage applied within the specific tolerances required by our customers to ensure the perfect fit at final assembly. We work collaboratively with our customer's internal teams on a multitude of substrates, including ABS, ABS/PC, PC/PET, AES, ASA, PP, GTX, TPO, PVC, fiberglass, and various metals, composites, and alloys.

Our large-scale testing capabilities include physical property testing, such as fuel and chemical immersion and spot testing, infrared spectral

analysis, and gas chromatography. We utilize state-of-the-art testing equipment from WVR, Taber, Atlas, Q-Lab, and Gardner. We have invested significantly in accelerated weather testing, using the Atlas Ci 4000 Xenon Weatherometer, carbon-arc, Q-Lab's Q-Sun XE-3 Xenon and QUV Weatherometers. Given our deep experience with automotive and powersports OEMs, we do extensive environmental testing – from water immersion to cycle testing, AutoTech and Atlas fog and humidity chamber tests, and thermostatic chamber tests.



Photo: U.S. Paint



Based in North America, available globally

U.S. Paint's primary customer base is centered on the United States, Canada, and Mexico. OEMs and their tier 1-3 suppliers often have multiple facilities in one or more North American countries, and U.S. Paint's sales, technical, and service teams are able to fully support these distributed production facilities. However, being part of the Kansai Paint Group's

global network enables U.S. Paint to work with customers anywhere in the world.

Delivering quality

At U.S. Paint, we have spent nearly a century continuously perfecting our design, production, and service processes since our reputation depends heavily on the quality of the products and services we deliver. •

Customers and partners seek us for:

- Superior color design capabilities
- Fast, nimble, and quality-focused workflow
- World-class laboratory and testing facilities
- Industry-leading booths and spray equipment
- Robotic application that meets exacting standards
- Our on-site technical service

Discover more about U.S. Paint on www.uspaint.com.



Photo: U.S. Paint



Photo: U.S. Paint

Donating disinfectant during the coronavirus outbreak

Maša Bantan Marot

With donations of disinfectants, HELIOS companies offered a hand to those whose efforts are crucial for curbing the spread of the coronavirus in Slovenia.



With the spread of the coronavirus (COVID-19) across the globe, there has been an increased demand for hand and surface disinfectants and other sanitizing products. Reacting to the shortage of disinfection products for personal hygiene as well surfaces during the spring months, HELIOS offered help to several organizations in the local environment, business partners and employees.

Effective types of disinfectants

Viruses, including the coronavirus, can persist on inanimate surfaces like metal, glass or plastic for up to nine days (Kampf, 2020). Disinfection can help to reduce coronavirus infectivity, and among the most common types demonstrated to be effective against SARS-CoV-2 are: ethanol 70-90%; chlorine-based products (e.g.

hypochlorite) at 0.1% (1000 ppm) for general environmental disinfection or 0.5% (5000 ppm) for blood and body fluids large spills; or hydrogen peroxide >0.5% (WHO, 2020). As HELIOS is a company operating in the chemical industry, we had the opportunity to offer two effective disinfectant solutions in the shortest possible time: a disinfectant for hands and surfaces based on ethanol and a disinfectant for surfaces based on hydrogen peroxide.

WE ALWAYS STRIVE TO HELP WHEREVER OUR HELP IS NEEDED THE MOST.

1.200 litres for the local community
HELIOS's companies donated more than 1,200 litres of HELIOS

HEALTH AND SAFETY HAVE BECOME TOP PRIORITIES AT HELIOS DURING THE OUTBREAK OF THE CORONAVIRUS.



BELINKA PERKEMIJA DONATED 10,000 LITRES OF BELOX HP6 DISINFECTANT TO THE ADMINISTRATION OF THE REPUBLIC OF SLOVENIA FOR CIVIL PROTECTION AND DISASTER RELIEF.



HANDOVER OF THE HELIOS DISINFECTANT TO THE REPRESENTATIVES OF THE CIVIL PROTECTION DOMŽALE.

disinfectant for hands and surfaces in convenient half-litre packaging to schools, kindergartens, health centres, nursing homes, fire brigades and other institutions. Disinfectants were handed over by the directors of individual companies to the commanders of the municipal headquarters of the Civil Protection in Domžale, Medvode, and Kamnik. The disinfectant was also provided to the members of volunteer fire brigades of PGD Podgorica-Šentjakob and PGD Nadgorica, who are important members of the communities helping many institutions within their local environment. Additionally, we provided the same disinfectant also to our employees for usage at the workplace as well for personal use at home.

10,000 litres for the Civil Protection
Belinka Perkemija, a company part of HELIOS, donated 10,000 litres of Belox HP6 disinfectant to the Administration of

the Republic of Slovenia for Civil Protection and Disaster Relief. The disinfectant based on hydrogen peroxide was used for disinfection of containers and tents serving as entry points for the patients with suspected coronavirus infection within the Slovenian healthcare network. Belinka Perkemija is one of the few European producers of hydrogen peroxide, an environmentally friendly chemical that does not produce any side reactions and decomposes solely into oxygen and water. In proper concentration, hydrogen peroxide represents an effective agent for disinfection of surfaces and prevention of the coronavirus spread. HELIOS has donated such disinfectant also to many business partners, fire brigades and local headquarters of the Civil Protection in Slovenia.

Health and safety as a top priority
At HELIOS, we are aware that our activities

represent an important framework for the development of the local environment in which we operate. We are proud that we were able to help many organizations from our local area as well as our business partners by donating different types of disinfectants. We always strive to help wherever our help is needed the most. Thus, we also donated protective masks to healthcare professionals and computer equipment to students at the time schooling from home. Health and safety have become top priorities at HELIOS during the outbreak of the coronavirus. We consistently implement all measures and recommendations appointed by state institutions and encourage employees in various ways to take preventive actions at work as well as in their free time. Due to the lack of protective equipment and disinfectants, we provided our employees with disinfectants and protective masks for personal use at home as well. •

Sources: Kampf, G. (2020). Potential role of inanimate surfaces for the spread of coronaviruses and their inactivation with disinfectant agents. Infection Prevention in Practice. // WHO. (2020). Coronavirus disease (COVID-19), Situation Report – 115, May 14, 2020.

DESTINATION SLOVENIA

Towards sustainable tourism

Lea Kačičnik

Slovenia has the population of 2 million and no mass tourism, which makes it a safe and sustainable choice for travelling. With 20,271 square kilometres and a diverse topography, you can switch between hiking in the mountains and chasing sunsets at the seaside within an hour car ride.

2020 is a year of reinvented travelling habits, as the coronavirus pandemic has fundamentally changed our possibilities to explore the world. Health and safety have become top priorities; thus, tourists are limited by safety measures implemented worldwide to curb the spread of the coronavirus. When choosing the next travel destination, people are encouraged to travel within the borders or stay relatively close in case they should need an emergency return.

However, every negative situation poses a new opportunity to explore and find new, possibly better alternatives. In case of tourism, there is an opportunity to boost local and more sustainable tourism. As HELIOS's headquarters are situated in Slovenia, our suggestion for your next travel destination would be this sustainably conscious Central European country.

The undiscovered European gem

Slovenia is a country on the sunny side of the Alps, offering an interesting mixture of natural and architectural beauty. The pedestrian- and cyclist-friendly capital, Ljubljana, has many architectural treasures, while serving at the same time as a great starting point for daily trips to different parts of the country. The mountains in the north with great views over green rivers and lakes. The short coastline along the Adriatic Sea as an overture to a more relaxed Mediterranean lifestyle. The Pannonian Plain in the northeast with numerous spas, surrounded by hills of vineyards. The Karst in the west with mysterious underground caves to discover.

MICHELIN-AWARDED LOCAL CUISINE AND WORLD-CLASS WINE



6

restaurants with Michelin stars



6

restaurants with sustainable gastronomy



28,400

vineyards, one per 70 people*



75 %

of the wine produced is white*



Annually produced wine*

90 million litres

*Source: Wine Tours Slovenia.

SLOVENIA IS THE WORLD'S

4th

most environmentally friendly country*

1st

green country**

8th

safest country***



* Source: The Good Country Index for 2019.
 ** Source: Green Destinations.
 *** Source: The Global Peace Index for 2019.

Green and sustainable

Greenery everywhere the eye can see is one of the symbols of Slovenia, as approximately 56% of its surface is covered by woods. Slovenia was recognized for conserving its greenery in 2016 when it was declared the world's first green country. The title was awarded for the national strategy towards sustainable tourism. Afterwards, the Slovenian Tourist Organization established the national Slovenia Green certification programme, which serves as a standardized tool to assess and improve sustainability efforts while helping tourists to make an informed and responsible decision.

Michelin-awarded local cuisine and world-class wine

Due to historical influences and the country's location, Slovenian cuisine is a fusion of different cultural impacts with its own perks and has been recognized for its excellence several times. In 2019, Slovenia was recognized for having the world's best female chef, while in 2020 it was added to the prestigious Michelin Guide. Gwendal Poullennec, International Director of MICHELIN Guides, acknowledged the Slovenian culinary scene for its high-quality local ingredients and the commitment of the chefs towards a more sustainable approach with the moto "From the garden to the table". Slovenia is also home to the oldest vine and is globally known as one of the best wine regions with a set of internationally awarded wines. In the main three regions (Podravska, Primorska, Posavska), Slovenia has over 15,000 hectares of vineyards and produces approximately 80 million litres of wine annually. •



CERTIFIED WITH THE SLOVENIA GREEN LABEL



48
destinations



43
accommodations



1
attraction



4
natural parks



2
agencies

Source: Slovenian Tourist Organization.



Dietmar Jost
Executive Director

THINKING BEYOND THE IMMEDIATE CRISIS

The COVID-19 pandemic has had devastating effects but at HELIOS we have also recognized a number of opportunities for our organization and business partners. Lockdown encouraged us to think beyond the health crisis and to further strengthen our environmental commitments. As a result of the new circumstances we have reorganized our work processes in a future-fit and sustainable way.

In a matter of days, we equipped our employees to work from home without causing any disruption to our customer service. Following very positive feedback on our team's performance, we have gained confidence in remote processes and their ability to allow us more flexibility in the future.

All this was only possible due to pre-existing solid foundations of online communication, which have now enabled uninterrupted internal and external communication, events and meetings. Training have also been carried out mainly via webcasts, which turned out to be an easy, modern, and inexpensive method of education that is easily shared and accessible at all times.

With the new ways of working and limited travel, we have significantly reduced our energy consumption and carbon footprint. Additionally, our employees have emphasized the importance of improved work/life balance, better time management as well as a more structured way of working. We will aim for this to continue post-covid as we strongly believe that digital technology will be further improved.

During this process there was some uncertainty as to whether levels of self-management and intrinsic motivation would be

possible throughout the whole organization with fewer control processes. But we have seen the entrepreneurial, flexible, and very professional work attitudes of our employees.

All these adjustments have been accompanied by strict hygienic measures in all our plants and locations. Social distancing, disinfectants, masks, stringent guidelines and a clear protocol in the case of a positive coronavirus diagnosis ensure that our processes are safe and reliable for our employees, as the health and safety of our employees are our top priority.

The agility and resilience of individuals and organizations became key drivers of organizational development after the 2008/2009 financial crisis. We are very satisfied with how we managed to stress-test during this pandemic, which has proven that our organization is able to adapt quickly to change. Moreover, our diversity has not posed a challenge as even older employees, who were less familiar with digital communication and work processes, have fed back that they really appreciate this learning experience and are even more motivated. We are proud that all our employees have managed to handle the transformation in an impressive way. We will invest further into training and education linked to our digitalization.

Each crisis brings some opportunities and at HELIOS we feel that several measures are certainly here to stay to further improve our way of work and life. We appreciate that our organization encourages us to learn continuously and also grow on a personal level. So we are committed to keep implementing such novelties even without the impact of an external crisis. •



Hubert Culik
Executive Director

LET'S TURN IT GREEN TOGETHER

Climate change is impacting the world so drastically that all companies, as well as individuals, need to undergo a transformation. The transition to a green economy should not represent a challenge, but a key responsibility for industry to act responsibly at all levels and encourage the development of environmentally friendly technologies.

In recent decades, we have seen the chemical industry's efforts to reduce its environmental footprint. At the same time, innovations in the coating industry also reflect the need for environmental protection and comply with the strictest environmental regulations. At HELIOS, we have already been pursuing this goal for many years as we strive to offer our customers smart coatings solutions that enable new ways of application and are more efficient in terms of protection, economy, and durability.

Today, in addition to the environmental aspect, manufacturers need to consider the overall impact of their products on society and the economy. That is why at HELIOS, we are extending our efforts even further. We would like to contribute to the environment and act responsibly towards nature and the climate throughout our entire value chain. From this year onwards, we will address climate change with a business model that will reduce our impact on the environment. Environmental and climate measures become our basic principles when introducing new products and performing day-to-day operations.

Under the initiative "We turn it green" we are focusing on tangible actions in four priority areas: people, products, purchasing

and production. Daily, green actions are coordinated by the management, with the help of colleagues from various fields: purchasing; production; research and development; health, safety and the environment; marketing; and communications. We have begun preparing the strategy for this transition to a carbon neutral business model.

We are introducing various green solutions within all processes and segments. Our R&D department is developing new coatings and solutions to reduce the consumption of all types of resources and the products' carbon footprint. Recently, we introduced several innovative products designed to increase the lifecycle of sources for renewable energy production. Most of our suppliers come from Europe and collaborating with them also includes additional sustainability criteria. Our biggest production sites already fully use electricity obtained from renewable sources, and we are preparing project documentation for the construction of solar power plants at three different production locations. These are just some of our activities presented on the pages in front of you.

In the future, new technical and social trends, such as the circular economy, e-mobility and sustainable production of energy, will create new opportunities and markets for the coatings industry. Climate and environmentally friendly paint and coating systems will play an essential role in the selection of processes and products. Products and surfaces will become much more customized and within the industry we should all recognize this as an opportunity to deliver new responsible solutions. •

EACH CRISIS BRINGS SOME OPPORTUNITIES AND AT HELIOS WE FEEL THAT SEVERAL MEASURES ARE HERE TO STAY TO FURTHER IMPROVE OUR WAY OF WORK AND LIFE.

THE TRANSITION TO A GREEN ECONOMY SHOULD NOT REPRESENT A CHALLENGE, BUT A KEY RESPONSIBILITY FOR INDUSTRY TO ACT RESPONSIBLY AT ALL LEVELS AND ENCOURAGE THE DEVELOPMENT OF ENVIRONMENTALLY FRIENDLY TECHNOLOGIES.

Germany

Poland

Russia

Ukraine

Czech Republic

Slovakia

Austria

Hungary

Romania

Slovenia

Croatia

Serbia

Italy

Bosnia & Hercegovina

Montenegro

North Macedonia



Designing Excellence

Get in touch

Austria

Fritze Lacke GmbH
Slamastraße 46
A-1230 Vienna
Tel: +43 (0)1 86 58 000
verkauf@fritze-lacke.at
www.fritze-lacke.at

Rembrandtin Coatings GmbH
Ignaz-Köck-Straße 15
A-1210 Vienna
Tel: +43 (0)1 277 02 0
Fax: +43 (0)1 277 02 43
office@rembrandtin.com
www.rembrandtin.com

Rembrandtin Coatings GmbH
Servicecenter Asten
Lagerstraße 7
4481 Asten
Tel: +43 (720) 010 220 0
Fax: +43 (720) 010 220 940
office@rembrandtin.com
www.rembrandtin.com

Kansai Helios Coatings GmbH
Ignaz-Köck-Straße 15
A-1210 Vienna
Tel: +43 (0)1 277 02 201
Fax: +43 (0)1 277 029 202
office@helios-group.eu
www.helios-group.eu

Bosnia and Hercegovina

HELIOS BH d.o.o.
Put za Aluminij bb
88000 Mostar
Tel: +387 36 805 939
Fax: +387 36 805 240
helios@helios.ba
www.helios.ba

HELA KOR d.o.o.
Bukinjska do br. 17
75000 Tuzla
Tel: +387 35 310 660
Fax: +387 35 310 662
helakor@delta.ba

Croatia

HELIOS HRVATSKA d.o.o.
Radnička cesta 173d
10000 Zagreb
Tel.: +385 1 2410 666
Fax.: +385 1 2405 512
web@chromos.eu
www.helios-hrvatska.hr

Chromos boje i lakovi d.d.
Radnička cesta 173d
10000 Zagreb
Tel: +385 1 2410 666
Fax: +385 1 2405 531
web@chromos.eu
www.chromos.eu

Czech Republic

Rembrandtin s.r.o.
Sokolovská 115
686 01 Uherské Hradiště
Tel: + 420 605 279 032
info@rembrandtin.cz
prodej@rembrandtin.cz
www.rembrandtin.cz

Germany

Helios Coatings Deutschland GmbH
Industriepark Nord 74
53567 Buchholz-Mendt
Tel: +49 (0) 2683 509 08 0
Fax: +49 (0) 2683 509 08 88
office@helios-coatings.de
www.helios-coatings.de/en

Hungary

HELIOS Coatings Hungary Kft.
Nagysandor J. ut 15742/15
5000 Szolnok
Tel.: +36 56 514 776
Fax: +36 56 514 777
info@hgpannonia.hu
www.helios-hungary.hu

Italy

HELIOS ITALIA S.r.l.
Via Vittorio Veneto 87
34170 Gorizia
Tel: + 39 (0) 481 594 300
Fax: + 39 (0) 481 594 312
info@heliositalia.it
www.heliositalia.it

Italy

EcoPolifix Srl - Socio unico Registered Office
Via Strada del Confine 41
36056 Tezze sul Brenta (VI)
Tel.: +39 (0) 424 848 555
Fax: +39 (0) 424 540 505
info@ecopolifix.it
www.ecopolifix.it

Plant and technical Service
Via del Lavoro 14-16
31039 Riese Pio X - (TV)
Tel.: +39 (0) 423 755 043
Fax: +39 (0) 423 755 163
info@ecopolifix.it
www.ecopolifix.it

North Macedonia

Helios Makedonija dooel
Bosna i Hercegovina 55
1000 Skopje
Tel: + 389 2 25 21 089
Fax: + 389 2 25 22 429
office@heliosmk.com

Montenegro

Helios Crna Gora d.o.o.
Simona Ivanova 1
81000 Podgorica
Tel: + 382 77 272 231
Fax: + 382 77 272 235
office@helios.co.me

Poland

HELIOS POLSKA Farby, Lakiery, Żywice i Kleje Sp. z o.o.
ul. Przeskok 43
63-400 Ostrów Wielkopolski
Tel: +48 (062) 735 29 66
Fax: +48 (062) 737 29 40
helios@heliospolska.pl
www.heliospolska.pl

Romania

HELIOS Coatings SRL
Ana Ipatescu street no. 44
077120 Jilava
office@helioscoatings.ro

Russia

JSC Odilak
Transportnij proesd 3.
Blok № 6, kab.203
143006 Odintsovo
Moscow Region
Tel: +7 (495) 594 16 50
Faks: +7 (495) 594 16 81
info@odilak.ru
www.odilak.ru

LLC "Helios RUS"
Transportnij proesd 3.
Blok № 6, kab.203
143006 Odintsovo
Moscow Region
Tel: +7 (495) 594 16 50
Faks: +7 (495) 594 16 81
helios@helios-rus.ru
www.helios-rus.ru

Serbia

HELIOS Srbija a.d.
Radovana Grkovića 24
32300 Gornji Milanovac
Tel: +381 32 771 000
Fax: + 381 32 713 394
info@helios.rs
www.helios.rs

Slovakia

HELIOS SLOVAKIA, s.r.o.
Rosinská 15/A
010 08 Žilina
Tel: +421 41 5177 100
Fax: +421 41 5177 111
helios@helios.sk
www.helios.sk

Slovenia

Helios Domžale, d.o.o.
Količevo 2
1230 Domžale
Tel: +386 (0)1 722 40 00
Fax: +386 (0)1 722 40 40
office@helios.si
www.helios-group.eu

Helios TBLUS, d.o.o.
Količevo 65
1230 Domžale
Tel: +386 (0)1 722 40 00
Fax: +386 (0)1 722 43 10
office@helios.si
www.helios-group.eu

Slovenia

Helios TBLUS, d.o.o. Location Preska Medvode
Škofjeloška cesta 50
1215 Medvode
Tel: +386 (0)1 722 48 44
Fax: +386 (0)1 362 59 91
office@helios.si
www.helios-group.eu

Helios TBLUS, d.o.o. Location Belles Zasavska
Zasavska cesta 95
1231 Ljubljana - Črnuče
Tel: +386 (0)1 588 62 99
Fax: +386 (0)1 588 63 03
office@helios.si
www.belinka.com

HGtrade d.o.o.

Količevo 100
1230 Domžale
Tel: +386 (0)1 729 82 00
Fax: +386 (0)1 729 82 25
info@hgtrade.si
www.hgtrade.si

Belinka Perkemija, d.o.o.

Zasavska cesta 95
1231 Ljubljana - Črnuče
Tel: +386 (0)1 588 62 99
Fax: +386 (0)1 588 62 63
perkemija@belinka.si
www.belinka-perkemija.com

Helios Kemostik d.o.o.

Molkova pot 16
1241 Kamnik
Tel: +386 (0)1 830 37 50
Fax: +386 (0)1 830 37 69
kemostik@helios.si
www.kemostik.com

Ukraine

LLC AVRORA
Str. Strojindustry, 3
18030, Cherkassy
Tel: +38 (047)2 71 28 81
Fax: +38 (047)2 71 04 71
info@aurora.ck.ua
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