April 2020

PCC CHEM NEWS

Newsletter of the PCC Rokita Capital Group and affiliated companies

PCC CHEM NEWS
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Dear Readers,

As usual at this time of year, we are publishing the next issue of our newsletter. However, the times we currently find ourselves in are extremely difficult.

This year's Easter will be completely different than usual for most of us. Many of us will not be able to meet their loved ones, gathering around the family table. In these days, wishing each other to spend the "holidays in good health" has gained a particular dimension and fundamental importance. And we do wish you a happy – and healthy – Easter.

Virtually the entire world is struggling with the coronavirus pandemic, including us. We face the virus as people, but also as enterprises. At the same time, the current challenge generates within us a lot of energy to act. The profile of our production operations is an asset as the companies of our Group are producers of disinfection agents, including various types of cleaning agents for consumers and industrial applications, including such with virucidal properties. Equally important is the fact that our internet companies – distripark.pl and its sister companies – sell all these products on-line.

Keeping in mind the safety of our employees and other people on the company's premises, we have taken all possible measures to reduce the risk of virus infection. We have introduced strict rules of conduct in our installation and office areas. To protect everyone, we have secured the delivery of disinfectants. Posters with information on compliance with basic hygiene principles that may protect us against infection have appeared on the company's premises. Production and office buildings as well as external communication routes are being disinfected on a daily basis. Every employee has received two litres of disinfectant for private needs. Our medical point staff is at our employees' disposal. At the entrance, every person coming in has their temperature measured with a non-contact thermometer. There have also been teleworking rules established for those who can perform their duties from home. Contact with business partners is maintained with the use of electronic devices.

In the first few articles of this newsletter issue, we provide you with some important information on our operations during this difficult period.

Today, first of all, we ask you to take special care of yourselves and pay particular attention to your and your loved ones' safety. We wish you a lot of health – not only during Easter.

Wiesław Klimkowski
President of the Management Board
PCC Rokita SA

Rafał Zdon
Vice President of the Management Board
PCC Rokita SA

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Safety first – a new dimension of safety

“Safety first” is our motto which we keep promoting on a daily basis. Today, this motto has become more important than ever to ensure smooth production.

Our industrial park in Brzeg Dolny is a network of countless interconnected processes, which are supervised by the employees of the PCC Group.

This network consists of several dozen production plants, but also dozens of suppliers delivering feedstuffs and materials as well as recipients collecting finished goods.

Today, like the whole world, we are struggling with a particular challenge. The coronavirus pandemic is also putting our ability to ensure continuity of production to a test.

As a proactive sign of “Safety first”, we introduced strict rules of conduct in our installations and offices at an early stage a few weeks ago. Meetings have been replaced by telcos and videoconferencing, while employees work remotely where the nature of their work is suitable. An information leaflet was prepared for the drivers explaining the rules of conduct on the plant premises.

We also make active use of our disinfection products based on sodium hypochlorite produced by PCC Rokita, as well as products based on alcohol which forms the base of many types of consumer and industrial cleaning products manufactured by PCC CP Kosmet, including those with a dedicated virucidal effect. The key feedstocks for these products are supplied by PCC EXOL, while the products of PCC MCAA from Brzeg Dolny are used as feedstocks by manufacturers such as PCC EXOL. Products from PCC MCAA as well as from the Phosphorus Chemicals Complex of PCC Rokita are also used in medicines. This whole sequence of processes which up to now have been running smoothly is now subject to our set of “Safety first” requirements. We make every effort to limit the risks associated with possible problems in the availability of staff, including production staff, whose presence has a direct impact on our ability to run our continuous production processes. Another equally important aspect for us is to take care of the safety of our suppliers and clients during their stay on the plant premises.

For all of us, “Safety first” has become an additional dimension of safety.

Editorial Team

A story that came true

It was the beginning of 2020. I was sitting at home and watching foreign TV. The scenes they were showing looked more like a movie than real life. It all seemed unreal, but over time it became clear that the invisible opponent is gaining in strength and slowly making its way from the Far East to Europe and Poland.

Rather than wait for any top-down guidelines, the PCC Group companies in Brzeg Dolny decided to take an active approach and implement their own plan. The first actions were taken already at the end of January. At the time, they seemed unnecessary to many people, as the invisible opponent that the coronavirus is was still far away from us. However, time has shown that it was a really good moment to start taking action.

In the first phase, we delivered hand disinfectants to production departments, workshops and laboratories. Small bottles with disinfectant liquid were placed in bathrooms and canteens. This was the first step in our fight for safety at the plant. At the main gate, we fixed contactless hand sanitiser dispensers. Also, soap dispensers in bathrooms were filled with anti-bacterial soap. Considering the number of different types of buildings our plant consists of and their situation, as many as 220 locations were selected, where disinfectant liquids, along with antibacterial soap, had to be provided. At the same time, we launched an information campaign on coronavirus and proper hand washing. This is how our preventive activities against this invisible opponent began.

During that period, we also took action related to – first international and then domestic – business travel. Initially, we introduced certain restrictions to international business travels, which were next suspended altogether; and in the second half of February, additional restrictions regarding domestic business

trips were introduced. Employees returning from international business trips or holidays abroad were sent on a mandatory 14-day quarantine at home, only after which could they return to work.

When, at the end of February, the World Health Organisation introduced recommendations for employers and employees regarding protection against coronavirus, and the first case of the illness was reported in Poland in Zielona Góra, we had already had all these recommendations implemented for almost two weeks. A responsible approach to business, but above all a responsible approach to the health and safety of our employees has become our priority. The company responsible for maintaining cleanliness at PCC Rokita has received additional disinfection agents, thanks to which frequently used surfaces, such as door handles, handrails and light switches are regularly disinfected to this day.

In cooperation with PCC IT – one of the PCC Group companies, an ICT solution was quickly implemented, allowing for an increased number of tele and video conferences. This enabled us to hold online meetings and perform normal work, as well as maintain contact with our business partners. All external trainings have been suspended, and the necessary in-house OHS trainings limited to an absolute minimum.

At the beginning of March, the coronavirus pandemic continued to develop. The number of cases kept growing all over Poland. The next stage of our preventive actions consisted in the introduction of voluntary body temperature measurement for any person entering the plant. Also, an information leaflet related to the rules of conduct at the plant was prepared for our drivers.

We cancelled all sports activities for our employees that took place after working hours and closed the company gym.

Over time, the voluntary body temperature measurement became mandatory, and it continues to this day.

To reduce the number of employees present at the plant at the same time, we have introduced teleworking. Employees who had already had portable computers were partially delegated to work from home. Simultaneously, those employees who did not have portable computers at the time were equipped with them thanks to the intensive activities of PCC IT.

We also encouraged our employees to inform the Safety and Prevention Division of any cases of their possible contact with an infected person or about them – or their close ones – being quarantined. In such cases, we too sent such employees to be quarantined to minimise the possibility of virus emergence among the company's staff.

Currently, the Company Rescue Service is carrying out activities related to disinfection of pedestrian and car routes.

Sodium hypochlorite produced by PCC Rokita is perfect for fighting off this invisible opponent.

In the last week of March, we carried out the action of handing out free sanitiser to our employees. Everyone working at PCC Rokita SA received two litres of hand disinfectant.

It is safe to say that the company is not a passive employer. It has carried out a wide-spread information campaign for employees and implemented several solutions to increase safety at the plant. And the company continues to carry out various preventive and informational activities as safe work is our common goal.

Maciej Trubisz
Editorial Team

Prevention during an epidemic – the PCC Group's product offer

Today, we cannot imagine life without personal hygiene and cleaning products. Effective disinfection and maintaining basic hygiene principles allow us to prevent the spread of many serious diseases. Prevention is therefore a key activity, especially in times of an epidemic, when pathogens spread very quickly.

We learn hygiene principles at an early age, but they are also included in legal norms. One of the largest organisations that makes such recommendations is the World Health Organisation (WHO). The main task of WHO is, among others, to monitor the health of the world population and track the possible threats consisting in the emergence and spread of diseases. The regulations and recommendations of the World Health Organisation include a number of guidelines relating to the use of chemicals to protect human health and life. Sodium hypochlorite at a certain concentration is a good example when it comes to the use of necessary disinfectants during the epidemic. The substance is perfect for sanitising hands as well as all kinds of hard surfaces, both in households and public spaces.
In the PCC Group product catalogue, you can find many ready products with bio- and virucidal properties. Among them, we have ready-made disinfection preparations, but also intermediate products for the production of such agents.

DISINFECTION OF CITIES, STREETS, HOSPITALS AND HOUSEHOLDS

Sodium hypochlorite

As an agent for disinfecting pavements, streets and public transport stops, as well as any other public places, sodium hypochlorite solution and ethanol-based preparations are a perfect choice. Surface disinfection with a 0.1% sodium hypochlorite solution or a 62-71% ethanol solution significantly reduces coronavirus infectivity on the surface within one

You can find our disinfection products at **www.products.pcc.eu**

Buy now at **www.distripark.com**

minute after use. (according to Kampf G, Todt D, Pfaender S, Steinmann E. Persistence of coronaviruses on inanimate surfaces and its inactivation with biocidal agents. Journal of Hospital Infection 104; 2020; Feb 6.) https://doi.org/10.1016/j.jhin.2020.01.022

Scientific sources indicate that the SARS-CoV-2 virus can survive even up to several hours both in the air and on various types of surfaces. Therefore, when it comes to prevention against this pathogen, attention should be paid primarily to the decontamination of spaces where large groups of people accumulate.
Disinfectant substances, such as sodium hypochlorite, are also used in food processing plants, where there is contact with food, and in animal husbandry. The product is perfect for disinfecting pool and drinking water, as well as for decontaminating water tanks and drinking water supply and air conditioning systems.

During the epidemic, sodium hypochlorite is recommended for use primarily in hospitals, outpatient clinics, medical facilities and laboratories, but also in schools, kindergartens, nurseries, public service offices, warehouses, and public communication routes for disinfecting stops, shelters, doors, door handles and other elements that a lot of people have contact with every day.

It should be clearly stated that sodium hypochlorite is a very effective virucidal agent. Studies have shown that it deactivates such viruses as coronavirus or bird flu within a few minutes. For a hypochlorite-based disinfectant to be effective, appropriate concentration needs to be achieved.

Biocidal agents

A biocidal product is any substance or mixture ready for direct use, which may consist of one or several active substances, or contain or produce one or more active substances. The ingredients may be chemicals, but also microorganisms, including fungi and viruses. The purpose of biocidal products is to destroy, neutralise, repel living organisms, as well as prevent their activity or control them in a way other than purely physical or mechanical. These products can be made from substances or mixtures that do not themselves have similar properties.

There are commercially available biocidal products for human hygiene, agents for preserving products during storage, wood preservation products, building material preservatives, insecticides, disinfectants for veterinary hygiene purposes, and many others.

When it comes to biocidal agents in the context of the PCC Group's product offer, we have a wide range of hand sanitisers and hard surface disinfectants. These are preparations based on both the above-mentioned sodium hypochlorite and on alcohol. Among those are for example disinfectants such as ROKO PROFESSIONAL Chlorine and ROKO PROFESSIONAL Anti-Virus+, the ROKO PROFESSIONAL Hand Care liquid disinfectant soap, the ROKO PROFESSIONAL Duo Active antibacterial soap, and others. These products are offered by PCC CP Kosmet in Brzeg Dolny.

We need to remember that the use of appropriate personal protection agents and disinfection preparations increases the comfort of life by ensuring cleanliness and order, but above all prevents many diseases, such as influenza, smallpox, tuberculosis, coronaviruses, malaria and even anthrax.

By striving to maintain cleanliness, we provide protection for both ourselves and those around us. We must remember that and use specialised products that prove helpful in disinfection and maintaining our hygiene.

Marta Lipka
Marketing Specialist
PCC Rokita

We are here to HELP

The PCC Group has charity work ingrained in its business DNA. We have always supported employees in need, orphanages, as well as other district, provincial and regional organisations. Today, in the face of a coronavirus pandemic, we also come to people's aid.

We are all aware of the difficult situation we have found ourselves in as a society. The fight against coronavirus requires involvement of many people and resources. As an expression of our solidarity with the people fighting against this threat, we have provided 10,000 litres of hand disinfectant to, among other, the isolation hospital in Wroclaw, University Teaching Hospital and the Przylądek Nadziei oncological clinic. We have also provided support to the neighbouring municipalities, which could support such organisations as Volunteer Fire Brigades, police forces, health centres, hospitals, schools and sanitary and epidemiological stations.

In a very short time, PCC CP Kosmet has adjusted its production and started producing an agent that has not only bactericidal, but also antiviral properties. The company has obtained permission for its use from the Office for Registration of Medicinal, Medical and Biocidal Products.

Disinfectants reduce the chances of contracting this dangerous virus, and helping others in these difficult times is a natural reflex for all of us.

Editorial Team

Present in Hamburg for a decade!

On 10th January 2020, together with our partners and customers, we celebrated the 10th anniversary of the opening of the PCC Intermodal office in Germany.

The Intermodal adventure, connecting Poland with the most popular Baltic port, began in 2010 when the office in the city on the Elbe River was launched.

Over the last 10 years, the number of performed services and transported containers in the Poland-Hamburg / Hamburg-Poland corridor has increased several times!

Initially, we had two trains a week. In 2019, the number of regular trains increased to five and in 2020 to six regular connections per week.

In 2010, we realised 270 connections and transported 6,030 containers, and in 2019 these numbers increased to 494 connections and 22,606 containers.

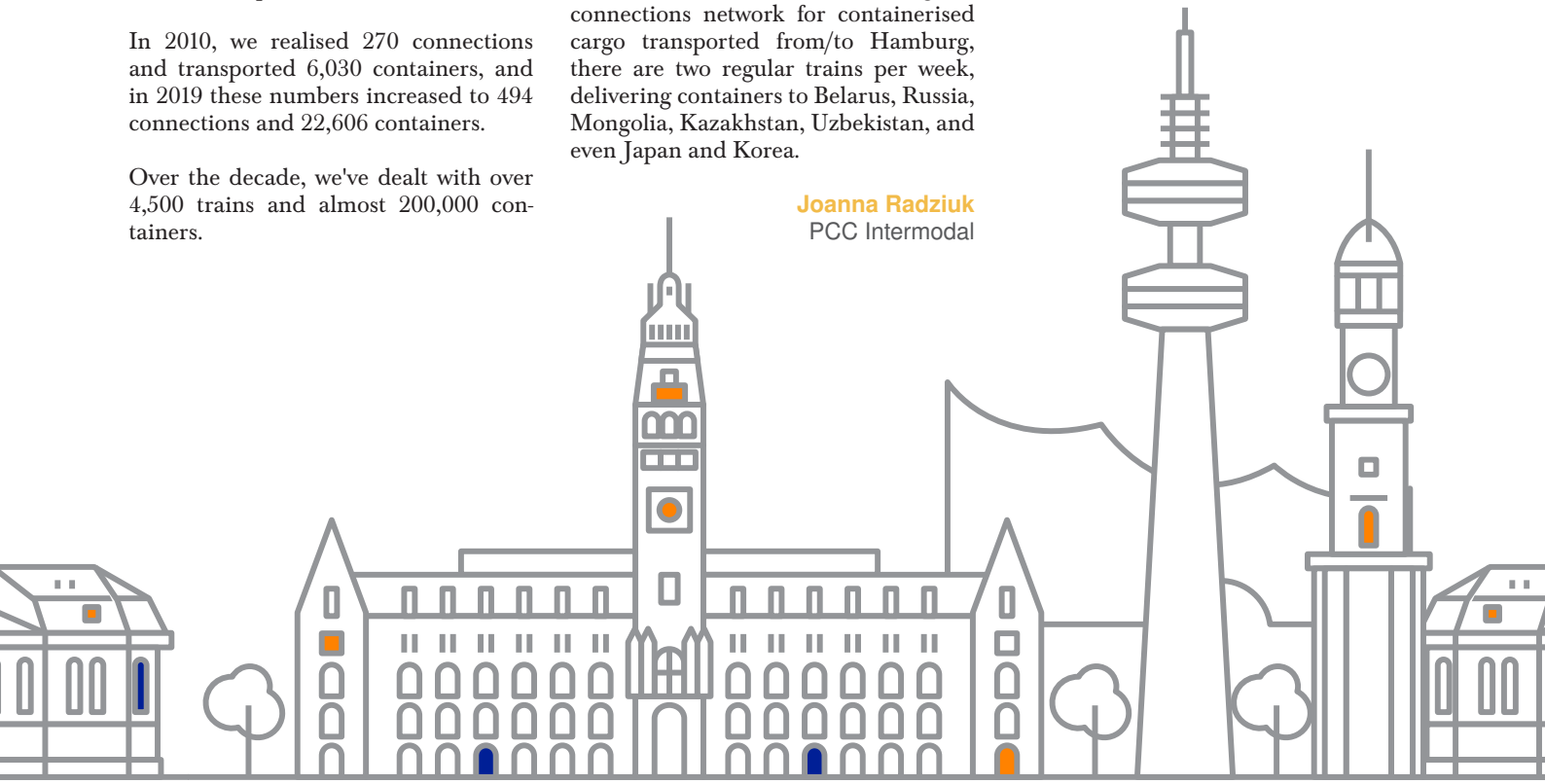
Over the decade, we've dealt with over 4,500 trains and almost 200,000 containers.

The Hamburg relations are coordinated by a team of several people who constantly cooperate with port representatives, local customers, partners and the headquarters in Gdynia. The head of the office in Hamburg is Bernd Meewes. All PCCI trains going to or coming from Hamburg come through our terminal in Frankfurt (Oder).

The goal of PCC Intermodal is to maintain stability through daily deliveries to/from Hamburg in relation to all major Polish economic regions and further to the East.

At the moment, thanks to a regular connections network for containerised cargo transported from/to Hamburg, there are two regular trains per week, delivering containers to Belarus, Russia, Mongolia, Kazakhstan, Uzbekistan, and even Japan and Korea.

Joanna Radziuk
PCC Intermodal



We are strengthening our position on the Turkish market

In November 2019, the PCC ROKITA polyols complex represented us at the PUTECH EURASIA 2019 trade fair in Istanbul.

The fair was truly inspiring. We have definitely strengthened our image and position on the Turkish market. We had an opportunity to meet the majority of our current customers as well as meet potential ones. Our stand was approached by 135 fair participants.

Our offer aroused great interest among the visitors. We conducted a number of business talks in which we focused mainly on presenting our new polyols and innovative solutions. We learned about the preferences of customers from various PU branches. The Turkish market has a great deal of interest in polyols, soft and viscous ones in particular. This is due to a shift in the final customers' preferences towards soft and convenient foams. We had many queries about and requests for research on a laboratory and industrial scale. Twelve of the meetings that happened by the stand are to result in regular or trial contracts.

Magdalena Jaroszewska
Marketing Coordinator
PCC Rokita

PUTECH EURASIA 2019
The fair in numbers

5017
number of visitors

932
number of visitors from abroad

69
number of countries that international visitors came from

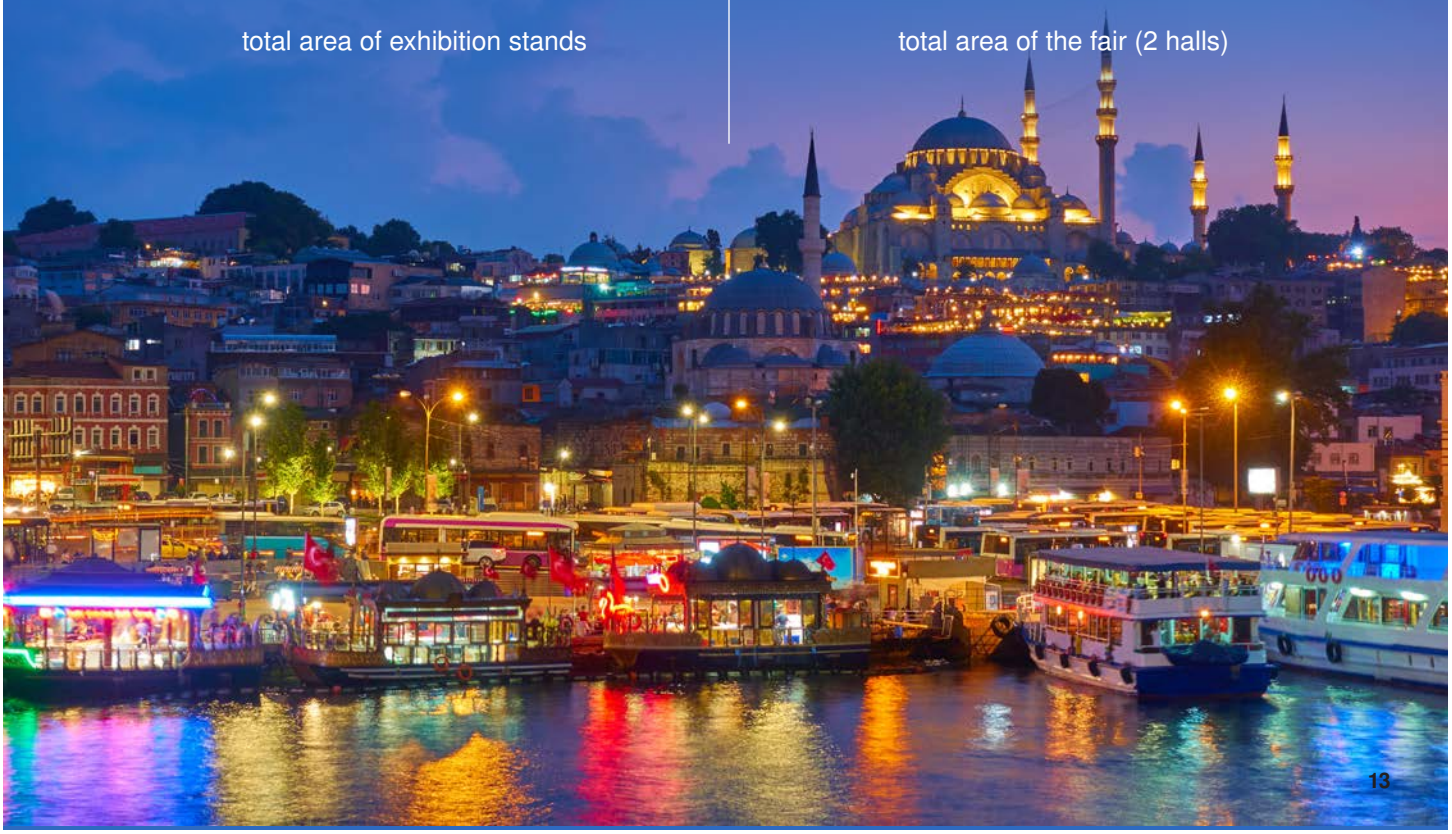
10 main countries that international visitors came from: **Iran, Germany, Russia, Uzbekistan, Iraq, Tunisia, United Arab Emirates, Saudi Arabia, Palestine, Ukraine.**

144
number of exhibitors

85
number of exhibitors from abroad

4 623 m²
total area of exhibition stands

12 000 m²
total area of the fair (2 halls)



Flexibility IS US!

Plasticisation, i.e. softening plastics.

Polymer materials are virtually non-existent in "pure," unmodifiable form. Modi-fying polymers with various additives allows us to obtain a wide range of applications of a plastic. The type and amount of additives used in processing affect the perfor-mance properties of the end product. One of them is flexibility obtainment, which al-lows fulfilment of a product's basic functions in a given application.

Flexibility can be achieved by using softening agents called plasticisers. When added to a polymer, they facilitate its processing and change the end performance properties by reduc-ing the glass transition temperature (pol-ymer's plastic to glass transition point). In chem-ical terms, the mechanism of a plasticiser consists in the penetration of its molecules in poly-mer chains, reduc-tion of inter-molecular forces and simul-taneous increase in mobility.

The most commonly softened polymer is polyvinyl chloride (PVC) – over 80% of world's production of plasticisers is used

every year for products based on flexible polyvinyl chloride. The use of a number of additives facilitates its processing, changes the functional properties of the end product and allows for a variety of applications of this material. Even rigid PVC products, such as sewage pipes, contain 5-10 phr (parts hundred resin) of plasticis-ers that facilitate processing.

Types of plasticisers

There are two main plasticiser groups for PVC: primary and secondary. The first group includes plasticisers characterised by high compatibility with polyvinyl chloride, e.g. dioctyl phthalate (DOP), diisononyl phthalate (DINP), dioctyl terephthalate (DOTP) and phos-phoric esters (phosphates).

Due to their appropriate chemical structure and the presence of phosphorus in their structure, plasticisers combine the plasticising and the flame retardant features, which allow them to be used in specialised solutions that require increased fire resistance.

Secondary plasticisers are less compatible with PVC. In industrial solutions, they are used together with primary plasticisers to provide additional properties, i.e. reduced plasticiser migration capacity, flexibility improvement at low temperatures, higher oil resistance and low volatility. They include, among others, adipates, sebacates, citrates, trimellitates and epoxi-dised vegetable oils – soybean oil (ESBO) or rapeseed oil (ERO).

PCC Group's solutions

PCC Rokita's Phosphorus Chemistry Business Unit produces flame retarding plasticis-ers offered under the Roflex name. These products belong to the group of phosphoric esters (phosphates) and are dedicated for the production of flexible PVC with an increased flamma-bility profile.

Current legal regulations regarding the plastics sector impose on manufacturers requirements related to not only fire propagation, but also to the phenomena accompanying this process. The most important of these is the release of toxic gases and smoke during combustion. At the same time, great emphasis is placed on the additional advantages of the additives used, i.e. the ability to provide plasticising effect at low temperatures, low plasticiser migration or product environmental friendliness.

The future

In order to keep up with the growing market requirements, the Phosphorus Chemistry Business Unit is expanding its plasticisers portfolio with products combining several desirable functions. In the near future, the following products will be added to the portfolio:

- a "green" plasticiser – dedicated for products with high requirements regarding environmental performance and flame retardancy;
- a low smoke plasticiser – combines excellent plasticising and flame retarding properties with a low smoke formation profile;
- a low temperature plasticiser – an additive providing flexibility at low tempera-tures and the ability to generate small amounts of toxic smoke during combus-tion.

Introducing these new products will result in greater possibilities in using flame retard-ing plasticisers in applications previously unavailable due to the abovementioned specialist requirements. Potential applications of the new product range can be found in such industries as wires and cable, PVC flooring, transportation and automotive.

Magdalena Janus
Junior Technical Support Specialist
PCC Rokita

Patryk Juszczak
Technical Support Specialist
PCC Rokita

Maga inn launched in Gliwice

The maga inn project started the new year with the opening of Poland's first container hotel facility within city limits.

30th January 2020 saw the launch of another maga inn facility take place at Łabędzka Street in Gliwice. The facility's location is excellent, as it is not only near the exit off the main access road to Gliwice from the west, but also a short distance from the Special Economic Zone. maga inn is also well connected with the city centre by public transport. There are also two shopping centres and several chain stores in the hotel's vicinity.

Gliwice is one of the most dynamically developing cities in Upper Silesia. The city is where the Katowice Special Economic Zone (KSEZ) – a leader among Polish special economic zones – operates. Currently, there are 390 enterprises operating in the KSEZ, which have jointly invested PLN 36 billion and created 80,000 jobs.

Another of the city's attractions is the Arena Gliwice entertainment and sports hall, one of the largest facilities of this type in Poland, with a rich repertoire of shows, sporting events and concerts of popular music stars.
The advantages of being located in such a dynamically developing city make us believe that maga inn will be an attractive form of accommodation not only for employees, but also for participants of cultural and sporting events from outside the city.

In total, at the maga inn facility in Gliwice, guests have at their disposal two containers with four double modules, each with a double bunk bed, and two single modules with wide (120 x 200) single beds. Despite the small size of the rooms, each residential module has been equipped not only with a comfortable bed, a table, chairs, a TV and a fridge, but also with individually controlled air conditioning and underfloor heating. All residential modules have a comfortable bathroom with a shower and a toilet.

Each residential module (room with a bathroom) is entered from the outside with the use of a code that the guest receives via text message and e-mail after paying for the booked accommodation. No check-in desk together with the possibility of remote handling of all formalities related to check-in is an important element of maga inn's operation. With the internet check-in system, booking a room is possible 24 hours a day. Everything is done through a modern internet service system linked to the www.maga-inn.com website, Facebook and popular tourist portals, such as: Booking.com, Airbnb, Noclegowo.pl.

Locating a container-based facility such as maga inn in a city means having to overcome many difficulties related to meeting the stringent requirements set out in the local spatial development plans. The first step has, however, been taken in Gliwice and the new form of providing hotel services has now become a fact.

Jacek Geller
Sales and Marketing Manager
distripark.com

Partner Programme at distripark.com

Recent years have been an intense and development-filled time for distripark.com. A lot of work and commitment has been devoted to the Second Job Partner Programme based on a unique formula for cooperating with Partners.

The Second Job Programme gives you the opportunity to have an additional income without incurring any risk or investment. As Partners confirm, the main benefits that encourage people to join the Programme are professional development, flexible work approach, the possibility of high earnings and no hidden costs.

At this stage of Programme development, active Partners already earn a few thousand zlotys a month. This is an encouraging vision of cooperation for anybody willing to enter into it in future.

Wondering if the Partner Programme is for you? Learn more about it.

Anyone can become a distripark.com Partner. Active participants of the Programme include traders, specialists and self-employed people, but also those who are not involved in sales. The Programme is also joined by Partners who have never had anything to do with the chemical industry, but whose commitment allows them to be successful and earn high commissions.

Registration in the Programme can be done via the distripark.com platform. After completing the registration form and concluding the agreement, the Partner receives an individual discount code, which is to be given by the Partner to their customers. Any order placed using the Partner's discount code generates for the Partner commissions of up to 15%. The extensive product portfolio of the distripark.com store (about 4,000 products) gives a wide range of possibilities to reach various recipients that could be interested in the offer.

From the moment the agreement is concluded, the Partner can count on full support on the part of the entire distripark.com team.

Who is our portfolio for?

It is for all industry branches, as well as for agriculture, construction, forestry and the wood industry, but also for retail and cleaning companies, farms, and more.

You don't have to be an expert in a given industry to be able to earn money by recommending products that the buyer uses. Contacts in individual industries are very helpful, as they make it is easier to target buyers with dedicated offers. If the Partner doesn't have such contacts, they can make use of the knowledge of the distripark.com team.

It is also important that the distripark.com team ensures that the Partner receives high commissions in return for recommending products, and customers – attractive discounts. So-called "temporary special offers" are organised by distripark.com in order to increase the Partner's commission and provide their customers with higher discounts.

How it works in practice.

Recently, the rapidly growing Second Job Partner Programme has been posing a lot of interesting challenges for the distripark.com team and their Partners.

Full cooperation has allowed several hundred transactions to be carried out on the Polish market, but also several dozen such on foreign markets.

Programme Partners have managed to establish contacts with recipients in the Netherlands, Finland, Germany, Sweden, Belgium, France and Lithuania.

Media activity.

Last year, the Programme was written about in many media outlets devoted to the area of marketing, business and new technologies, including in brief.pl, biznesomania.com.pl or pracawsieci.net. This has allowed us to reach a wider group of people interested in this form of cooperation.

In the Second Job Partner Programme, the year 2020 began with a change in the graphic design of the website dedicated to the Programme – secondjob.pl. Intensive work was also carried out on the SecodJob.pl Facebook profile, where content related to products and activities related to the Partner Programme are published regularly.

The distripark.com team have set themselves further goals so that the Second Job Partner Programme is as friendly for Partners as possible and encouraging for people interested in cooperation.

For more information on the Partner Programme, please contact the Partner Programme Supervisor.

Katarzyna Filimoniak
Sales Development Specialist
distripark.com

Contact details:

Katarzyna Filimoniak
– Partner Programme Supervisor
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phone: 885965094, 71 794 2482

Whether sunny or snowy…

…the PCC Intermodal service always arrives on time regardless of weather conditions!

Fotografia: Kamil Maksymiec

Friday 17th January was the day we had the pleasure of delivering machines and tools to the foot of the Tatra mountains! A PCCI tractor transported a container full of equipment to the Średnia Krokiew ski jump in Zakopane. The undertaking, as well as beautiful photos, were organised by the PCC team from the Gliwice Terminal!

PCC Intermdal services are not only a regular rail network that connects, among others, Asia (Russia/Japan/Korea) with Europe, but also road deliveries within a radius of 150 km from the terminal.

After all, Intermodal means the best possible combinations: pleasant and useful; road and rail; transport and care for the environment... and all thanks to synergy at work!

Joanna Radziuk
PCC Intermodal

730 km
is the distance between our headquarters in Gdynia and the Wielka Krokiew ski jump in Zakopane.

Challenge Cup goes to PCC PU!

The New Year football tournament for our employees, that took place on the second Saturday of January, offered everything an indoor football fan could possibly expect. Beautiful goals, a lot of excitement, and at the end – great cups for those who proved to be the best.

The tournament had twelve teams competing for the PCC Rokita President's cup. The competition was particularly interesting, and there were some surprises in the classification. The first place, together with the Challenge Cup, went to the team consisting of PCC PRODEX / PU employees.

The top scorer title was taken by **Oskar Samborski** from the Rescue Service team.

Maciej Trubisz
Editorial Team

1st place:
PCC PRODEX / PU

2nd place:
LabMatic

3rd place:
Apakor 2

4th place:
CTP-3

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Volleyball is in

The volleyball tournament that took place on Saturday 8th February gathered 12 teams representing the PCC Group to compete for the win.

We played a total of 26 matches in the group and knockout stages, and after six hours of competition, we finally had the winner.

It is worth mentioning that the PCC MCAA team did not lose even one set in the entire tournament.

Congratulations to all participants and winners!

1st place:
PCC MCAA

2nd place:
PCC Apakor

3rd place:
Chlorine Complex

4th place:
Plant Rescue Service

places 5th to 12th (outside the podium): LabMatic I, Labmatic II, Distripark, PCC IT, PCC Exol, Polyols Complex, Controlling, GT (technical department).

Maciej Trubisz
Editorial Team

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PCC Rokita a partner of the *3Mind* competition for outstanding students

29th November 2019 was the day of the gala held to celebrate the final of the competition organised by the 3M company and the Wroclaw Council of the Federation of Scientific and Technical Associations NOT 3Mind: "Act today – change tomorrow." PCC Rokita S.A. was an official patron of the competition, and the winners of the 2nd place received an award – in the amount of PLN 3,000 – funded by our company.

The aim of the competition was to promote innovative research and development projects in such fields as technology, chemistry, medicine and mechanics, prepared by students from scientific clubs.

At the gala, students described their projects in 5-minute presentations as well as in the form of "speed dating" – very short meetings with the jury of the competition, which included a PCC Rokita representative – Igor Korczagin, Director of R&D Deparment. This year's winners have developed a model of an autonomous underwater robot that can submerge to a depth of 100m. A manipulator fixed on its body enables observation of the environment as well as taking of samples for testing. Observing and monitoring the water levels, quick response in the event of failures and learning more about difficult to access under-water life are only some of the project's applications.

The 2nd place, and the prize funded by PCC Rokita, went to the Science Club that designed an autonomous, unmanned solar-powered aircraft. Such an aircraft can be used for patrolling power lines or determining the level of air pollution.

During the competition, students had a chance to talk with representatives of the PCC Group HR department about development opportunities in our company and programmes targeted at them. Many congratulations on the ideas. We wish you further success!

Karolina Ławecka
HR Specialist

Scholarship holder in the top 10!

We are very pleased to see one of our last year's scholarship holders, Hubert Rolka, who pursued his Master's thesis at PCC Rokita's combined heat and power plant, in the top ten best graduates of the Faculty of Mechanical and Power Engineering at Wroclaw University of Science and Technology 2018/2019.

Hubert's thesis related to "Back Pressure Turbine Housing in the Context of Improving the Availability and Cost-Effectiveness of a Combined Heat and Power Plant." How did it happen that Hubert became our scholarship holder, and now – a PCC Rokita employee? The answer to this question can be found in the interview below.

Izabela Dreja-Dulewska: What made you choose power engineering as your field of study?

Hubert Rolka: By the end of secondary school, I already knew I wanted to study at Wroclaw University of Science and Technology, and so I did. I applied to study in different fields and waited for the replies. In the end, I chose Mechanics and Machine Construction at the Faculty of Mechanical and Power Engineering. Another field of study at this faculty is Power Engineering, I decided, however, that this field focuses primarily on theoretical knowledge, which was not as interesting to me as construction and design of energy machinery and equipment. Obviously, in order to design or operate, for example, a turbine set, a pump or a power boiler, one needs to know and, above all, understand the phenomena occurring there. Upon graduating from first-degree studies, I found it very easy to start Master's degree studies in the same field, as three and a half years of hard work made me develop in

both technical and analytical sphere. After ten semesters, i.e. five years, I can say that the choice of Mechanics and Machine Construction as a field of study was somewhat of a risk – a risk taken based on such arguments as growing energy demand. The risk did pay off in the end, and in retrospect, I can say that these studies gave me more than I'd expected.

I.D.D.: How did your PCC Rokita adventure start?

H.R.: Setting aside various information from outside sources, the first time I came in touch with PCC Rokita was during a meeting with a company representative devoted to presenting the scholarship programme. I came to the meeting with a more chemical profile of the company's offer in mind, but I was pleasantly surprised with the topics of MSc theses and I decided to give it a try. After numerous meetings, my thesis topic began to take shape. My decision to write a dissertation in PCC stemmed from the fact that it would give me the possibility to cooperate with industry as well as from the prospect of being able to work in my profession, which is an ambition of mine.

I.D.D.: What exactly was your Master's thesis about?

H.R.: My thesis was devoted to the analysis of the construction of the TG 2 turbine set and the impact of this investment on the cost-effectiveness and availability of the combined heat and power plant. To write the dissertation, I analysed parameters from various periods of the installation's operation, and then – based on carefully selected data – I made such calculations as: heat flow calculations, balances and economic analyses. This allowed me to put forward certain theses and substantiate them.

I.D.D.: What benefits did the scholarship programme at PCC Rokita bring you?

H.R.: An incredible advantage of the programme was that it gave my diploma thesis more gravity as, thanks to the programme, my thesis was based on a working industrial plant. Long conversations with experienced production employees enabled me to start looking differently at the various technical and theoretical matters. Active participation in important moments in the combined heat and power plant's life, such as the TG-1 turbine start-up or the K-1 stoker-fired boiler and the K-8 pulverised-fuel boiler light-off, was an interesting experience for me.

I.D.D.: What is your current position and what are your duties?

H.R.: I currently work shifts at the position of junior specialist. Right after being employed, I worked as a turbine set supervising engineer, but having passed the exam, since February I've been performing the duties of a turbine set operator and doing additional tasks, such as making installation diagrams and measurements. As an operator, I am responsible for supplying technological steam with appropriate emission parameters and electricity production. I am also responsible for the operation of two turbine sets, a reduction and cooling station, steam collectors, heat supply for Brzeg Dolny and the combined heat and power plant water management. Water management consists of four main installations: steam boilers-feed water, thermal water, cooling water and recovered condensate. These installations include numerous pumps, pipelines, heat exchangers, chemicals improving water parameters and a mechanical draft cooling tower. Another of my tasks is to fine tune all these parameters so that the work of the collector system in the combined heat and power plant is as effective and cost-efficient as possible. It is my hope that over time my duties will overlap more with my competences and that I will get to face new and ambitious challenges.

I.D.D.: Thank you for the interview and I wish you such new challenges, of which PCC Rokita is never in shortage!

Interview by
Izabela Dreja-Dulewska
HR Business Partner
The PCC Group

Products for children with skin problems

Sensitive skin is a great challenge for both dermatologists and specialists in cosmetics formulation. Skin sensitivity may be completely invisible as there may be no noticeable external changes, but it may also be visible due to distinct symptoms that indicate significant barrier damage. In children, the most common skin problems include dryness, especially in the first few weeks after birth, diaper dermatitis, seborrheic dermatitis, atopic dermatitis (AD), allergic contact dermatitis (ACD), and acne.

The skin is one of the most important organs of the human body. It performs numerous functions, including providing protection against chemical agents, cold, heat and UV radiation. Equally important is the protection it provides against parasites and microorganisms. But its role is not restricted to protection. This organ is also responsible for the body's thermoregulation, it participates in water management as well as in the synthesis of hormones, vitamin D3, and melanin, which protects the body against the penetration of harmful radiation deep into the skin structure. It should also be mentioned that it has its part in the body's immune response as well as in the conductivity of sensory stimuli. The skin is an important element of the human body, one that allows adaptation to life and is the "first line of defence" against harmful external factors.

The skin of a newborn baby is made of epidermis, dermis and subcutaneous tissues, just like that of an adult, but is less mature. This immaturity is particularly evident in children born before 24 weeks of foetal life as it is during this period that the increase in epidermal water loss occurs due to the absence of the stratum corneum. In contrast, the skin of full-term newborns at birth is covered with foetal fluid with a pH close to alkaline values. The purpose of this fluid is to, among others, provide protection against infections. The skin of a newborn contains a small amount of melanin, hemidesmosomes and anchoring fibres. In newborns, symptoms of dry skin are observed, which result, among others, from the small thickness of the epidermis, the stratum corneum, the ongoing (incomplete) keratinisation processes and a slowed process of lipid mantle reconstruction. Increased water loss from the epidermis is not the only issue of this immature organ. The skin's susceptibility to being penetrated by various types of substances, which in excessive amounts can accumulate in the body and bring toxic effects, also increases. Susceptibility to infections is due to immaturity of the immune system and higher skin pH. A child's skin matures gradually, and it only starts resembling that of an adult more less when the child turns three.

One of the most common skin problems in newborns and toddlers is diaper der-

matitis. This term describes various skin lesions located in the groin and buttocks region, i.e. where the diaper touches the child's body. The most common inflammation promoters are: chronic rubbing of the skin by the diaper and the skin being in contact with a wet diaper for too long, improper intimate area skin care, antibiotic therapy, infection – e.g. yeast infection (Candida albicans), allergens in skin washing and care products, as well as those present in the material from which the diaper is made.

As a result of too long exposure of a child's delicate skin to a wet and dirty diaper, abrasions, redness and peeling of the skin may occur, which in turn leads to contact dermatitis – the most common form of diaper dermatitis. In this case, high pH of the urine, whose value is additionally raised by urease-producing bacteria and the presence of irritants, seems to be extremely unfavourable.

A less common form of the disease is allergic contact dermatitis – an immune response of the body caused by a contact sensitiser that induces skin inflammation. Some irritating substances have been proven to be able to lead to full-blown contact allergy by initiating transient inflammation. This disease affects children of all ages, which constitutes a serious clinical problem. Most frequent sensitising agents are: fragrance ingredients, preservatives present in fabric washing and softening agents as well as in body cleaning and care products and bath preparations. Diseases in the diaper area may be initiated by the components of polymer substances used in some diapers. An equally rare form of diaper dermatitis is erosive dermatitis caused by incorrect choice of diapers or rare diaper changes. It mainly affects older infants, and skin changes can be observed in the genital area, on the buttocks, thighs and lower legs.

Atopic dermatitis is a chronic inflammation of the skin with a tendency for exacerbation and remission, located in the epidermis and dermis. This disease is often genetic and is very often diagnosed in early childhood. Its characteristic features include not only the location (skin of the face, neck, knee and elbow bends), but also severe itching and typical eczema morphology.

Seborrheic dermatitis is another fairly common skin problem in infants. What is characteristic for the disease are erythematous lesions covered with oily scales. In babies, they appear most often between 2nd and 10th week of life on the scalp in the form of so-called cradle cap, but also on the face and groin. Seborrheic dermatitis is often mistaken for psoriasis, which is an inflammatory, chronic disease that can occur at any age.

Acne is a skin disease that affects almost 100% of the population aged 11-30. The causes of acne are still not fully understood. It seems, however, that genetic and hormonal factors, increased sebum production creating very good conditions for bacterial growth and free radicals play an important role here. Diet, stress and contact with certain substances, e.g. those used in cosmetics, are indicated as factors that exacerbate acne symptoms. The forms of acne are usually divided according to its severity or the factors that cause it.

As mentioned above, a baby's skin is very sensitive, delicate and susceptible to various lesions. In the first months of life, this is primarily due to its immaturity. Therefore, proper care – taking into account age and "skin needs" – is very important. There are preparations for such care available on the market in the form of: washing and bathing emulsions, liquids, gels, shampoos, oils, as well as milks, lotions and creams dedicated for children with sensitive skin. Ask yourself what features should these types of products have. Regardless of the form, such preparations should be well preserved to prevent contamination during storage. It is also important to properly stabilise substances capable of self-oxidation, e.g. lipids, whose final products have sensory characteristics, typical for rancid fats, as well as those capable of forming bonds with protein and having toxic effects. It is necessary to eliminate substances considered to be allergenic and vasodilating. Detergents used in washing and bathing products, as well as emulsifying systems used in milks, lotions and creams should have the lowest possible skin and mucous membranes irritating potential. It is also important to use high-quality ingredients free of impurities when developing preparations.

Washing and bathing products dedicated for children with sensitive skin come in the form of: liquids, gels, shampoos, oils and emulsions.

Face, head and body washes, gels, shampoos and soaps are usually composed of: mild surface-active compounds, viscosity-building compounds, preservatives or substances that help protect the product against the development of microorganisms, so-called active substances with a moisturising, soothing or keratolytic properties.

The most commonly used surface-active substances in washing preparations are betaine derivatives: Cocamidopropyl Betaine, Coco Betaine, alkyl polyglucosides: Coco Glucoside, Lauryl Glucoside, as well as a derivative of sulfosuccinic acid – Disodium Laureth Sulfosuccinate. Sodium Laureth Sulphate, Sodium Coco Sulphate or Sodium Lauroyl Sarcosinate, a surfactant derived from sarcosine acylated with fatty acids, are used less frequently. This substance is mild to the skin and eyes, and the anti-microbial activity of Sodium Lauroyl Sarcosinate should be considered its added value.

Substances used to achieve the consistency, viscosity are: Xanthan Gum, PEG-120 Methyl Glucose Dioleate, PEG-150 Distearate, Acrylates/C10-30 Alkyl Acrylate Crosspolymer, Hydroxypropyl Starch Phosphate.

Substances used for protection purposes are preservatives and substances that inhibit microbial growth. Commonly used preservatives are: Benzoic acid and its sodium salt (Sodium Benzoate), Sorbic Acid and its potassium salt (Potassium Sorbate), Phenoxyethanol, Dehydroacetic Acid. Manufacturers of cosmetics for children with sensitive skin are increasingly more prone to use a so-called "preservative booster" – a substance that supports conservation. This results from growing pressure on the part of users, but also from the desire to reduce the amount of traditional preservatives in cosmetic preparations or to find new ways to maintain the microbiological stability of cosmetic products. For this purpose, producers use Capryloyl Glycine, Caprylyl Glycol, Glyceryl Caprylate, which also perform a moisturising function.

Moisturising substances used in products for children with sensitive skin include Glycerin, Sorbitol, Mannitol and Betaine.

Products for children with sensitive skin contain substances that have anti-irritant and anti-inflammatory properties. The composition of this type of cosmetics frequently includes: Allantoin, Bisabolol, Panthenol, Aloe Barbadensis Leaf Juice, Glycyrrhiza Glabra Leaf Extract (liquorice extract). In the case of preparations for acne skin, the following ingredients can also be found in the composition of the product: Azelaic Acid with antibacterial and keratolytic properties, and Sulphur, which has a drying, exfoliating, anti-inflammatory and antibacterial properties and regulates the work of sebaceous glands. Salicylic Acid is also used – however, it should not be a component of preparations for children under three years of age.

Face and body washing lotions are usually O/W systems that have a liquid (milk) or semi-liquid (lotion) consistency. Ingredients of the so-called aqueous phase usually include Glycerin, Sorbitol, Betaine and Allantoin. In turn, the main components of the oil phase are: solid or liquid hydrocarbons – e.g. Petrolatum, Paraffinum Liquidum, vegetable oils – e.g. Simmondsia Chinensis Seed Oil, Persea Gratissima Oil, Helianthus Annuus Seed Oil, fatty alcohols: Cetyl Alcohol, Cetearyl Alcohol, Behenyl Alcohol, fatty acids: Palmitic Acid, Stearic Acid. As viscosity modifiers and emulsion stabilisers, among others, Xanthan Gum and Hydroxyethyl cellulose are used. Due to the presence of surfactants, such as Cocamidopropyl Betaine, Lauryl Glucoside, Disodium Laureth Sulfosuccinate, Glycereth-7 Caprylate/Caprate, these preparations have also a gentle washing effect. Preservatives and active substances are identical to those present in washes, gels and shampoos.

Bath oils for daily sensitive skin care usually include: Paraffinum Liquidum, Caprylic/Capric Triglyceride, vegetable oils – e.g. Simmondsia Chinensis Seed Oil, Helianthus Annuus Seed Oil, surfactants: C12-13 Pareth-3, Laureth-9, PEG-40 Sorbitan Peroleate, PEG-8 Dilaurate, MIPA Laureth Sulphate; antioxidants: Tocopherol, Tocopheryl Acetate, BHT.

Preparations with moisturising, oiling and protective properties (e.g. sunscreens) in the form of creams, lotions and milks are another important group. Most of them are in the O/W or W/O emulsion form. The sensory and rheological properties of these preparations depend on: the properties of individual emollients and agents designed to maintain or increase the level of hydration, the presence and amount of occlusive ingredients, e.g. petroleum jelly (Petrolatum), as well as the ratio of oil phase to aqueous phase. Also, in this type of cosmetics, manufacturers quite often decide to introduce active substances with anti-inflammatory, soothing (mentioned above: Allantoin, Bisabolol, Panthenol) and moisturising (e.g. Sodium Hyaluronate, Glycerin, Urea) properties. In cosmetics aimed at providing protection against sunrays, it is necessary to use appropriate filters, e.g. Titanium Dioxide (CI 77891), Butyl Methoxydibenzoylmethane, Phenylbenzimidazole Sulfonic Acid, Bis-Ethylhexyloxyphenol, or Methoxyphenyl Triazine. Zinc Oxide and A, D and E vitamins can, in turn, be found in preparations for sunburn and sore spots.

Produkty dla dzieci do skóry wrażliwej – jak wybrać?

The market of cosmetics for children with skin problems abounds in various forms of preparations. Products of this type are often tested on people with skin problems: atopic dermatitis, seborrheic dermatitis, acne (as part of the sensitive skin panel). Cosmetics for children with skin problems are available, among others, in stores, discount stores, pharmacies and on websites. In addition, the internet offers "extensive knowledge" in the form of descriptions of almost every possible cosmetic along with a list of its strengths and weaknesses, "good and bad ingredients" and the function they perform. It would seem, then, that the parents of a child with skin problems have a simple task, after all, all they have to do is choose a product that has been tested, read the opinions about it, and then just buy it. But is that really the case? You need to remember that taking care of skin covered with various types of lesions or inflammations is different from healthy skin care. First of all, thorough diagnostics are required, and the provided care should be adjusted to the individual situation. At the beginning of using any new cosmetic, you should always start with applying some of it on the smallest possible body area, and if possible – on healthy skin. No disturbing changes in the area shows that it is safe to apply it also in places affected by the changes.

Due to the extremely delicate newborn skin, susceptible to irritation and abrasions, the choice of appropriate cosmetic products is one of the factors having impact on its condition. It is recommended to use odourless products for washing the whole body with a pH level close to the physiological value (applies to washes, gels and shampoos). It is also recommended to use bath oils, which – due to the presence of surfactants in

their composition – "form an emulsion" during baths. Every preparation should be used in minimal amounts – recommended amounts are usually given on the product packaging. After using any preparation, rinse the body thoroughly with water and dry carefully. The fact is that moisturising and oiling the skin after a bath does not protect it against infections, but it can have a positive effect on the maturation of the epidermal barrier, and at the same time support lipid metabolism. The use of moisturising and oiling products is not always advisable; however, scientific publications emphasise the positive effect of emollients on reducing TWEL (transepidermal water loss) and improving the newborns' skin condition.

Skin lesions located in the groin and buttocks area are a common problem in newborns and infants. It also happens that irritation occurs despite keeping the baby's skin clean and dry. Affected skin hygiene in the diaper area should be based on washing it with water with a small addition of body washing products. It is not recommended in this case to use baby wipes for newborns and babies. It is also advised not to combine oils with powders, which can form lumps permanently adhering to the skin and damaging its structure. The preparations containing Zinc Oxide are somewhat controversial. The problem, however, is not the component itself, which creates a layer that protects against moisture, but the form in which it is applied. Due to the need to suspend it and obtain a stable form, these preparations are often W/O emulsions with a paste consistency. Application of this form of a cosmetic to the skin may cause its inflammation due to adhering too tightly to it. It is recommended, however, to use rich preparations containing Petrolatum, Allantoin, Panthenol and D, E, F vitamins. It is also important not to apply too much of the preparation to the baby's skin, as its excess limits the proper diaper absorption.

Proper skin care in babies with atopic dermatitis is an important element of treatment, both in the exacerbation and remission phase. In this case, baths with preparations based on mineral or vegetable oils are recommended. Cosmetics with moisturising, oiling and occlusive properties are of particular importance here. A valued component of this type of cosmetics is Urea, which helps maintain an adequate level of hydration of the stratum corneum. However, it is not recommended for children under five years of age as it may cause skin irritation. Urea is used in both rinse-off preparations, e.g. in face and body gels, and non-rinse-off, e.g. in milks, lotions, moisturising and oiling creams. Moisturising and oiling cosmetics are recommended to be used at least twice a day.

Proper skin care is important for mild acne treatment as well as after treatment of its moderate to severe forms. It is recommended to use preparations dedicated to oily or acne-prone skin. Preparations of this type remove excess sebum and may reduce inflammation. As mentioned above, products designed for acne skin care contain active ingredients with anti-inflammatory, antibacterial, soothing and moisturising properties, such as Allantoin, Panthenol, Aloe Barbadensis Leaf Juice, Azelaic Acid, Salicylic Acid, Zinx Oxide.

Taking care of sensitive and problematic skin is extremely difficult and troublesome. The choice of appropriate cosmetics can be a long-term process. However, properly selected care products, adapted to the type and needs of the skin, can significantly reduce the bothersome symptoms in the affected areas of the baby's body – and in the course of these diseases, this is crucial for both babies and their parents.

Kamil Ducki
Specialist
PCC Exol

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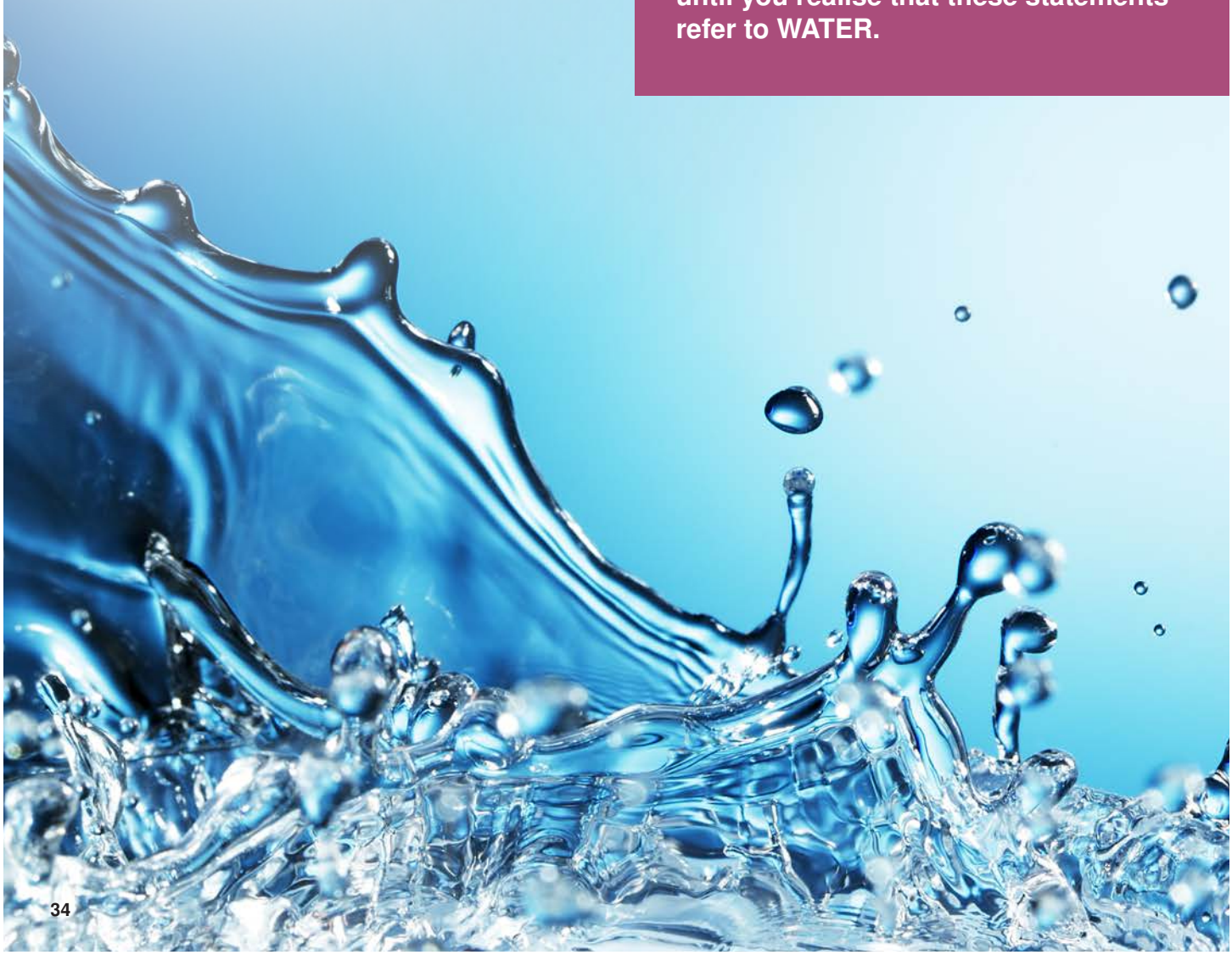
Water under scrutiny

Is DIHYDROGEN MONOXIDE a good way to quench thirst and maintain daily hygiene?

OXIDANE is the most important substance on Earth, it is the main component of living organisms, and it conditions their survival.

All this may seem surprising, but only until you realise that these statements refer to WATER.



It gets even more interesting when you have a look at its chemical properties. A single water molecule is made of two hydrogen atoms connected by one oxygen atom with a covalent polarised bond.

The elements that make up a water molecule are very intriguing in themselves. **Hydrogen** is a flammable gas – even the smallest spark can make it explode. **Oxygen** is a good oxidant, and it catalyses the combustion process – the Polish word for oxygen is tlen, which comes from the verb *tlić się*, i.e. smoulder.

Why doesn't the atom and oxygen combination lead to an explosion, or why doesn't water burn?

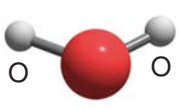
Because the explosion has already occurred and water is the reaction product of these two elements – of course, in the right conditions and proportions. So, you can safely say that water is nothing more than "burnt" hydrogen. The intensity of this reaction can also be observed during a space rocket launch, when in the process of combustion of i.a. hydrogen, thick smoke billows from beneath the rocket's engines.

Water is an **excellent solvent** for other polar substances. Solubility is something we make use of when making sweet tea by dissolving sucrose (sugar) or boiling water for salty dishes with sodium chloride (table salt) dissolved in it. The phenomenon of dissolvement is accompanied by the so-called solvation process, during which the dissolved substance is surrounded by solvent molecules – i.e. our water.

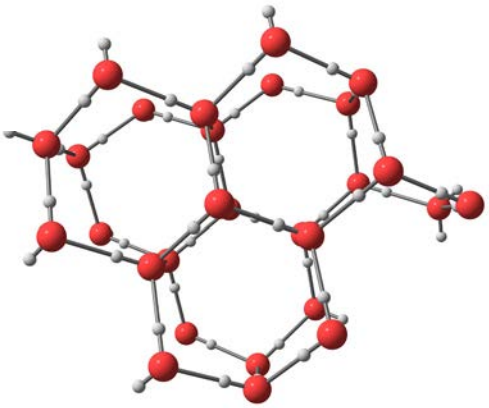
Daily observations suggest that most solid bodies submerged in water sink, so...

Why does ICE float on water?

This is due to an unusual property of water, the so-called anomalous thermal expansion. Water reaches its highest density at 4°C. If the temperature drops below 0°C, the freezing water molecules put themselves "in order" and form an interesting polygonal structure with six walls (hexagonal structure). They resemble interconnected hollow tunnels.



water



ice

For those interested

"ICE on a leash"

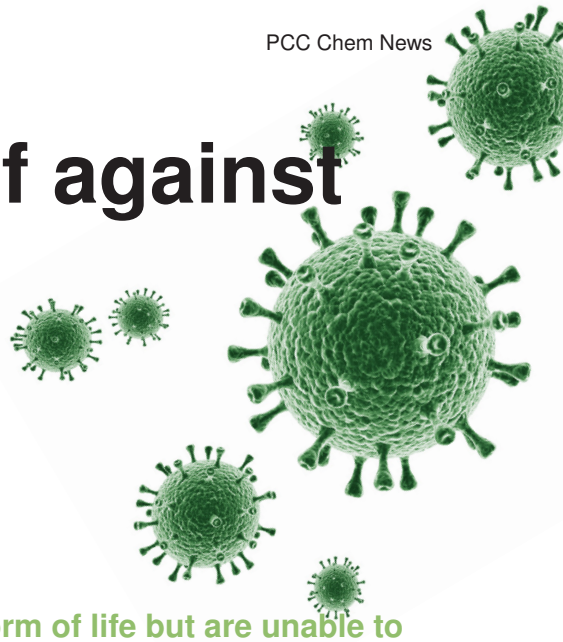
Put an ice cube on a plate and wait a moment for it to start melting. When water drops appear on the surface of the ice, put an end of a piece of thread on it. Place some salt in the contact area. After a moment, pull the other end of the thread...

What will happen?

Fun fact:
table salt (sodium chloride) lowers the freezing point of water, and so ice "tries to recover" heat from the thread. As a result, it freezes to the surface of the cube.

Alina Jakób
R&D Director
PCC Exol

How to protect yourself against viruses and bacteria?



What should you know about viruses and how to defend against them?

Viruses are infectious microorganisms that infect every form of life but are unable to multiply outside the host cell. This means that those present on things will survive for some time and then die unless they manage to transfer to a living organism. On items such as countertops, handkerchiefs, etc., a virus can remain active even for several hours. Hands are the most common route of virus infection. That is why hand hygiene and disinfection are so important. Besides frequent and proper hand washing, what can you do to protect yourself against viruses?

It is also important to use alcohol-based hand sanitisers both after washing your hands with soap and water and in situations when you do not have access to running water. Various strains of bacteria and viruses accumulate on our palms. They are transferred to our hands after we have contact with anything we touch – a telephone, door handle, light switch, desk top. That is why it is so important to always have a hand sanitiser containing alcohol at hand when there is no running water and soap available.

If you are not sure whether your hands are clean, it is important not to transfer bacteria to the body by contacting dirty hands with your mucous membranes, i.e. eyes, lips, nose. Each and every one of us touches the face many times an hour – unconsciously, of course. Therefore, if possible, try to avoid touching your face with unwashed hands.

What should you do besides cleaning your hands? In any period of virus spread and high incidence, you should avoid staying in public places and large groups of people as much as possible. Especially when you see a person who coughs or sneezes, you should keep a distance of at least one metre. You should also try not to share food or use snacks that require putting your hand in the package. In times of high danger, you should also refrain from greeting others by shaking hands or kissing anybody on the cheek.

Maintaining a healthy lifestyle, i.e. providing the body with the right amount of micro and macro elements, is also very important in terms of our body's immunity and its ability to fight off viral infection. Make sure you consume healthy food, eat vitamins, have adequate amounts of sleep and properly hydrate the body.

If, despite following all these rules, you start feeling worse – you have a fever, shortness of breath, a cough, muscle aches and are feeling unwell, you should immediately go to a GP.

Effective hand disinfection.

Hand washing is one of the most effective methods to prevent viruses from spreading. Unfortunately, many people wash their hands too rarely or incorrectly. So how should you wash and disinfect your hands to effectively minimise the risk of infection?

1. Wet your hands with warm water and apply the right amount of soap.
2. Spread the soap with the tips of your fingers.
3. Soap the palms of your hands by rubbing one against the other.
4. Interlace your fingers and soap them.
5. Rub the top of one hand with the inside of the other, and vice versa.
6. Pay attention to the areas around the nails and rub the upper parts of the fingers of one hand with the inside of the other hand, and vice versa.
7. Soap the thumb of one hand with the other hand, and vice versa.
8. Soap both wrists.
9. Thoroughly rinse with water to remove soap.
10. Dry your hands thoroughly by wiping them on a paper towel.
11. When closing the faucet, touch it through a paper towel to avoid infection.

It would seem that washing your hands is a simple and well-known activity. Meanwhile, many people have trouble showing how to properly wash and then disinfect hands. That is why it is important to follow the instructions above and try making washing your hands this way an every-day reality.

The whole truth about face masks!

In the current epidemiological situation, it is significant to apply means of personal protection by wearing face masks, washing hands and using protective gloves. However, you must realistically adapt personal protection equipment to the actual threat and the conditions in which you find yourself. Recommendations of the World Health Organisation

(WHO) say that the use of a disposable surgical face mask is advisable for:
• individuals infected with a virus and showing the following symptoms: e.g. fever, cough, sneezing or difficulty breathing,
• individuals taking care of sick people,
• healthy individuals in public places where there may be sick people.

The use of face masks is recommended in combination with other protective measures, especially hygienic hand washing.

Remember that wearing disposable masks for a long time is not effective, as they are not 100% airtight, and water vapour containing bacterial flora sits on the surface of the mask.

The use of protective gloves is recommended for people working in healthcare and spending time with patients. The surface of protective gloves is where various microbes accumulate, which is why such gloves must be changed frequently, and consequently, frequent hand washing with water and soap or alcohol-based preparations proves more effective.

What preparations to use to protect yourself against viruses and bacteria?

It is very important to use professional preparations for washing and disinfecting your hands. Hand washes and disinfectants can be divided into:
• antibacterial washes – liquid soaps, antibacterial gels, antibacterial foams,
• disinfectants based on alcohol or other active substances,
• liquid soap.

As a precaution, during initial washing, you should use antibacterial or ordinary liquid soaps that effectively wash away grease, dirt and organic substances. Antibacterial liquid soap removes and temporarily inhibits the growth of bacterial flora on the hands. Alcohol soaked sanitising wipes are also effective, as well as very useful when travelling.

Hand disinfectants are designed to destroy bacteria, fungi and viruses. The most effective are alcohol-based washes, gels and foams. They have a wide biocidal application within one minute.

Ethyl and isopropyl alcohol exhibit the most effective bactericidal and virucidal activity. Alcohol effectively destroys bacteria, fungi and viruses through protein structure degradation. Alcohols show rapid bactericidal activity (up to 10 seconds) and are able to deactivate mycobacteria, viruses and fungi. Products containing a mixture of ethyl and isopropyl alcohol are an optimal means in fighting off microorganisms.

Of all the cleaning and disinfecting products available at distripark.com, we especially recommend:

• **ROKO Professional Alcoderm Soft disinfectant – alcohol-based hand sanitiser.** It has confirmed bactericidal and fungicidal effect, which it achieves after only one minute from application. The product does not require rinsing and can be applied directly to the hands. Despite high alcohol content, ROKO Professional Alcoderm Soft does not leave the skin of the hands dry – all thanks to such moisturising ingredients as glycerine and vitamin B5. The recommended product comes from a Manufacturer with many years of experience in the production of professional disinfectants. The effects of ROKO Professional Alcoderm Soft have been confirmed in tests as well as by obtaining a permission to trade it as a biocidal product.

• **Duo Active ROKO Professional 5l** liquid soap with antibacterial properties is designed for washing hands and the body. The product has been dermatologically and microbiologically tested. It provides hygienic cleanliness and does not damage the skin of your hands, even after frequent use. Thanks to natural lipids obtained from sunflower and coconut oil, it leaves the skin elastic, regenerated and moisturised.

• **TRIO ROKO Professional toilet disinfection and cleaning agent** - a reliable preparation for disinfection and bleaching of various surfaces, such as bathtubs, toilets, tiles, joints, sanitary fittings. It perfectly removes heavy dirt. The product is extremely effective against fungi, bacteria, viruses and mycobacteria.

• **VIX ROKO Professional universal agent with antibacterial properties** – a product designed for cleaning all washable surfaces. It effectively cleans kitchen countertops, floors, tiles, windows, as well as plastic and varnished surfaces. The product perfectly removes dirt, leaving no streaks or stains. Due to its mild effect on the skin, it is safe to use.

The distripark.com offer includes also cosmetic, cream and ECO soaps, soaps for ROKO Professional foam dispensers with a capacity of 5l and liquid hand soaps from Savanti.

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Nordic walking *is for everyone*

In the previous issue, we shared some information on the topic of walking with poles. Interest in this form of activity doesn't fade, as the number of its fervent fans is constantly growing. Now that you know what equipment to choose and how to start, we can further explore the activity of Nordic walking.

WORKOUT

This matter is of a very individual nature and depends on several factors, such as one's physical condition, training needs and possibilities or time you can spend on it. Why train? First of all, for your own satisfaction – if you don't see any point doing it, forcing it won't do you any good. You should start every training session with a warm-up as Nordic walking involves 90% of our muscles, which is why a 5-10 minute warm-up of individual muscles will do. Then, you can move on to the workout itself. Depending on the needs, you can walk at an even pace, do interval walking, carry out longer or shorter training sessions. This part of workout must be tailored to you and your current needs. At the end of the workout, it is worth doing some stretching, which will make your muscles more flexible and improve their blood supply.

COMPETITION

A very popular form of trying yourself out among Nordic walking enthusiasts is participation in competitions. One should be properly prepared for that, just as in the case of other such activities. One might express doubt on combining Nordic walking with competition, but just as in every other sport, rivalry increases adrenaline levels and many people need it to be able to actually feel what fatigue is. More than once I've talked to very active people who after participating in Nordic walking competitions said that they felt pains in muscles that had never ached them before. The rules of such competitions are similar to those in race walking competitions; there are judges along the route, who closely monitor the movements of individual competitors. In particular, they verify the so-called flight phase and arm work. If you'd like to test yourself with competitions, there is some competition organised in the country virtually every weekend.

TRAIL SUGGESTIONS

'Cat Mountains' is the colloquial name for the Trzebnickie Hills, the landscape of which consists of forests, arable fields and orchards. We suggest taking the route around Oborniki Śląskie – a loop of about 15 km on flat areas with slight elevations. The starting point can be the Railway Station in Oborniki Śląskie, from where you can head towards Wilczyn Leśny. Further on, the route winds along the Trzebnickie Hills leading to the picturesque village of Nowosielce. You can admire the diversity of everything around you there: the rich deciduous and coniferous tree stand in forest areas and the close proximity of bird breeding grounds in wetlands deepen the impression of communing with nature. However, they require walkers to behave properly and not to walk off the marked trails.

Along the way, you will pass two water reservoirs that serve breeding and recreational functions. In their vicinity you can have short rest stops, for example near the "Wilczy Jar" motocross track of the Obornicki Klub Motocrossowy [English: Oborniki Motocross Club[.

The most famous figure that lived and was associated with Oborniki Śląskie was a romantic poet – Karl von Holtei. On the route, you will come across a stone monument dedicated to him, and the hill you cross there, named after him (but also well-known under the name of "Grzybek" [English: Little Mashroom]), has a height of 217 m and is an excellent viewpoint. There used to be a gazebo there, now – a millennium cross.

When walking down into the town, you enter the park with the seven oaks clearing. The largest of the trees has a circumference of nearly five metres. From there, you can go back to the stations, from where you can take a train or drive back home. The Cat Mountains area is perfect not only for Nordic walking, but also for cycling. We encourage you to visit this picturesque land.

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