

PRODUCTS & MARKET

WorléeSol E 330 W

PARTNERS

Expansion of the Hobum partnership

PERSONAL

New responsibilities at Worlée-Chemie

SUSTAINABILITY

Participation in B4 project
(Better Biobased Building Blocks)

Awarded EcoVadis Medal

EVENTS & NEWS

Review Eurocoat, Techtexil, ACS, Surfex

Participation in HafenCity Run

Award 'TOP-Ausbildungsbetrieb' Lübeck





Joachim Freude
Managing Director

**DEAR CUSTOMERS,
PARTNERS AND FRIENDS,**

You can look forward to exciting insights and the latest news from our company. Get ready for an interesting article on our product WorléeSol E 330 W, as well as a presentation of the product portfolio of our new distribution partner Siloxene. We also report on the expansion of our co-operation with HOBUM Oleochemicals.

In the area of sustainability, we are proud to report on our receipt of the EcoVadis Medal and the pioneering 'B4 Building

Blocks' project. We also look back on past trade fairs and celebrate our award as a 'TOP-Ausbildungsbetrieb' from the Lübeck Chamber of Industry and Commerce.

We hope you enjoy reading this issue!

Yours,
Joachim Freude
Managing Director

WELCOME TO THE 25TH EDITION OF OUR WORLÉEJOURNAL!

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VERSATILE WORLÉESOL E 330 W:



Optimum
corrosion protection
primer and aesthetic
topcoat

Worlée offers a variety of different raw materials for paints and varnishes – one of the better-known product groups is the WorléeSol E range. These are binders emulsified in water, whose special properties are achieved through urethane modification.

A special type is WorléeSol E 330 W, which is particularly suitable for corrosion protection primers, but also for glossy topcoats. The oxidative hardening of the fatty acids it contains leads to good mechanical and chemical resistance; this is further enhanced by internal emulsification. The linseed oil fatty acid used is particularly suitable for corrosion protection due to its high iodine value. In addition, it emphasises the grain when coating wood and thereby leads to a great look, which further broadens the field of possible applications (see Fig. 1).

Urethanisation further increases the resistance of the coating, ensures fast drying and higher hardness, and thus enables the use of WorléeSol E 330 W in corrosion protection primers without the use of siccatives.

If necessary, cross-linking, which also leads to faster pendulum hardness development, can be accelerated with a small amount of iron siccativ (e.g. Borchio® OXY-Coat 1101).

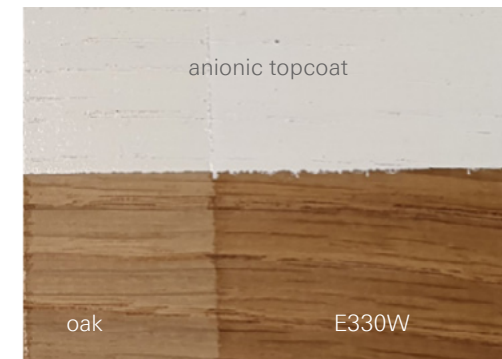


Figure 1: Firing of WorléeSol E 330 W on oak

The acid value of 15–20 mg KOH/g is quite low for an internally emulsified resin. This allows hydrophobic coatings to be produced, which – unlike those of the competition – are characterised by increased corrosion protection. Stabilisation in water is achieved by neutralising the acid groups with ammonia. Like all types in this product group, WorléeSol E 330 W is shear stable and can be used in the bead mill.

TECHNICAL DATA OF WORLÉESOL E 330 W

	WorléeSol E 330 W
Non-volatile portion (DIN EN ISO 3251)	42% in water
Oil content	ca. 33%
Oil basis	Linseed oil
Bio-based content	approx. 31%
pH value	7.5–8.5
Acid value (DIN EN ISO 3682)	15–20
Density, 20°C (DIN EN ISO 2811-1)	1.046 g/cm ³
Viscosity (rheometer 20°C, C60/2°, 5s-1)	max. 10,000 mPas

The formulation of aqueous corrosion protection coatings requires the use of a flash rust inhibitor such as WorléeAdd 458. It is also possible to formulate zinc-free with suitable additives, but the best result is achieved with the use of zinc phosphate as an anti-corrosion pigment (see fig. 2 with approx. 80 µm TSD).

Due to the yellowing of linseed oil fatty acids, the use of WorléeSol E 330 W is recommended for coloured topcoats. As already mentioned, it can be dispersed in the binder. To optimise the gloss, the use of a little ethyl diglycol or propylene glycol in the grinding phase is recommended. Butyl glycol, which is now classified as toxic, can also be used. The gloss retention of a colourful topcoat such as the orange coating (see fig. 3 and 4) based on WorléeSol E 330 W is very good.

Sustainability has various facets. The group of alkyd resins provides a significant proportion of renewable raw materials due to the fatty acids they contain. Durable binders such as WorléeSol E 330 W extend the service life of coatings and thus also contribute to sustainability.

Pos.	Product	Delivery form	%	Function
1	Water		8.00	
2	WorléeDisperse 8400 W	50% in water	1.00	Wetting agent
3	Rheovis PE 1320		0.45	Thickener
4	Rheovis PU 1214		0.15	Thickener
5	WorléeAdd 6410	30% in water	0.20	Defoamer
6	Zinc phosphate ZP 10		6.60	Corrosion protection
7	Kronos 2190		10.10	Pigment
8	Mistron 75-6A		4.10	Filler
9	Microdol Super		10.40	Filler
10	Water		3.00	
11	WorléeSol E 330 W	42% in water	50.00	Binder
12	Water		5.00	
13	WorléeAdd 458	38% in water	1.00	Flash rust inhibitor
			100.00	

Guide formulation 3.9460-04 'white corrosion protection primer'

Viscosity, Krebs Stormer	20°C	approx. 100 KU
pH-value		7,0 - 8,5
Density	20°C	approx. 1.31 g/cm ³
VOC content (calculated)	excl. water incl. water	approx. 33 g/l approx. 13 g/l
100 µm wet film on glass		
Dust-dry		approx. 15 min.
Tack-free		approx. 20 min.
150 µm wet film on steel		
Erichsen well	after 7 d RT	approx. 7.4 mm
Pendulum hardness (King)	after 7 d RT	approx. 70 s
Salt spray resistance	after 360 h	good

Technical data for RR 3.9460-04

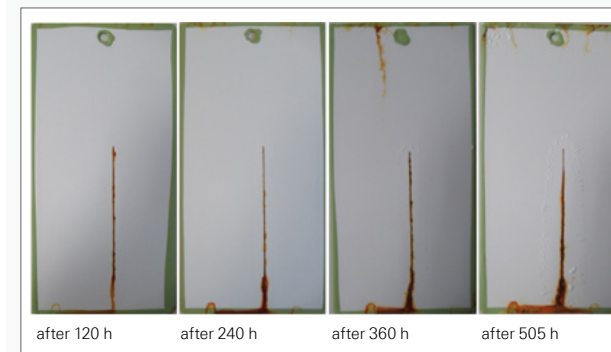


Figure 2: Results after exposure in the salt spray test



Figure 3: Orange high-gloss topcoat RR 3.3894-06 on steel

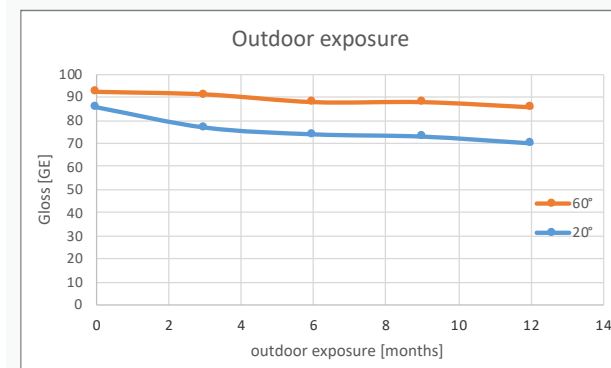



Figure 4: Gloss development during outdoor weathering of RR 3.3894-06 on steel



‘We are delighted to be able to further expand our partnership with HOBUM. This not only allows us to develop our customer base, but also to continue to work more intensively on increasing the proportion of products with renewable raw materials on the market.’

Frank Pinkernell
Head of Chemical Trade
and Product Management

WORLÉE-CHEMIE GMBH EXPANDS DISTRIBUTION PARTNERSHIP WITH HOBUM OLEOCHEMICALS GMBH

Worlée-Chemie has been a strategic distributor of HOBUM Oleochemicals GmbH in France, the Netherlands, Belgium, Luxembourg, Poland and the Nordic countries for almost two years. Since 1 July, the product distribution has now been extended to Germany and Austria.

HOBUM’s product range comprises a broad spectrum of bio-based products derived from unsaturated vegetable oils, their fatty acids and derivatives. The products, made from renewable raw materials, are primarily used in paints and varnishes, adhesives, and plastics.

H O B U M
OLEOCHEMICALS

HOBUM Oleochemicals GmbH, a medium-sized German family business based in Hamburg-Harburg, has been manufacturing various oleochemical products based on renewable raw materials since 1959. Vegetable oils and fatty acids serve as raw material sources. The highly specialised end products are typically used in paints and varnishes, adhesives, and plastics.

New responsibilities at Worlée-Chemie

As of 1 July 2024, areas of responsibility within the Chemical Distribution organizational unit at Worlée-Chemie have been reorganized in order to successfully lead product management and business development into the future in the long term.



Dr. Thorsten Adebahr, who has been Head of Chemical Distribution for 10 years, will drive the development of new business relationships and business areas in the newly created position of "Head of Business Development Chemical Distribution".



Frank Pinkernell, who has been part of Worlée-Chemie for almost 25 years, will take over the role of Head of Chemical Distribution from Dr. Adebahr. The experienced product manager with excellent knowledge of the product portfolio and business environment is now responsible for the further development of the entire chemical trade. Mr. Pinkernell will also take over the management of the Product Management team (distribution and own products).

With this new organization of the areas of responsibility, the company is underlining its ambition to position itself for the future in terms of personnel and structure and to continue to position itself successfully - both nationally and internationally.



NEW MULTIFUNCTIONAL ORGANOSILICON ADDITIVES IN THE WORLÉE PORTFOLIO

Innovative functional organosilicates create a wide range of possibilities

Worlée is expanding its portfolio through a distribution partnership with the Swiss start-up Siloxene AG. The highly specialised products under the brand names **XenCure™**, **XenLink™** and **XenSlick™** offer improved performance and versatility and perfectly complement the Worlée portfolio.

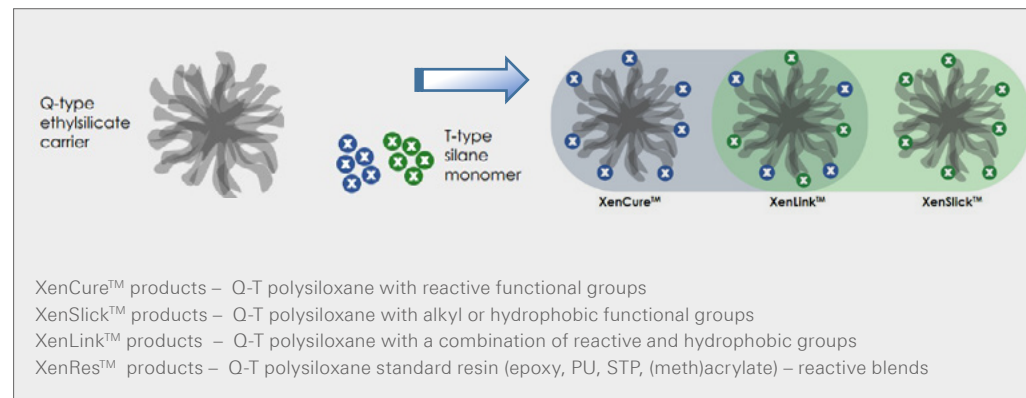
Siloxene's new product range represents the next generation of functional silane products. The product portfolio includes functionalized Q-T polysiloxane compounds, which are available

in three different product groups (XenCure™, XenLink™ and XenSlick™).

The programme also includes innovative hybrid resins under the name XenRes™.

These are all Q-T polysiloxane dendrimer resins based on polymeric Q-ethyl silicate as the core, which is grafted with a 'shell' of T-type functional silane. Q-T products differ from conventional silicone resins – often referred to as polysiloxanes – in terms of their structure and the variety of possible combinations, with the latter consisting mainly of D- and partly of T-silane units. The core/shell morphology represents the optimum base body for attaching various functional groups, which remain largely accessible as a result.

The Siloxene portfolio offers a wide range of functionalities that can be combined in almost any way. This makes it possible to develop additives that combine numerous properties in one product and can be customised for specific applications and systems.



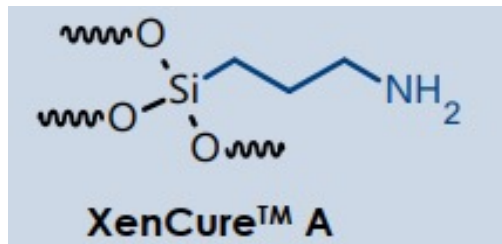
Siloxene AG is a Swiss start-up company founded in 2020 that specialises in the development of a new class of hybrid silicon-based molecular building blocks.

With these innovative additives, Siloxene AG serves the needs of various branches of industry. The products are dendrimer resins based on Q-T polysiloxanes, which can be used to specifically improve the properties of end products. The highly specialised products are typically used in coating systems, adhesives, sealants and plastics.

The applications of Siloxene products are extremely diverse. The high-performance additives and hybrid resins (XenRes™) can be used to specifically improve the properties of end products and formulations. For example, coatings can be made more scratch-resistant and weatherproof or adhesives can be given faster curing, faster adhesion build-up and improved adhesive strength. In the textile sector, for example, adhesion to the fabric and the tactile feel of textiles can be enhanced.

OPTIMISATION OF A 2K PU CLEAR COAT BY ADDING XENCURE™ A43 OR XENLINK™ AO352

In our application technology department, we tested various Siloxene products for their specific properties. To evaluate the two selected additives XenCure™ A43 and XenLink™ AO 352, tests were carried out in a 2K PU clear coat. The influence of the products on the reactivity and surface properties of the paint film was evaluated in the test series. Reactivity was analysed using parameters such as pot life and degree of hardening of the coating film, while the surface properties of the coating film were assessed on the basis of smoothness and scratch resistance.



XenCure™ A43 – based on polymeric ethyl silicate with grafted primary amine functionality
 XenLink™ AO352 – based on polymeric ethyl silicate with grafted primary amine and octyl functionality

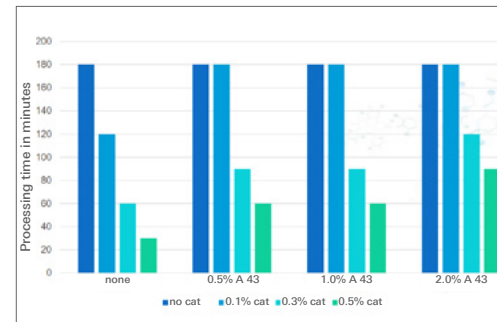
2K PU CLEAR COAT, FAST-DRYING, HIGHLY RESISTANT

	10096-01
WorléeCryl A 2445, 60% X7S100BAC	77.50
Methoxypropyl acetate	7.00
Solvesso 100	10.00
Butyl acetate	5.00
K-Kat XK-661	0.50
	100.00

Härtelösung	10096-01
Tolonate HDB 75	31.40
Solovesso 100	6.00
Butyl acetate	12.60
	50.00

Both products could be quickly and easily incorporated into the system. The amount of catalyst K-Kat XK-661 (0–0.5%) and that of the two Siloxene products XenCure™ A43 and XenLink™ AO352 (0–2%) were varied.

EXTENSION OF THE PROCESSING TIME FOR THE 2K PU CLEAR COAT



The addition of XenCure™ A43 has an effect on the curing properties of the 2K PU system and resulted in an extension of the processing time.

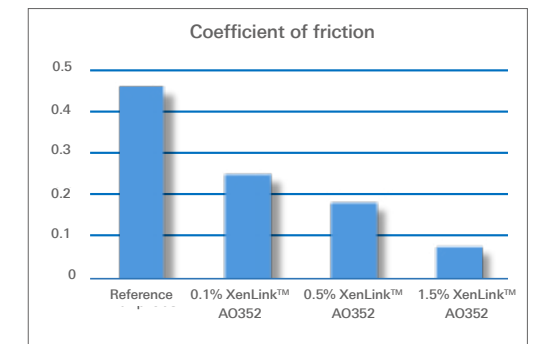
The significantly longer pot life allows a higher quantity of the metal catalyst K-Kat XK-661 to be used. By increasing the amount of catalyst, the reactivity of the system can be improved without significantly shortening the pot life.

Essentially, drying is accelerated and higher hardness in the end product can be achieved, which may enable a reduction in the curing temperature and/or curing time or faster handling of the coated components.

In summary, XenCure™ A43 offers the possibility of optimising processing time and reactivity in coating systems. These advantages contribute to a more efficient, energy-saving and therefore cost-saving coating process.

XENLINK™ AO 352 ALSO IMPROVES SURFACE SMOOTHNESS AND SCRATCH RESISTANCE.

XenLink™ AO352 is an amine- and octyl-functional Q-T polysiloxane and has two modifications compared to XenCure™ A43. Furthermore, the second functional group of the additive improves smoothness and scratch resistance.



NON-HAZARDOUS BY NATURE

XenCure™, XenLink™ and XenSlick™ products are label-free, colourless, low-viscosity, solvent-free and near-odourless liquids and are generally used as additives. The high flash point is advantageous for safe handling during transport, storage, dosing and processing.

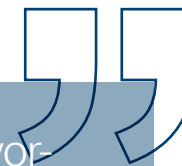
THE KEY BENEFITS AT A GLANCE:

- ▶ Improved of cross-linking and curing properties
- ▶ Improved adhesion on metallic and mineral substrates
- ▶ Improved scratch resistance and hydrophobicity
- ▶ Increased mechanical properties (flexibility, abrasion resistance)
- ▶ Increased UV and weather resistance
- ▶ Improved of the surface quality (smoothness, gloss)
- ▶ Defoaming properties
- ▶ Easy integration into formulations
- ▶ Improved compatibility between polymer resin and inorganic substrate or filler matrix

IN COATING SYSTEMS, THE ADDITIVES PROVIDE MANY ADVANTAGES IN THE MANUFACTURING PROCESS TO END USE. PLEASE CONTACT US AND FIND OUT MORE ABOUT THE SILOXENE PRODUCT PORTFOLIO.



Over the next three years, we will be working alongside ten other partners to make green building blocks with local tree and plant residues



BETTER BIO-BASED BUILDING BLOCKS FOR A MORE SUSTAINABLE FUTURE

From grass to glue, from sugar beet pulp to paint, or from wood chips to insulation foam – these are examples of what the B4 project – Better Biobased Building Blocks – hopes to achieve.

These building blocks not only make products for the construction industry more sustainable; they also offer scratch resistance, flame retardancy or UV resistance. Besides these technological innovations, the partners in the B4 project also share knowledge with students, companies and governments to prepare them for and involve them in this raw materials transition. This will transform western North Brabant into a hotspot for bio-based building blocks for the construction industry.

The construction sector faces a huge challenge: to cut CO₂ emissions by half by 2030 and 90% by 2050. One of the fossil building blocks that are going to be replaced by a sustainable alternative is aromatics. As much as 40% of all products around us contain aromatics. Think of paint, glue, insulation materials, textiles and foams. Currently, aromatics are made from fossil raw materials and this is not beneficial for our environment and climate.

B4: BETTER BIOBASED BUILDING BLOCKS

The B4 project combines the entrepreneurship, knowledge and expertise of small and medium-sized companies (Relement, Impershield, Baril Coatings, Bodewes and Progression-Industry) and larger companies (Westlake Epoxy and Worlée) with the technologies and knowledge of TNO, VITO and Avans University of Applied Sciences. The partners want to show that bio-based aromatics can successfully replace fossil aromatics in at least six applications for the construction industry, such as coatings, composites, acrylic and epoxy resins. And that these green alternatives are not only sustainable, but also commercially attractive.



GREEN CHEMISTRY CAMPUS AS EPICENTRE

The Green Chemistry Campus in Bergen op Zoom is the epicentre of this project. It is home to Shared Research Center Biorizon, an initiative by TNO and VITO that is working with partners on the technological development of bio-aromatics.

With the inclusion of all stakeholders, a flywheel will be created that will make the transition to a climate-neutral economy a reality. Within the B4 project, the campus therefore organises numerous meetings and workshops for a broad audience. For SMEs who want to know what the opportunities are for their company, for students considering a career in bio-based chemistry, for employees in the chemical industry who want to know what will change for them when they start working with bio-based raw materials, and for governments who want to know what the opportunities of this raw material transition are for their organisation.

WESTERN NORTH BRABANT AS A BIO-BASED HOTSPOT

Helping regions that rely heavily on fossil-based industries with the transition to a climate-neutral economy in a just and equitable way – that is the goal of the European Union's Just Transition Fund. The B4 project aims to make western North Brabant a hotspot for bio-based building blocks for the construction sector. Western North Brabant potentially has everything required to achieve this goal: residual agricultural products such as sugar beet pulp as a green raw material, a chemical sector with a lot of knowledge and personnel, and strong logistical connections. The B4 project partners want to offer sustainable economic prospects to the region by providing a new earnings model for the agricultural sector and creating additional jobs in the chemical industry.

The B4 project has a total budget of €4.4 million and is co-financed by the European Union under the Just Transition Fund (JTF), the Ministry of Economic Affairs and Climate Policy, the Ministry of Social Affairs and Employment and the Province of North Brabant.

For more information about the B4 project, please contact:
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ANOTHER ECOVADIS PLATINUM MEDAL FOR WORLÉE- CHEMIE

In 2024, Worlée-Chemie can once again celebrate being awarded a Platinum Medal by the CSR platform EcoVadis.

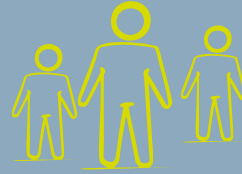
In the annual assessments, 21 sustainability criteria in the areas of 'environment', 'labour and human rights', 'ethics' and 'sustainable procurement' are evaluated by qualified CSR experts after extensive and detailed information on internal company guidelines, measures, actions and key figures has been verifiably documented.

With an overall score of 81 points and the Platinum certificate, Worlée-Chemie continues to be among the top one per cent of the more than 100,000 companies rated by EcoVadis worldwide!

We were able to maintain our score in all areas except for the 'sustainable procurement' sub-area. Sustainable procurement achieved 80 points in the last award.



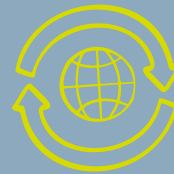
90 POINTS
'ENVIRONMENT'



80 POINTS
'LABOUR AND HUMAN RIGHTS'



70 POINTS
'ETHICS'



70 POINTS
'SUSTAINABLE PROCUREMENT'



'A great team effort, without which such a result would not have been possible! The result reflects our committed performance in terms of sustainable development in the various areas of the company. We will of course use the opportunities for improvement listed to continuously develop ourselves further'. says Barbara Eschke, responsible conducting out the assessments.

Worlée-Chemie is happy to share its entire EcoVadis scorecard with customers and business partners and looks forward to receiving further requests to share its score.

Please contact our sustainability management team for further information.

'LOOKING BACK: FOUR TRADE FAIRS, FOUR SUCCESSES – OUR HIGHLIGHTS AND IMPRESSIONS'

We attended four trade fairs in the last few months. From exciting product presentations to inspiring talks and lectures – we can look back on four successful events.



The first was **Eurocoat** from 26 to 28 March in Paris, where we were represented together with our distribution partner HOBUM Oleochemicals. Eurocoat offers space for exchange between numerous exhibitors and interested visitors who are active in the paints, coatings, printing inks, glues and adhesives industry and was, as always, a successful trade fair for us.

Next up was **Techtextil**, from 23 to 26 April in Frankfurt. Here, too, we were not represented alone, but together with our distribution partner Synthomer. Techtextil is the leading international trade fair for technical textiles and nonwovens, where we primarily presented the product portfolio of our partner Synthomer.



This was followed shortly afterwards by the leading event for the North American coatings industry, the **American Coatings Show** in Indianapolis from 30 April to 2 May.. Here we had a small stand on-site for the first time, where Thorsten Adebahr and Caroline Matthiesen represented us.

Together with our sales partner Nordmann, we took part in **Surfex** for the first time from 4 to 5 June. The trade fair is the industry-leading event for the surface and coating technology industry and takes place every two years.



In addition, our Export Manager Caroline Matthiesen also took part in the conference programme and gave a presentation on 'Alkyd resins based on camelina oil and their contribution to more sustainable paint and coatings formulations'.

We really enjoyed those weeks with many interesting discussions.

We would like to thank everyone who visited us during the trade fairs and are already looking forward to the next events.



HAFENCITY RUN – RUNNING FOR A GOOD CAUSE

On 1 June, the 22nd Hafencity Run took place in Hamburg and Worlée participated again with almost 40 runners.

A total of 17,200 participants from 508 teams raised a total of 90,000 euros at northern Germany's largest corporate and charity run. The amount will be used by the official charity partner 'Hamburger Abendblatt hilft e.V.' for its own projects and distributed to charitable recipients in the metropolitan region.

Once again this year, the runners ran 4.5 km through the centre and west of Hamburg's Hafencity, always with a focus on having fun.

'You experience the Hafencity Run alongside colleagues, family and friends. Baby carriages and pets come along for the run. The teams also fly the proverbial flag: team kits, Costumes and huge flags were carried across Hafencity,' – reported the organisers of the run.

A really great event - we are already looking forward to next year!



As part of the IHK (Chamber of Industry and Commerce) Lübeck summer tour, we received the 'TOP-Ausbildungsbetrieb' award in the 'Innovation and Sustainability' category.

The Lübeck Chamber of Industry and Commerce honours five training companies per year for special achievements in the context of training, and we are pleased to be one of these companies this year.

The award is intended to highlight the company's great commitment to training that encourages your people to take up dual training. Companies cannot apply for the coveted award. In addition to outstanding performance in the respective categories, the award highlights the high quality of training in the various companies.

In addition to a certificate, each TOP training company also received a beach flag, a roll-up and a plaque for further use from the Lübeck Chamber of Industry and Commerce.

'TOP TRAINING COMPANY': WORLÉE- CHEMIE RECEIVES AWARD FROM IHK LÜBECK