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Techtextil 2022

Dear customers,
partners and friends,

October is just around the corner and so is our next issue of the Customer Journal. Exciting product presentations and the third part of our partner Bruno Bock on Thiocure in radiation-curing systems await you. In a joint interview, we look back on the past 35 years of our colleague Will van Meer from Holland, who will be taking his well-deserved retirement at the end of 2022, but will remain with us for two more years in an advisory capacity, in the area of sustainability.

Sustainability at company and product level is becoming increasingly important for us. We have received three awards for our commitment to sustainability. In addition, we report on our participation in webinars and the past Techtextil.

We hope you enjoy reading the 19th issue of our Worlée Journal.

Your,

Joachim Freude
Managing Director

WorléePol 1181

Special polyester polyols for the modification of versatile reactive coating systems

For particularly high-quality solvent-based, solvent-free and also water-based coating systems, reactive 1K and 2K systems are usually used. These are, for example, isocyanate or melamine-crosslinking systems. These coating systems are often based on polyacrylates, polyurethane dispersions, polyesters and also other binder systems.

Depending on the different applications, it may be necessary to modify the developed coating systems with regard to certain properties. In order to avoid a completely new development, specially formulated polyester polyols of the WorléePol 1181 series, among others, are suitable here.

Polyester polyols are produced by esterifying polyhydric alcohols with polyhydric carboxylic acids. The structure of the starting materials (aliphatic, cycloaliphatic, aromatic), their mixing ratio and the type and number of functional groups (e.g. hydroxyl or acid groups) determine the properties of the polyester resin.

Polyester polyols for modification are mostly linear or only slightly branched and have a high proportion of reactive hydroxyl groups. The very broad selection of

aromatic, aliphatic and cycloaliphatic monomers enables the targeted control of a wide range of properties.

The special composition of the polyester polyols of the WorléePol 1181 series makes it possible to optimise the following properties, for example, even with small additions:

- Elasticity
- Scratch and abrasion resistance
- Shine and fullness
- Processing and flow properties
- UV and weather resistance
- Chemical resistance
- VOC content



The two available products cover a wide range of applications

Both WorléePol 1181/03 and WorléePol 1181/09 are characterised by a very low viscosity and a very high hydroxyl content. The compatibility of both products is given in different paint systems. It is therefore suitable for use in solvent-based, solvent-free but also water-based paint systems.

The products of the WorléePol 1181 series improve the mechanical properties in the coating systems to a similar extent. WorléePol 1181/09 does not contain any aromatic components and is therefore more suitable for systems that must have particularly good UV resistance.

Both products are available almost worldwide. However, the WorléePol 1181/03 is easier to use from a regulatory point of view in applications involving direct or indirect food contact [Table 1].

Product	Delivery form	Technology	OH content
WorléePol 1181/03	Solvent-free	Saturated and low viscosity polyester polyol with very low aromatic modification	10%
WorléePol 1181/09	Solvent-free	Saturated, low viscosity and pure aliphatic polyester polyol	10%

Table 1: WorléePol product range

WorléePol 1181/09 improves the properties of high-solids two-component polyurethane coatings

High-solid acrylates are produced by lowering the average molecular weight while maintaining the same viscosity. In doing so, an attempt is made to reduce the higher molecular weight portion, as this has a particular influence on viscosity. On the other hand, this high molecular content also ensures a certain viscoplasticity of the corresponding binders. In addition, high-solid acrylates should also dry quickly and have a high level of hardness. The corresponding composition of the monomers and modification is essentially responsible for this. Thus, it is possible today to produce acrylates that dry very well and are rich in solids, which can, however, be modified with regard to some of their properties.

Smaller additions of WorléePol 1181/09 are suitable to round off the properties of such coating systems.

For example, replacing only 5% of the main binder with WorléePol 1181/09 can significantly optimise the properties of, for example, a high-quality clearcoat [Table 2].

Raw material	1	2
WorléeCryl VP A 2645 78%	76.00	72.00
WorleePol 1181/09	-	3.00
DowSil 205 SL	0.15	0.15
K Cat XK 661	0.50	0.50
Methoxypropyl acetate	7.00	7.00
Butyl acetate	8.35	9.35
Solvesso 100	8.00	8.00
Tolonate HDT-LV	33.00	34.00

Table 2: Lacquer formulation

The first differences become apparent after the isocyanate-added coating has been adjusted to the desired processing viscosity [Table 3]. The coating modified with WorléePol 1181/09 has a measurably higher non-volatile content and thus a lower VOC content at the same viscosity.

Property	1	2
Viscosity 4 mm, 20°C	18sec	18sec
Non-volatile portion	57.7%	62.7%
Density @ 20°C	1,027g/cm ³	1,028g/cm ³
VOC content	428g/l	384g/l

Table 3: General technical data

The modification with WorléePol 1181/09 leads to a noticeably higher hardness with forced drying. The initial slightly lower hardness during drying at room temperature equalises completely in the course of the drying time [Table 4].

Pendulum hardness	1	2
30 min 60°C + 1 h RT	35 sec	56 sec
+ 24 h RT	101 sec	135 sec
+ 1 week RT	167 sec	205 sec
24 h RT	83 sec	72 sec
72 h RT	105 sec	112 sec
1 week RT	115 sec	115 sec

Table 4: Pendulum hardness at 60°C and room temperature



The clearcoat examined is certainly suitable for painting cars, for example. Scratch resistance is an important criterion when painting such objects. The lacquer is permanently exposed to brushes, fingernails, stones and dust. To assess scratch resistance, the clearcoats were painted on a blue basecoat and left to dry for a fortnight at room temperature. After the drying time, the surface was scratched with a Scotch-Brite sponge and a Crockmeter with 20 double strokes. The gloss level was determined before and after exposure. Likewise, such paint systems are subject to a certain recovery. The gloss levels sometimes recover somewhat over time, as the binders are subject to a slight reflow effect. This recovery was considered at room temperature and at 60°C. Such temperatures can be reached when a car is parked in the sun, for example.

The addition of WorléePol 1181/09 reduces the loss of gloss due to scratching and also improves recovery at room temperature. In contrast, there is no advantage when stored at 60°C. The polyacrylate used alone shows a good recovery effect here [Table 5].

Gloss level 60° measuring angle	1	2
Before the load	93 GU	93 GU
Immediately after load	39 GU	57 GU
+ 24 h RT	48 GU	69 GU
+ 30 min 60°C	89 GU	90 GU

Table 5: Gloss recovery after scratching

Due to its composition, WorléePol 1181/09 is very UV resistant. This property is of course important for all varnishes used outdoors. The two clearcoats were compared in an alternating climate test with UV-B radiation (QUV B 313 rapid weathering).

This rapid test includes an alternation of irradiation with UV-B radiation and a condensation phase without radiation. Even without light stabiliser, the base binder used achieves good resistance. The small addition of WorléePol 1181/09 improves this even further [Table 6].

Gloss level 60° measuring angle	1	2
Start	96	96
100h	95	95
300h	94	95
520h	78	87

Table 6: QUV B 313 rapid weathering

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Solvent-based urethanised alkyd resins and solvent-free modified

first choice for parquet, terraces and furniture

Alkyd resins are a versatile technology and are by definition based on bio-based vegetable oils or fatty acids. These vegetable oils and fatty acids, along with other raw materials, represent an essential adjusting screw for the properties of the products. Various types of modification allow further optimisation of the properties of the corresponding alkyd resins.

The urethanisation of alkyd resins makes it possible to improve drying properties, increase hardness and improve mechanical and chemical resistance. Alkyd resins are often used on wooden surfaces such as floors, terraces or even furniture.

Systems based on such alkyd resins penetrate deep into the wood, anchor there optimally and protect the wood from a variety of influences. The undesired straightening of wood fibres after

application is usually not observed with solvent-based or solvent-free systems. They are easy to apply, have excellent wood warming qualities, good water resistance and resistance to colouring substances such as coffee, red wine or mustard.

Overcoating is normally possible with a wide variety of solvent-based, solvent-free and water-based paint systems.

Urethanised alkyd resins for high-quality coating systems

The variation possibilities for urethanised alkyd resins are very diverse. In addition to varying the vegetable oils or fatty acids and the type of isocyanate monomer used, the amount added can be varied or other modifications can be introduced into the alkyd resin.

Product	Delivery form	Technology	Special properties	Bio-based*
WorléeKyd AC 4903	58% in dearomatised HC 160–200	Acrylated and aliphatic urethanised alkyd resin	Very fast drying, low yellowing, very good weather resistance, good adhesion to various substrates	46%
WorléeKyd S 5703	55% in dearomatised HC 160–200	Aliphatic urethanised alkyd resin	Fast drying, low yellowing, good weather resistance, good adhesion to various substrates	55%
WorléeKyd S 6003	55% in dearomatised HC 180–220	Aliphatic urethanised alkyd resin	Fast drying, low yellowing, good weather resistance, good adhesion to various substrates	55%
WorléeKyd S 6103	50% in dearomatised HC 180–220	Aromatic urethanised alkyd resin	Very fast drying, very high hardness, high mechanical load capacity, high bio-based content	74%
WorléeKyd B 865 U	55% in dearomatised HC 160–200	Aromatic urethanised alkyd resin	Very fast drying, very high hardness, high mechanical load capacity	53%
WorléeKyd V 5241 U	100%	Urethanised oil	Sole binder or combination partner for various paint systems, high mechanical load-bearing capacity, good chemical resistance, good outdoor resistance, high permanent elasticity	83%
WorléeKyd RL 1290	100%	Specially modified oil	Extremely low viscosity sole binder or combination partner, can be used in 1 and 2 K parquet oils, improves penetration, very high bio-based content	95%

*Bio-based share on binder solid share

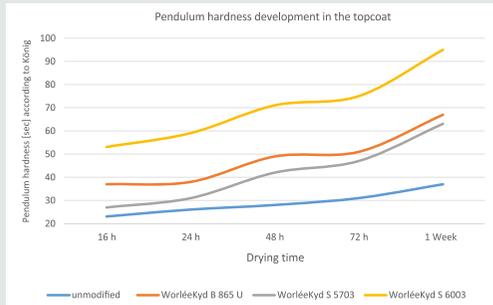


Fig. 1: Pendulum hardness development in the top coat

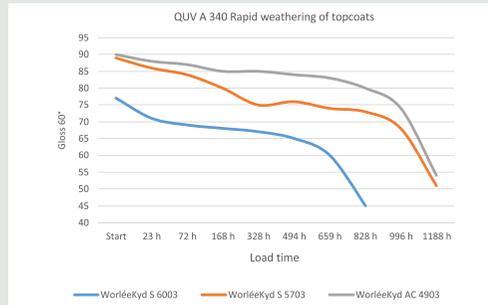


Fig. 2: QUV A 340 rapid weathering of top coats



Depending on the type of modification and the proportion, urethanised alkyd resins achieve different pendulum hardnesses. These hardnesses are usually higher than those of unmodified alkyd resins. WorléeKyd S 5703 is aliphatic modified and therefore achieves the lowest hardness of the urethanised alkyd resins. WorléeKyd B 865 U and WorléeKyd S 6003 are aromatic modified alkyd resins. WorléeKyd S 6003 has a significantly higher urethane content compared to WorléeKyd B 865 U and is therefore also significantly harder [Fig. 1].

Aliphatic urethanised alkyd resins such as WorléeKyd S 5703 and WorléeKyd AC 4903 usually achieve better resistances in alternating climate tests, such as QUV A 340 rapid weathering. The special acrylic coating in WorléeKyd AC 4903 further increases the resistance.

Based on these results, an increased outdoor resistance can also be assumed [Fig. 2].

Even though the binder used plays a major role in the formulation of high-solid coating systems, other raw materials also have an influence on the properties. For example, siccatives or catalysts are needed for good drying properties.

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Suitable additives/supplementary products

Category	Product	Function
Dispersing additive	WorléeDisperse VP 8100 S	Facilitates incorporation and stabilisation of pigments, matting agents and fillers
Defoamer	WorléeAdd 370 / 372	Defoaming and deaeration with different application types
Surface additive	WorléeAdd 3545	PDMS-based additive to improve scratch resistance and optimise flow without increasing smoothness too much
Siccative	WorléeAdd 2560	Cobalt-free siccative for accelerating the oxidative drying of alkyd resins
Anti-skin	WorléeAdd 4415	Oxime-free anti-skin agent for improving the storage stability of systems based on alkyd resins
Modifying binder	WorléeCryl L 2380	Very hard, thermoplastic acrylate to accelerate drying and increase the hardness of systems based on alkyd resins
Matting agent	Köstropur products series	High-quality silica-based matting agents with and without after-treatment
Thixotropy	WorléeThix series	Thixotropic alkyd resins to control rheological properties, improve stability and reduce penetration
Rheology	WorléeAdd 800 series	Organically modified smectite derivatives and high purity smectites for rheology modification of aqueous and solvent-based systems

Greetings from the Netherlands!

Wil van Meer has been working for Worlée-Chemie for 35 years and has been in charge of our sales office in the Netherlands for over ten years. In his many years with the company, he has achieved a great deal and has not only been involved in countless projects, but has also built up and developed sales markets and been responsible for the sales promotion of new products, among other things. Now he will be taking a well-deserved retirement from November 2022 – but still can't quite let Worlée go. We asked Wil a few questions about his past 35 years with the company and what plans he has for his upcoming retirement. We would like to thank him in advance for his great commitment and passion for his work and wish him only the best for the years to come.



Wil van Meer and Joachim Freude (from left to right) at the 50th anniversary of the Worlée sales office NL

1. How long have you been working for Worlée?

In May 1986 I started with Worlée Nederland as a salesman for the ink and paint industry in the Benelux countries. In 1990, Worlée NL set up the sales office in England and together with John Stanford I was able to develop the UK ink and paint market. With a short break of one and a half years (the grass is not greener on the other side!) I have been a Worléeaner for 35 years.

2. In which field do you work and what challenges do you face?

After six years of working in the field in the Benelux countries, in 1992 I was given the opportunity to set up the M&V Printing Inks Laboratory in Lauenburg, where I could

actively assist the Worlée sales staff in Europe with the promotion of Worlée products in the printing ink industry. This was the reason why I moved to Lauenburg with my family in 1994. The "blockbuster" in the printing ink range is certainly the Worlée-Kyd S 23, which was very quickly purchased by many printing ink manufacturers as the standard binder for roller offset/heat set inks. In a relatively short time, we sold more than the entire annual capacity of the Lauenburg plant!

After a short break in 1995, I "landed" back at Worlée in the Netherlands in August 1996 as marketing and sales manager, and since 2010 have been responsible for the sales office in

Kortenhoef in the Netherlands for both the chemical and food divisions.

3. What tasks do you have in your position?

As the person responsible for a sales office, the task is quite simple, namely to ensure a good and future-proof operating result. The challenge, however, is to do this in such a way that not only the entire team of employees in Kortenhoef, but also our customers and our Worlée colleagues in Germany, can be satisfied at the end of the day.

4. What was your best experience at Worlée?

With 35 years of service, I have experienced so many great moments that it is impossible to choose. Is it the

technical customer day in 2015 with the presentation of the quality window of all decorative high-gloss paints in the Benelux with, of course, the "Max Verstappen go-cart track lunch"? The celebration in 2017 together with the entire paint industry in the Benelux of our 50th anniversary as Worlée's oldest sales office outside Germany with the theme "our future is green"?

But please note that these great moments were only possible because of the freedom of action and the confidence that the entire Worlée organisation is behind you. This freedom of action is, in my opinion, the reason why employees take their given responsibilities very seriously

and go for future-proof solutions for all parties. With this in mind, I have always given all employees in Kortenhoef the freedom to act as they see fit. To me, the customer is not king... To me, the king is the team that makes the customer feel like a king.

I was therefore pleased that, not so long ago, a German colleague addressed me as "Mr. Do it" in a video meeting.

1. What plans do you have for your retirement?

Well, and then I reach my retirement age of 66 years and 7 months on November 1 after 50 years of work in the Netherlands. Will the so often mentioned black hole appear? No, for the next two years I will actively support various

projects for Worlée Germany with a focus on greening. I would like to thank all the Worléeaner for their more than pleasant cooperation over the past 35 years and hope that we will all make great strides together on the green road to a climate-neutral Worlée-Chemie.

Yes, my future is GREEN too. Not only in work but also in my free time I like to be in a green environment, but the road to it is not without obstacles...

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Thiocure® in radiation-curing systems – advantages and influence on mechanical properties

In previous issues of the Worlée Customer Journal, both the fundamentals of thiol-ene chemistry (issue 17/2021) and the storage stability of 1 K thiol-ene formulations (issue 18/2022) were discussed. With the product Thiocure® UV340-1, the Bruno-Bock Group has developed a new product that can be formulated for storage stability with a wide range of (meth)acrylates without any loss in reactivity. In this article the advantages of using polythiols in radiation-curing systems will be presented, using Thiocure® UV340-1 as an example.

Oxygen inhibition

Oxygen inhibition is an undesirable side reaction during radiation-initiated curing in which the growing macromer radical reacts with atmospheric oxygen to form a less reactive peroxy radical, so that the surface of the coating does not cure completely but remains liquid or tacky. To ensure complete curing of the surface, in addition to amine synergists, Thiocure® polythiols can also be used. These transfer a proton to the peroxy radical in the sense of a chain transfer reaction (see Part 1 of this series) and form a more reactive thiyl radical, which can then initiate a new chain (Figure 1).

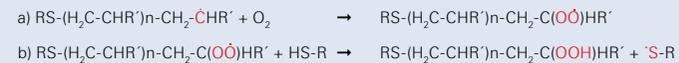


Figure 1: Schematic representation of a) oxygen inhibition and b) chain transfer

Only the system containing Thiocure® UV340-1 shows a complete cure under the selected curing conditions, while the system with amine synergists has a sticky surface and the non-additivated reference system remains liquid.

	Test 1	Test 2	Test 3
Mirammer PE210	37.50	35.00	35.00
Mirammer M222	57.70	50.00	50.00
Photocryl A101		10.00	
Thiocure® UV340-1			10.00
TPO-L	5.00	5.00	5.00
Byk-378	0.20	0.20	0.20

Curing conditions	Evaluation of the film		
LED 365nm, 10.8mJ/cm ² , 24µm	Liquid	Liquid	Adhesive-free
LED 365nm, 10.8mJ/cm ² , 6µm	Liquid	Liquid	Adhesive-free
LED 365nm, 5.4mJ/cm ² , 6µm			Adhesive-free

Table 1: Comparison oxygen inhibition amine synergist vs. Thiocure® UV340-1



Dr. Tom Beyersdorff
Bruno Bock Chemische Fabrik
GmbH & Co. KG



Pigmented and highly filled systems

Another advantage of thiol-ene systems is that even highly pigmented and highly filled systems can be cured. The reason for this again lies in the chain transfer, since this results in the permanent formation of thiyl radicals during the curing process, which can initiate a new chain, whereas in pure acrylate systems, curing is only initiated at the sites where radicals have been formed by the irradiation, with the pigments or the filler also absorbing radiation. From Table 2 it can be seen that a system with Thiocure® UV340-1 and various pigments shows good surface and through-curing after initiation when irradiated with LED UV at 365 nm. The only exception with regard to through-curing is the black pigment.

An example of through-curing of a highly filled system is that of an LED UV-curing putty with 57.5 parts filler (Figure 2). The putty presented here exhibits very fast surface curing and cures completely in high film thicknesses of 7 mm within 24 hours.



Raw material	Test 1	Test 2	Test 3	Test 4	Test 5
Miramer PE210 70% in DPGDA	45.70	45.70	45.70	45.70	45.70
Miramer M 222 (DPGDA)	29.30	29.30	29.30	29.30	29.30
Thiocure® UV340-1	10.00	10.00	10.00	10.00	10.00
Helio Beit UV 101 (white)	10.00				
Helio Beit UV 206 (yellow)		10.00			
Helio Beit UV 308 (red)			10.00		
Helio Beit UV 504 (blue)				10.00	
Helio Beit UV 904 (black)					10.00
TPO-L (photo initiator, long wave)	5.00	5.00	5.00	5.00	5.00
Byk-378 (slip, wetting additive)	0.20	0.20	0.20	0.20	0.20
Reactivity LED 365 nm					
Surface/through cure; 10.8 mJ/cm ² ; 12 μm	++ / ++	++ / ++	++ / ++	++ / ++	++ / +
Surface/through cure; 10.8 mJ/cm ² ; 6 μm	++ / +	++ / ++	++ / ++	++ / +	++ / --
Surface/through cure; 5.4 mJ/cm ² ; 6 μm	++ / ++	++ / ++	++ / ++	++ / ++	++ / +

Table 2: Curing behaviour of pigmented systems

Raw material	Formulation
Laromer LR8967	32.00
Blanc Fixe micro	20.00
Finntalc M15	37.50
Thiocure® 330	8.00
TPO-L	2.50
Double-Bonds/SH-ratio	1:0.28
Curing details	385 nm (LED); 30 mJ/cm ²
1 mm thickness	Full trough cure under above curing conditions
7 mm thickness	Surface cured under above curing conditions; good sandability; through cure within 24 hrs.

Figure 2: Formulation of a highly filled filler and cross section with different curing depths





Mechanical properties

By adding polythiols to UV-curing systems, the mechanical properties of the cured product can be influenced depending on the polythiol concentration, in addition to the advantages shown above. For example, thiol-ene systems are generally less brittle than pure acrylate systems and exhibit better impact strength.

Table 3 shows the results of tensile tests in a TMPTA/Thiocure® UV340-1 system at different Thiocure® concentrations. It can be seen that at about 30 mol% Thiocure® in the system an optimum is formed with respect to the measured parameters Young's modulus, tensile strength and breaking stress. Although the modulus of elasticity is reduced by approx. 10% compared to the pure TMPTA system, tensile strength and breaking stress are increased by almost 300% compared to the reference system.

Thiocure® UV340-1	0 mol%	5 mol%	10 mol%	20 mol%	30 mol%	50 mol%	100 mol%
E-Modulus [MPa]	2,900	2,270	2,555	2,595	2,595	2,005	17
Tensile strength [MPa]	9.7	12.7	12.9	16.2	34.4	30.0	2.6
Breaking stress [MPa]	9.5	11.9	12.8	16.0	33.7	29.2	2.5

Table 3: Mechanical properties of a TMPTA/Thiocure® UV340-1 system at different Thiocure® concentrations

At higher Thiocure® concentrations, the mechanical properties then drop again, which makes sense according to the mechanistic consideration from the first part of this series, since complete formation of the network no longer occurs.

As another example, Table 4 shows the mechanical properties of a system Bis-A-Epoxy Acrylates/DPGDA (50:50) with different Thiocure® UV340-1 levels.

Thiocure® UV340-1	0 mol%	5 mol%	10 mol%	20 mol%	30 mol%	50 mol%	100 mol%
E-Modulus [MPa]	2,290	2,260	2,260	2,080	2,250	2,220	7
Tensile strength [MPa]	20.4	22.9	22.9	42.7	43.2	40.7	2.3
Breaking stress [MPa]	20.2	22.8	22.8	42.3	42.3	38.5	1.8

Table 4: Mechanical properties of a system Bis-A-Epoxy Acrylate/DPGDA/Thiocure® UV340-1 at different Thiocure® concentrations

In this system, too, an optimum of the mechanical properties is formed at a Thiocure® concentration of 30 mol%, with the loss of Young's modulus and the gain in tensile strength and breaking stress being significantly lower than in the TMPTA/Thiocure® UV340-1 system.

A similar tendency to optimize mechanical properties in thiol-ene systems is also observed for a variety of other (meth)acrylates.

In summary, polythiols are far more than just boosters or additives to reduce oxygen inhibition in UV-curing systems, but can also have an influence on the material properties in the cured product. In principle, however, the stability of 1K formulations must be tested in each individual case, and the product Thiocure® UV340-1 is an optimized material for this purpose.

In principle, when using Thiocure® products in radiation-curing systems, the use of amine synergists, amine-based UV stabilizers or other alkaline-reacting additives and fillers should be avoided.

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1st place for Worlée-Chemie

in the VCI Nord Responsible Care competition/ 2nd place at national level

Worlée-Chemie is delighted to have received a double award in this year's Responsible Care competition.

The overall concept, entitled "Our holistic concept for continuous dialogue and sustainable transparency", was able to convince both the jury of the VCI North (1st place) and the jury of the VCI Federal Competition (2nd place).

The company was honoured for its transparent dialogue with a wide range of stakeholders,

which has been practised continuously for decades: the public, the neighbourhood, local organisations and institutions such as schools, politicians at various levels, universities and non-governmental organisations from the regional environment.

We rely on a wide variety of ways to exchange information with stakeholders, keep them informed and build up a trusting relationship. For example, since 1993 we have regularly held "open days" with detailed plant tours, presentations, entertainment and active participation by local organisations. We also use school partnerships, workshops with



Holger Bär (Chairman of VCI Nord), Barbara Eschke and Enno Horstmann (Worlée-Chemie) (f.l.t.r.)

students and plant tours for interested groups, e.g. from politics, NGOs or even the neighbourhood.

Transparent reporting on all areas of sustainability that is comparable at national and international level is also important to us. Thus, since 2017, we have voluntarily published regular sustainability reports in accordance with the Global Reporting Initiative Standards.

With this whole bundle of exchanges, we have succeeded in building a reputation as a trustworthy and open company at our sites in northern Germany, throughout Germany, and also internationally.

We have found that it pays to maintain an open dialogue and also to seek very personal contacts. In this way, we have continuously built up mutual trust and experience appreciation and support from society.

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Chemie³ webinar "CSRD – new requirements for sustainability reporting"

on 5 September 2022 – Worlée-Chemie the "good practice" example

At the Chemie³ webinar on 5 September 2022, Worlée-Chemie, as a non-reporting, medium-sized company, was allowed to present its approach to sustainability reporting as a "good practice" example.

Barbara Eschke, Head of Integrated Management Systems and Sustainability Management, described Worlée-Chemie's path to the first Sustainability Report, which was published at the beginning of 2017, reported on challenges and solutions found, and presented the current Sustainability Report, now already the third, which was prepared in accordance

with the Global Reporting Initiative Standards, "Core" option.

The decision to report on the company's sustainability performance on a voluntary basis, but nevertheless systematically and comprehensibly, goes back to the Chemie³ sustainability check carried out in 2014, one of the key findings of which was that

Worlée-Chemie has been doing a great deal in terms of sustainability for a long time, but until then had only published information about it quite sporadically.

Since then, challenges that arose have been overcome by the Worlée team and good experiences have been made with the preparation of reports in accordance with Global Reporting Initiative Standards. Thus, the company feels well prepared for the reporting requirements of the CSRD EU Directive, which will affect many more companies than before. Worlée-Chemie is also expected to become subject to reporting requirements.

"Even though some new topics will be required by the EU standard and we will not be as free in our design as before, we are confident that we know many of the required disclosures through the GRI standards and we already collect most of the data. We trust that our previous experience will help us," Barbara Eschke concludes.



Chemie³ provides the recording of the complete webinar and the presentation documents at the following link (German Webinar):

<https://www.chemie-hoch3.de/nachhaltigkeit-webinar/webinar-30/>

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Worlée-Chemie launches “Life cycle analyses” project

As reported in Journal 18 2022, the interdisciplinary “Worlée Sustainable Products Promotion” team has started work and is working with great commitment to consider the various sustainability aspects of our products along the entire value chain even more intensively than before. Customer requirements, our own sustainability performance and the capabilities of our suppliers are to be brought more closely into line, and the measurability of the sustainability factors of our products is to be improved.

A major and important step in this direction is the preparation of life cycle analyses for our products.

A life cycle analysis (also environmental balance sheet, life cycle assessment, or LCA for short) is a systematic analysis of the potential environmental impacts and energy balance of products throughout their entire life cycle. This includes the environmental impacts of a product during its production, use phase and disposal, as well as the associated upstream and downstream processes, such as the manufacture of raw materials, consumables and supplies.

Product Carbon Footprints, for which some customer inquiries have already been received, are a component of an LCA, and in recent weeks there have been initial inquiries, albeit

still isolated, for complete LCAs. Our customers’ need for information is growing. Since we want to be sure to develop the required data according to a recognized standard and have the goal of presenting truly robust and credible figures while avoiding estimates and assumptions, we have been very careful in selecting a suitable external support for the implementation of LCA.

After all, it means selecting the right standards, databases, software and methodologies for our industry.

In October 2022, the project will start with a 3-day workshop, the methodology adapted to

Worlée Chemistry will be elaborated and our team will be trained.

Our goal is to be able to create life cycle analyses in-house in the future after defining the methodology developed with external support and receiving the appropriate training. We expect the first concrete results with life cycle analyses including product carbon footprints for selected products by the end of 2022 at the latest.

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Worlée-Chemie receives “German Award for Sustainability Projects 2022”

For the second time, the German Award for Sustainability Projects was presented by the German Institute for Service Quality, ntv and DUP Unternehmer-Magazin. This year, Worlée-Chemie is the proud winner of the award for its gold-of-pleasure project.

The award focuses on the Sustainable Development Goals (17 goals for sustainable development adopted by the United Nations) and was divided into 28 categories. The main focus is on sustainable commitment at all levels of a company.

The Sustainable Development Goals address the areas of people, planet, prosperity, peace and partnerships. Six of the seventeen goals are of particular relevance to us. You can read more about them in our Sustainability Report.

https://www.worlee.de/fileadmin/media/general/downloads/pdf/Chemie___Kosmetik/Downloads/Sustainability_Report_Worlee_2018-2020EN.pdf

Once the companies had been nominated, a standardised collection of data on the individual projects was carried out, followed by a comprehensive evaluation by the jury. In the end, together with our partner the DAW we were delighted to take **first place in the “Raw materials/sourcing”** category. We were awarded for our project on the mixed crop cultivation of camelina oil.

The camelina oil project

The transformation to a more sustainable world will also challenge the coatings and raw materials industry in the coming years. We would like to make our contribution here and are therefore developing more sustainable binders and additives for a wide range of formulations. The use of camelina oil instead of linseed oil in alkyd resins can play a significant role here. Camelina oil is an alternative raw material that produces almost identical results in application.

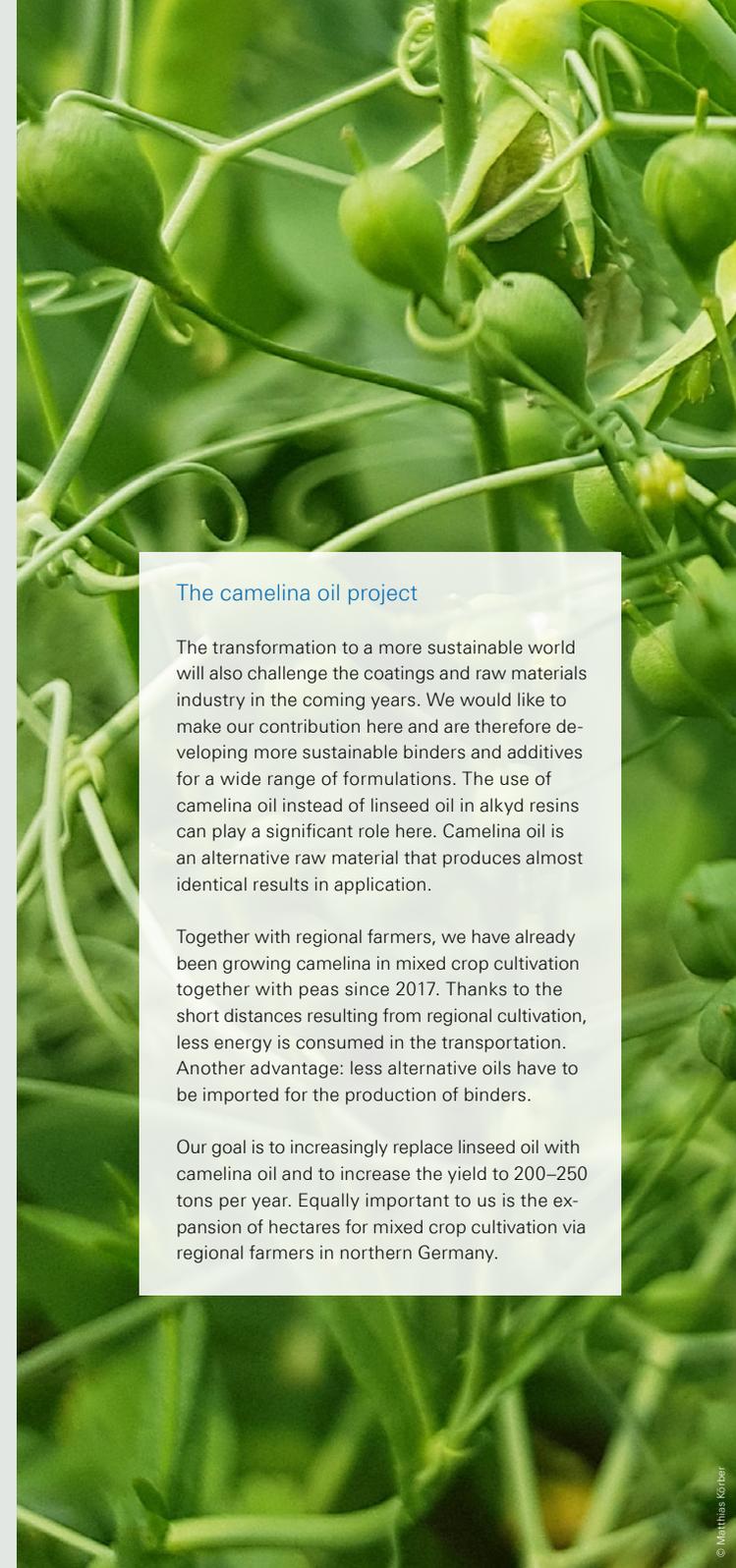
Together with regional farmers, we have already been growing camelina in mixed crop cultivation together with peas since 2017. Thanks to the short distances resulting from regional cultivation, less energy is consumed in the transportation. Another advantage: less alternative oils have to be imported for the production of binders.

Our goal is to increasingly replace linseed oil with camelina oil and to increase the yield to 200–250 tons per year. Equally important to us is the expansion of hectares for mixed crop cultivation via regional farmers in northern Germany.



Photo (from left): Carola Ferstl, Torsten Knippertz (Presenters), Michael Purps (Röchling SE & co. KG), Matthias Körber (Worlée-Chemie), Dr Christian Walter (DA SE), Brigitte Zypries (federal minister), Yvonne Zwick (B.A.U.M. e.V.)

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Polymer experts at Tectextil

in Frankfurt

From 21–24 June, we were present at this year's Tectextil as an exhibitor together with our distribution partner Synthomer.



Photo (from left): Fabian Koos (Worlée-Chemie), Ruud van der Weele (Worlée-Chemie Netherlands), Stefanie Kokott (Synthomer), Andreas Gehr (Synthomer), Aaron Alfermann (Worlée-Chemie)

Tectextil is the leading international trade fair for technical textiles and nonwovens, while we have been distributing the products of our partner Synthomer for many years.

Together we have four exciting days behind us, during which we not only had interesting technical discussions, but were also able to exchange ideas about products and developments. We are already looking forward to the next time!

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