

# ROWA news

## NEWS FROM ROWA GROUP

**ROWA**  
MASTERBATCH

**Tramaco**

**ROMIRA**  
TECHNISCHE KUNSTSTOFFE

**Müller**  
Kunststoffe

**ROWASOL**

**ROWALACK**



Ladies and gentlemen,

The upswing is running out of steam – is the next crisis already beginning? Those lending an ear this weeks to the many business sentiments and surveys are hearing more and more critical undertones and nuances.

For starters, evidence is mounting that the real problems of the global financial markets are not yet resolved – did people seriously believe that they would be after only 18 months? For another, there are many who cannot, may not or will not believe that a longer term upswing is even possible.

The fact is, this is a time of extrem dynamic developments where we first have to compensate for the setbacks of the general economic crisis so that we – as the export nation and region that we continue to be – can then participate in the ongoing growth of the booming economic regions of this planet; a completely normal process really.

Since the ROWA GROUP constantly faces technological challenges in this regard, we are investing intensively in new production facilities and new, leading production technologies as a reliable partner. These investments can be felt by our suppliers as well, who then enjoy our contribution to their own "upswings". And since our products and our business are based on real need, it is something for the long run.

The global population recently slipped over the seven billion mark and continues to grow unabated. This means an ongoing need for goods for consumers and industry. This deserves to be met by an intelligent supply and that is our real task – while working together with our top rate business partners.

We are therefore in a position to continuously improve and become more resistant to crisis. Perhaps with a somewhat less dynamic "swing" but most certainly with a lasting "upward".

Sincerely yours  
Arne Höck

## ROWA GROUP

### Silos storing melt granules



Six silos decorated with a plastic granulate theme.

When business is good, companies should expand their facilities and grow on solid footing. Following this old business proverb, the ROWA GROUP is currently expanding its storage capacities for raw materials. At the Pinneberg site, the number of 15-metre silos was already increased in March. To be equipped for all the technological challenges of the future, there are now 14 silos with plenty of space available. Altogether, the silos have storage capacity for 1,100 metric tons.



The investments – as part of the greater ROWA GROUP production facilities – have already paid off. For example, ROMIRA GmbH is using the newly gained capacities to store raw materials like SAN, polyamide. ROWA Masterbatch GmbH has also already included one of the silos in its polyamide production.

The current measures also boost the recognition factor of the entire ROWA GROUP and the appearance of the premises. In addition to the new silos, to project the positive image of the group in Pinneberg outward, the ROWA GROUP has mounted six large banners in prominent positions which together form one large image covering nearly 345 m<sup>2</sup>. The banners are mounted directly on six of the older silos facing Pinneberger Straße – one of the most heavily travelled streets in the district. Since March, those lofty heights have been decorated with yellow plastic granulate produced by ROMIRA. Now one of the core competences of the group continues to be easily recognisable and its presence is not merely projected into the neighbouring areas but out into the entire world.

## ROWA GROUP

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## Centre stage: The change in management



Udo Müller

As mentioned in ROWAnews 1/2011, there will be many changes in the group in future. The restructuring into a holding with mostly independently run companies is complete. This will create better transparency, while the companies in the group, which still remain independently operated, will continue to be able to reach

decisions quickly and be as close to the customer as they have been in the past.

On his 70th birthday, after running and steering the group's activities for more than 46 years – really since the very beginning – Udo Müller handed over management responsibility. After overcoming the global crisis in 2008 and 2009, the group was able to post not only record high sales in 2010, but the best economic result in its history as well. This is a good time to hand over the reins. The new management will have the task of continuing the group's development and safeguarding its future during a time which will bring major and entirely new challenges with it.

Udo Müller will continue to be a shareholder in the group and actively support his life's work as chairman of the advisory board and an experienced consultant.

He greatly wishes to thank all of his customers for their many years of loyalty, without which the past successes would not have been possible. He also asks them to put their trust in the new management, who will do everything in their power to be worthy of and to increase their esteem. This will ensure that the ROWA GROUP remains strong and that the holding will remain a reliable, innovative partner to its customers in future.

### The ROWA GROUP at trade fairs 2011/2012



**FAKUMA**  
Hall B1 at booth 1212  
ROWA GROUP  
Friedrichshafen, Germany  
18 – 22 October 2011



**International Conference on Automotive Plastics**  
ROWA GROUP Spain  
Barcelona, Spain  
14 November 2011



**VDI Conference – Plastics in automobile engineering**  
Booth 16  
ROMIRA/ROWA Masterbatch  
Mannheim, Germany  
21 – 22 March 2012



**NPE 2012**  
South Hall, Level 1, Booth 31022  
ROWA Inc. / GROUP USA, LLC  
Orange County Convention Center  
Orlando, Florida, USA  
2 – 5 April 2012

Why not take these opportunities to meet the ROWA GROUP at trade fairs this year and get the latest news on our products.

### FAKUMA 2011: ROWA GROUP invests in the future

Between 18 and 22 October 2011, the who's who of the world of plastics will come together at the 21<sup>st</sup> Fakuma – The International Trade Fair for Plastics Processing. Among them will be the ROWA GROUP at a booth designed especially for the trade fair in Friedrichshafen: Hall B1, Booth B1-1212. Visitors to the nearly 120 m<sup>2</sup> booth will see a comprehensive overview of the entire range of the ROWA GROUP's products. The focus will be on adhesion promoters for technical polymers and blends, colour and additive masterbatches, liquid colour and additive compounds, as well as TPE, TPU, soft-PVC, cork compounds, masterbatches. By attending Fakuma, the ROWA GROUP continues to set the course for more productivity and profitability.



The new ROWA GROUP booth at the "FAKUMA" trade fair.

This year more than others, the Baden-Württemberg trade fair demonstrates that its qualities as an "plastics ambassador" and a "trailblazer for solutions with plastic" are appreciated by all attendees. The 21<sup>st</sup> Fakuma clearly illustrates the enormous prospects the future holds for the whole industry. Addressing up-to-the-minute topics like the efficient use of resources, lightweight construction and energy efficiency, Fakuma paves the way back out of the current economic low point and proves that, now that the crisis is

over, the industry has every reason to be optimistic about the future.

Fakuma was already a huge success back in 2009 and a permanent fixture in the industry; the trade fair is the No. 1 event worldwide for injection moulding and extrusion. More than 1,500 exhibitors from more than 30 countries were present throughout the 85,000 m<sup>2</sup> exhibition space. The 37,281 visitors from 90 different nations provided the market with powerful impetus for lasting business.

More information

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### More success for ROWA USA Inc.

ROWA GROUP Holding GmbH is currently planning the comprehensive restructuring of its North American business, which includes relocating its US subsidiary, ROWA Inc./Group USA, LLC Inc. The industrial company, formerly located in Delran, New Jersey, has now occupied its new offices in Hammononton, New Jersey, since August.

The recent steady increase in business in North America has further

accelerated business opportunities in the US. The company intends to repeat these positive sales revenues in the near future and to develop new partnerships to improve its chances in the market considerably.

Currently ROWA Inc. participated at the FOAMS®-Conference at Iselin, NJ, USA. From September

12 till 15 ROWA Inc. introduced its new tabletop display, along with its new partner, Polyvel Inc. The display highlighted the strategic businesses both companies participate in.

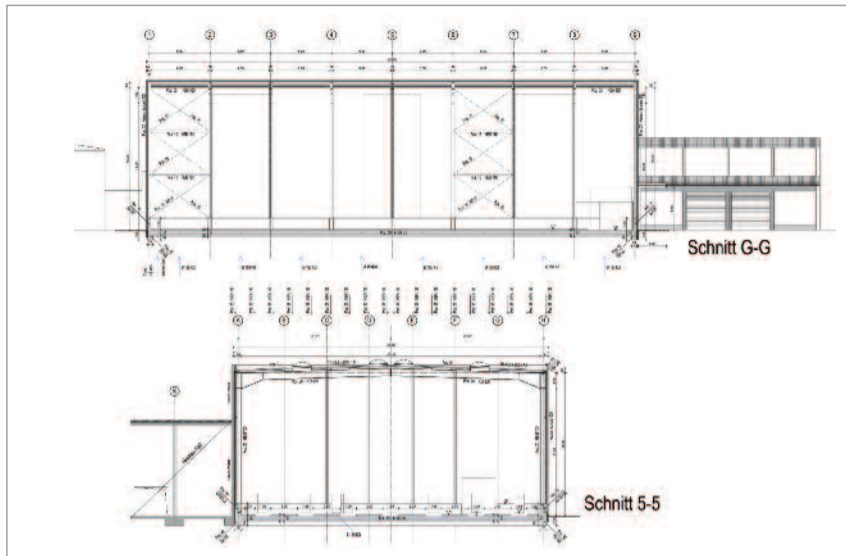
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Peter van Twuyver presents the ROWA Inc. booth at the FOAMS®-Conference.

## New high bay shelves for production expansion



The new high bay storage facility.

The ROWA GROUP is expanding its facilities at the Pinneberg site. Upcoming capacity increases will make more room available for production and logistics in the future. Thanks to an investment of several million euros in the newly constructed high bay storage facility, all companies in the ROWA GROUP located in Pinneberg will have plenty of storage space for raw materials and finished goods from the end of

September 2011 onward.

The positive business performance of the last year was the reason for expanding several business areas, which meant the need for a lot more space. Fourteen rows of high bay shelves are now being erected over a total floor space of 46 metres. This will create 4,176 storage and drop positions for euro pallets.

In order to use the high bay shelves as efficiently as possible, the ROWA GROUP has adopted a couple of little helpers. Two agile articulated forklifts are also available effective immediately. Due to a new hand scanner, it will also be easier to distribute the storage goods – and it is compatible with the newly installed ERP Blending 6.1 software.

## ROWASOL rings in the next stage of RAINBOW Docking station presented to customers

Back when the ViscoTainer was first presented, ROWASOL had already found a new way to make it possible for its customers to work with liquid colour and additive concentrates as conveniently and safely as possible (see article in ROWAnews 1/11). Nonetheless, it was already clear at the start that this is only one element in the overall concept. The stand-alone solution – intro-

duced to the market at the "K" trade fair in Düsseldorf with enormous success – is an attractive alternative for many buyers to the existing solutions, such as the use of peristaltic pumps. For ROWASOL, however, this is where the path begins to a new technology which will show the plastics processing industry entirely new possibilities. These possibilities feature unparalleled flexibility in production, shortened off-spec times, a significant avoidance of scrap and generally higher quality level resulting from their extrusion process.

### Monos simplify pattern development

As an additional service for companies which do not have their own colouring department; ROWASOL will create a formula to reproduce the desired colour or effect. In this case, customers only need to connect the necessary, coded monos to the docking station and enter the formula provided on a USB stick or transmitted electronically to begin production. There is no more waiting for correction batches and no more restriction on the use of additives whose effect lessens on their way through the extruder. The docking station is 100 per cent compatible with the already popular Inject A/C high-pressure module, which can be used to feed concentrate into the extrusion process at the last possible point of injection time at up to 300 bar. This avoids any superfluous contamination of the entire screw thread with colour and reduces the thermal stressing of the additive dose to a minimum. Naturally, the six ports in the docking station can be used for any combination of colour and additive concentrates because the monos created by ROWASOL are completely mixable in any ratio desired.

You will find an illustrative presentation of the overall RAINBOW concept, in English, in the download section of our website at [www.rowasol.de](http://www.rowasol.de).



Dockingstation with ViscoTainer, © by Oerlikon Barmag.



Userfriendly Touchscreen-Display, © by Oerlikon Barmag.

### Controllable online correction

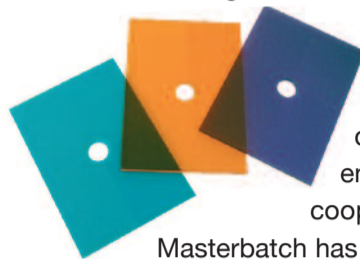
The official introduction of the docking station rings in a new stage on the path to completely controllable online colour correction. The goal is not merely to conceal colour variances to a certain extent by changing the dosages but also to shift the chromaticity coordinates into three dimensions. In the broadest sense, the principle could be said to follow that of an inkjet printer. Using up to six mono concentrates – your choice of colourant or functional additive – the formulas stored in the docking station are homogenised and fed into the extruder. The amount of each component in the mixture can be adjusted to the smallest degree. In contrast to printing on paper, however, these colours are not based on cyan, yellow, magenta and black (CMYK); rather, the necessary colourants are selected from a palette of concentrates and a formula is used to dock them into the station.

More information

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## Masterbatches in the museum

From 26 August 2011 to 15 January 2012, the Museum für Kunst und Gewerbe Hamburg (MKG) will be showing the Stylectrical exhibit on the topic of Electrodesign, which wrote history. The exhibit



takes a look at the complex development process of industrial electrical design from a cultural science perspective. As a cooperation partner, ROWA

Masterbatch has lent the museum coloured and transparent sample plates and 20 kg of crystal clear granulate.

Visitors will be able to view and even touch three of the most popular masterbatch colours. This will illustrate the raw material used, for example, to make computer housing. Whether red, blue or transparent, the well known computer maker Apple already proved some years ago that modern computers can be transformed into colourful office furniture. Thanks to Apple's head designer, Jonathan Ive, who has been responsible for the design of all of the California-based company's devices since 1997, the products and their extremely constant and recognisable design have gained incomparable popularity.

The MKG will show around 400 items in its comprehensive overall exhibit, some of which can now be viewed by the general public for the first time ever. It will also give some insight into the in-house design development at Apple by recreating the process.

In cooperation with the red dot institute and EPEA Internationale Umweltforschung GmbH, the importance of design for business and the environment will also be shown. Stylectrical illustrates the complex development steps and procedures for product design using devices created by Apple, granting some insight into the important design discourse with references to new perspectives for modern design.

The exhibit is open Tuesdays to Sundays from 11 a.m. to 6 p.m. and Thursdays from 11 a.m. to 9 p.m.

Museum für Kunst und Gewerbe Hamburg  
Exhibition: Stylectrical  
Steintorplatz · 20099 Hamburg, Germany



Apple iMac 1998

## New colorimetric and colour measurement software

Three of the companies within the ROWA GROUP have updated the colorimetrics as part of their measurement technology. It was the goal of ROWA Masterbatch, ROMIRA and ROWA Lack to establish a modern and efficient system capable of handling both quality assurance and formulation in one software while running various spectrophotometers. This new system adds a 45°/0° geometry to our standard measurement technology using traditional spherical geometry, allowing us to meet all important measurement requirements.



Spectrophotometer CM3600® by Konica Minolta

Another advantage of this central database is that a single company can manage the calibration series but the data can be used and distributed by all members of the ROWA GROUP.

This lets us exploit positive synergies and use our resources optimally for setting up calibration series. There is also an

option to connect the software to a central ERP system and forward colorimetric data to what is called a Laboratory Information Management System (LIMS).

This system, built by Konica Minolta, will be run over a central database using Colibri™ software. Now that the necessary security settings have been incorporated into the QA and development procedures; the system only shows the data relevant to the user.

More information

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ROWA GROUP

Competence  
and know-how  
for technological  
progress

Fakuma  
**G** hall B1 · stand 1212  
october 18 - 22, 2011

**ROWA**  
MASTERBATCH  
Color and Additive Masterbatches



Chemical Foaming Agents, Additive Masterbatches, Adhesion Promoters, Primers

**ROMIRA**  
TECHNISCHE KUNSTSTOFFE  
Technical Polymers and Blends

**Müller**  
KUNSTSTOFFE  
TPE, TPU, Soft-PVC, Cork Compounds, Masterbatches

**ROWASOL**

Liquid Color and Additive Compounds, RAINBOW-Concept: perfect application system for our products

**ROWALACK**  
Pigment Preparations, Special Lacquer Systems and Top Coats

rowa-group.com

## ROWALID pigment preparations – New universal mill goes into operation

ROWA Lack GmbH put a new universal mill into operation in August. This represents another strategic milestone in the successful reorganisation of the ROWALID pigment preparations business unit.

The new universal mill will be used for the pulverisation of pigment preparations. In addition to this basic service, the new equipment also makes it possible to individually set the specific requirements for final granule size. Customers can now be



Pulverisation mill.

offered this service to enhance the range of standard products.

In close collaboration with Netzsch-Condux GmbH, the leading provider of grinding technologies in the area of dry goods processing, a plant concept has been developed to increase productivity and, at the same time, improve product quality.

With the investment funding it has made available, management once again underscores its long-term

strategies for the future of this business area. ROWA Lack has already been producing its series of ROWALID pigment preparations since 1970. The considerable range of available varieties is designed for highly concentrated colour dispersal which can be used for a broad spectrum of pigment preparations applications.

More information

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## More effective injection moulding with chemical foaming agents

When most people think of chemical foaming agents – a speciality of Tramaco GmbH – they only think of polymer foams and lightweight plastic parts. But that's only part of it.

Chemical foaming agents have various properties which can be very beneficial for injection moulding processes. They can minimise sink marks, improve flow properties and reduce warping, sometimes even at shortened cycle times.

Since polymer melts containing foaming agents create an internal pressure in the injection mould which counters the thermal volume reduction, parts created in this way exhibit fewer or even no sink marks. This significantly lessens or completely eliminates the need of the holding pressure, enabling

the processor to use smaller machines and produce with shorter cycle times.

Less holding pressure has a very positive effect on the tendency of parts, especially large ones, to warp. Warping occurs when stress points “freeze” during the cooling process. Less holding pressure means fewer stress points in the molten plastic and the existing stresses have the chance to relax because of the lower pressure – and that happens before the melt solidifies. The result is parts with little or even no warping.

The flow properties of a polymer melt are also positively influenced by chemical foaming agents. Once the foaming agent decomposes, the gases released within the melt act as an internal lubricant and reduce the melt viscosity. Depending on the requirements of the individual process, this allows injection moulding to be done at either a higher speed or a lower temperature. In the area of thermoplastic injection moulding, chemical foaming agents can therefore justifiably be designated as processing agents as well.



Latest product: made to be user friendly.

More information

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## New sales partner for the thermoplastics industry in Italy

Our long-time partner, Mr Franco Piffanelli, recently left our former distributor, Chemaxia srl, and established his own company, Almatrade sas. Tramaco GmbH has now decided to follow him, to keep the handling of Italian thermoplast customers in his trusted hands.

The distribution contract with Chemaxia srl was terminated effective 31 July of this year. We thank Chemaxia srl for its successful collaboration.

We wish Mr Franco Piffanelli and his team lots of success and we will do everything in our power to support him.

More information

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## Vocational training award



(L.to r.) Michael Jangulow, Nikolai Sell, Silvia Gängler-Lange, Vitalij Konradi, Danny Brodda (Not shown: Melanie Kupilas)

ROWA GROUP Holding GmbH and Tramaco GmbH have received a very special award. The Schleswig-Holstein Chamber of Industry and Commerce in Kiel have recognised the two companies with the “Quality through education” award to pay tribute to their vocational training programs.

It must be said, however, that the ROWA GROUP and Tramaco were only able to meet the criteria for this IHK award thanks to their trainees. Our five trainees stood out for their commitment and for their extraordinary ability to implement the theoretical knowledge they learned into actual practice at the plant. Michael Jangulow – who successfully completed his training as a production specialist in the Chemicals department – has already been hired by Tramaco in the same capacity, effective 1 July, once his studies are finished. Melanie Kupilas is also near to completing her traineeship as an industrial clerk with considerable success; she began at Tramaco on 1 August 2009 and will sit her exam at the CIC in January. The ROWA GROUP is currently training three others as production specialists. All three are in their second year: Nikolai Sell, Vitalij Konradi and Danny Brodda. These three trainees are all under the day-to-day stewardship of our Training Manager Silvia Gängler-Lange.



## It's all done

Though the period between October 2008 and the current 2011 financial year has been eventful, ROMIRA management decided in the middle of 2010 to expand production capacities considerably. Though ROMIRA, as a speciality compounder, was left mostly undamaged by the period of crisis, no experts would have predicted at the time that the heavily shaken world of processed plastics would recover so quickly.

Since its founding more than 20 years ago, ROMIRA has been defending its name as the "fire brigade" in the market and has often won over customers due to its quick delivery times. This challenge can be appreciated all the more because ROMIRA colours most of its products and/or processes them for custom-tailored properties. "When we were forced to tell our 'spoiled' customers that we would have to practically double our usual three-week delivery period at the start of 2010, it was time to act", revealed Kai Müller, then head of department and now CEO of ROMIRA GmbH. In the summer, ROMIRA management decided to purchase two new production lines, installing them in a hall freed up for just that purpose, as well as three additional exterior silos for raw materials. After purchasing a third line at the K-Messe in Düsseldorf, management decided to "go all in" and have a 2,100 m<sup>2</sup> high bay storage hall rebuild for the expansion. The connection to one of the conventional production halls was another criterion for the decision. "We set entirely new benchmarks with this step so that we can return to our usual quick responsiveness and short delivery times. Moreover, this also lays the necessary groundwork for several large products which are close to being signed", Kai Müller adds. Technological refinements in the new product hall will also ensure that we can further expand the product range.

By the time Fakuma 2011 comes around, ROMIRA, which specialises in styrolcopolymers and special "alloys", will be ready for the new market demands with total capacity of 35,000 tonnes.

This makes us ideally prepared for some interesting and positive discussions at our trade fair booth at the Fakuma. The members of our motivated trade fair team will be ready to answer any questions asked there with their usual hospitality.

## ROMIRA improves PBT/ASA and ASA/PA compounds for applications in the automotive and electrical industry

Pinneberg/Germany, July 19th, 2011 – ROMIRA, an innovative development partner of the plastics industry, is expanding its product range in the area of technical polymer blends. The alloy formation of amorphous styrene co-polymers and semi-crystalline thermoplastics like polyamides and PBT creates materials with ideal properties for many applications in the automobile and electrical industries. Because of their chemical composition and their ability to build crystalline structures, PA and PBT add the outstanding properties of enhanced stiffness, temperature and chemical resistance and excellent stress crack resistance to the polymer blend with styrene polymers.

### PBT/ASA applications for automotive exterior



Automobile trimming made of Romiloy PBT/ASA 5250 GF20 – automotive exterior

Glass fibre-reinforced semi-crystalline thermoplastics are known for their tendency to warp, a tendency which is significantly reduced by adding SAN or ASA. This combination guarantees a very good finish and enables the use of numerous applications for visible parts in the automobile and electrical industries. These positive properties are already being employed in the finishing of automotive trim using Romiloy PBT/ASA 5250 GF20 (see Figure 1). With eight to 30 per cent fibreglass – or in combination with minerals – the user has even more suitable variations of the Romiloy 5240 series available for injection moulding.

Traditionally, most PBT/ASA applications are realized with reinforced compounds, where the enhanced properties, such as less warping, less shrinkage and a higher quality finish, are critical.

### PBT/ASA applications for automotive interiors

Comparable to the long-established Romiloy 3020 PA/ASA product group (see Figure 2) for unpainted parts in the automotive interior, ROMIRA has now developed a series of unreinforced PBT/ASA products (Romiloy 5240 and 5240/01). This product group also features very little gloss and a strong ability to replicate various grained tool surfaces. The ASA component has also been added to these blends to allow the increased UV and dimensional stability, the matt surface and the increased impact resistance of the finished parts. They are also less sensitive to humidity than the PA/ASA compounds, which further increase their dimensional stability.

Thanks to their reduced sensitivity to stress cracks, the ROMIRA blends in the Romiloy EXP1872 series are also under investigation for use in various healthcare products, to keep design finishes and the function of the device over a longer product lifetime.



Covering made of Romiloy ASA/PA 3020/01 – automotive interior

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**ROWA GROUP**

**FIRST CLASS**  
Technical Compounds

Fakuma Hall B1 - Stand 1212  
18. - 22.10.2011

**ROTEC** **ROMILOY** **LURANYL**  
ABS-ASA-SAN PC+PA-Blends PPE/HIPS+/PA-Blends

**ROMIRA**  
TECHNISCHE KUNSTSTOFFE

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## Müller Kunststoffe develops TPE for children's tableware

Twenty product, graphic and colour design students from the School of Design at the University of Applied Sciences and Art (HAWK) in Hildesheim took part in a student competition to develop melamine tableware especially for children. The competition was organized by ORNAMIN.

To complete its product range, ORNAMIN ProVita had been looking to develop children's tableware for some time and the company came up with the idea to collaborate with HAWK. ORNAMIN has been producing tableware in Minden, Westphalia, for more than 50 years, both for personal use in camping, sailing and at home and for professional use in canteens and cafeterias, like those at universities. The company also offers a full range of eating and drinking aids in universal designs. When designing tableware, ORNAMIN ProVita pays special attention to the topic of table culture, because eating, at any age, is an important social event and should be a joyful experience.

The idea to develop tableware especially for children came from the realisation of the fact that children's needs are often overlooked in this regard. Children usually have to use crockery intended for adults but with colours and patterns appealing to a young audience. In fact, this tableware is actually too large and heavy for children's small hands and not designed for their strength or motor skills. It was the goal of the project to develop tableware that fulfils these needs of children. The functional design was only one part of it, however; the appearance of children's tableware is also very important. Eating is a visual experience, too, and this is even more true for the big eyes of the young diner.

ORNAMIN stipulated that the tableware is to be made of the melamine plastic. Because of its material properties, melamine is ideally suited to producing tableware, especially for children: It is light, stable, quiet, durable, energy-saving and more environmentally friendly than other raw materials such as glass and porcelain. ORNAMIN guarantees that all products, "Made in Germany", are of particularly high quality: it is produced without the addition of hazardous plasticisers, heavy metal-based colourants or Bisphenol A.

In addition to bowls, deep and flat plates, each set of children's tableware has a cup with a coloured collar and six handles in a variety of colours.

For the handles and collar ORNAMIN looked for a soft, easy to clean, non-slip plastic. The decision was made for a TPE material by Müller Kunststoffe. The handles made of very soft and non-slip TPE gives a comfortable touch and firm hold and thus make children feel confident.

Müller Kunststoffe developed a TPE with the required properties: soft and non-slip, easy to clean and to dye, and simple to process in injection moulding. The TPE also still had to be easy to assemble.

decorations, they will bring a sparkle to children's eyes. Müller Kunststoffe also configured the fitting colour master batches based on the colour specifications from Ornamin. This was a prime example of how cooperation between ORNAMIN and Müller Kunststoffe can work together in the spirit of partnership to develop a ready-for-manufacture sales product in the shortest time.



ORNAMIN-Kunststoffwerke is an independent, mid-sized group of companies. The company headquarter in Minden, Westphalia, is the site of production, research and development and marketing. In the year 2010 the ORNAMIN Group has been around 150 employees (about 13 per cent of which were in training) and generated revenues of around EUR 13 million.

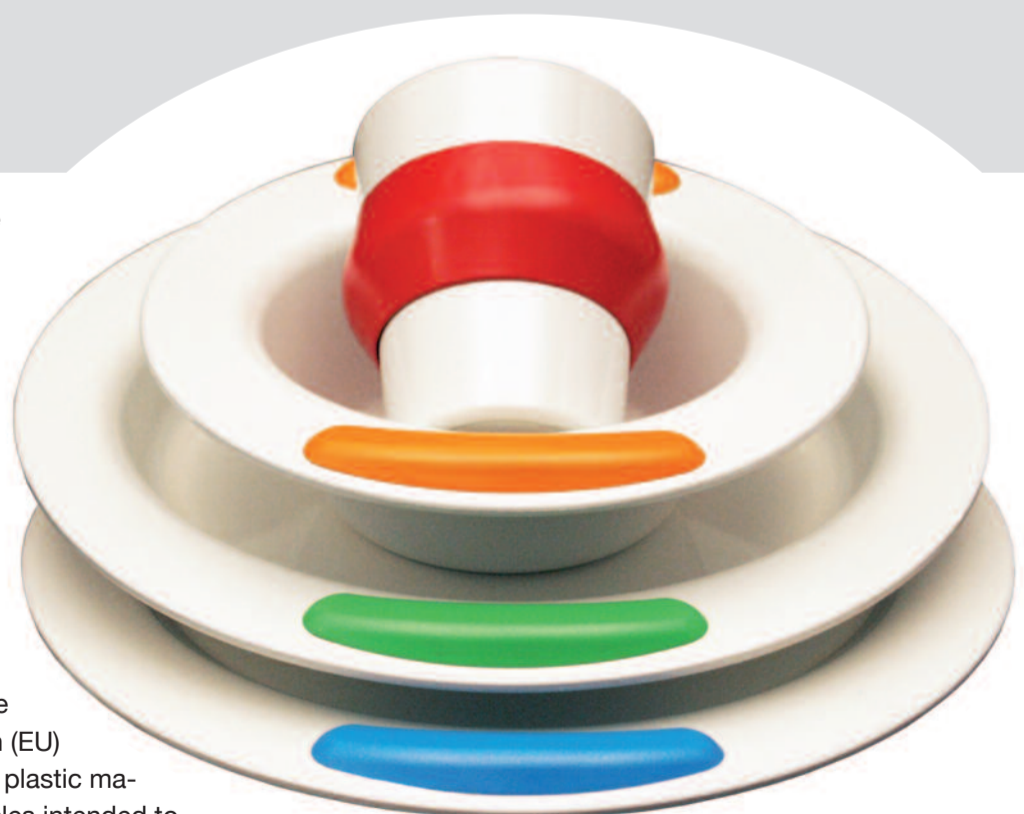
ORNAMIN offers its customers full-service solutions for thermoplastic and duroplastic compounds from the product idea to series production. The primary business fields of the parent company are, for one, the range of crockery, eating and drinking aids and medication dispensers produced by ORNAMIN ProVita and, for another, the plastic technical parts produced for the branded goods industry by ORNAMIN Technik.

ORNAMIN-Kunststoffwerke also has two independently operating subsidiaries: ORNAMIN-advertising-sales GmbH (merchandising articles for industry) and Instore-Marketing GmbH (POS and product presentation and merchandising articles).

These were the reasons for choosing a TPE with a hardness of 45 Shore A.

All raw materials used to develop this formulation comply with the new Regulation (EU) No 10/2011 on plastic materials and articles intended to come into contact with food. A medical-grade white oil is used as plasticiser.

The handles and collars are now available in eight different bright colours; together with the appealing



More information

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## New Lifoflex® standard series



Samples of new mass-products.

Müller Kunststoffe introduces its new standard GA, GB and GC series. These highly flexible TPE compounds based on SEBS (styrene-ethylene-butylene-styrene) show very good processing properties.

All three series are currently available in Shore A-hardness range of 20 – 90 with various densities (0.89 g/cm<sup>3</sup> – 1.18 g/cm<sup>3</sup>). The materials are available as translucent, in natural colour or directly dyed. They are suitable for a broad range of applications thanks to their physical/chemical properties, such as their strong bonding to PP/PE, very good mechanical properties, conformity with FDA, 10/2011/EU and EN 71/3, good resistance to aqueous solvents, inorganic acids and lyes, and the ability to use them in a temperature range of -40 °C to +100 °C (under dynamic load up to + 80 °C).

During development, special emphasis was placed on creating a strong price-to-performance ratio.

There are potential applications for the Lifoflex® GA, GB, GC series in the areas of toys, electronics, sports and recreation, health care and consumer and household goods.

The standard series are differentiated by their different densities; with the GA translucent series is configured for a density of 0.89 g/cm<sup>3</sup>. The GB and GC series are in natural colour and feature a density of 1.00 g/cm<sup>3</sup> and 1.18 g/cm<sup>3</sup>.

**More information**

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**I M P R I N T**

Published by: ROWA GROUP Holding GmbH  
Siemensstraße 1-9 · 25421 Pinneberg/Germany  
V.i.S.d.P.: Arne Höck

Edited by: Menyesch Public Relations GmbH

Graphic Design: Winneberger & Haacker

Print: Print & More Piffremont

TPE - Lifoflex®	Trade name	Lifoflex	Lifoflex	Lifoflex	Lifoflex	Lifoflex	Lifoflex	Lifoflex	Lifoflex
Series GA Transparent	Grade	UV 20 GA 1020	UV 30 GA 1030	UV 40 GA 1040	UV 50 GA 1050	UV 60 GA 1060	UV 70 GA 1070	UV 80 GA 1080	UV 90 GA 1090
Property	Unit								
Hardness	Shore A (3 s)	20	30	40	50	60	70	80	90
Density	g/cm <sup>3</sup>	0,89	0,89	0,89	0,89	0,89	0,89	0,89	0,89
Tensile strength	MPa	4,9	7,2	7,6	8,1	8,9	10,7	11,2	15,8
Elongation at break	%	948	1036	996	885	870	817	741	719
Compression set (23 °C/72 h)	%	14	16	20	23	26	31	39	41
Compression set (70 °C/24 h)	%	30	33	37	36	42	47	56	61
Compression set (100 °C/24 h)	%	54	55	61	59	63	69	74	76

TPE - Lifoflex®	Trade name	Lifoflex	Lifoflex	Lifoflex	Lifoflex	Lifoflex	Lifoflex	Lifoflex	Lifoflex
Series GB Transparent	Grade	UV 20 GB 1020	UV 30 GB 1030	UV 40 GB 1040	UV 50 GB 1050	UV 60 GB 1060	UV 70 GB 1070	UV 80 GB 1080	UV 90 GB 1090
Property	Unit								
Hardness	Shore A (3 s)	20	30	40	50	60	70	80	90
Density	g/cm <sup>3</sup>	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00
Tensile strength	MPa	3,9	5,3	6,2	6,3	7,6	8,4	9,4	13,9
Elongation at break	%	855	872	878	852	839	774	711	704
Compression set (23 °C/72 h)	%	12	13	16	18	22	29	37	43
Compression set (70 °C/24 h)	%	30	32	34	37	40	47	53	60
Compression set (100 °C/24 h)	%	60	57	58	61	64	68	70	74

TPE - Lifoflex®	Trade name	Lifoflex	Lifoflex	Lifoflex	Lifoflex	Lifoflex	Lifoflex	Lifoflex	Lifoflex
Series GC Transparent	Grade	UV 20 GC 1020	UV 30 GC 1030	UV 40 GC 1040	UV 50 GC 1050	UV 60 GC 1060	UV 70 GC 1070	UV 80 GC 1080	UV 90 GC 1090
Property	Unit								
Hardness	Shore A (3 s)	20	30	40	50	60	70	80	90
Density	g/cm <sup>3</sup>	1,18	1,18	1,18	1,18	1,18	1,18	1,18	1,18
Tensile strength	MPa	2,8	3,2	4,2	5,7	7,2	7,5	8,7	10,5
Elongation at break	%	831	770	773	836	784	777	726	657
Compression set (23 °C/72 h)	%	11	12	13	18	23	29	37	45
Compression set (70 °C/24 h)	%	29	29	33	34	41	47	51	60
Compression set (100 °C/24 h)	%	69	66	64	68	69	72	69	72