

Concepts for Exciting Ideas

The designfabrik Offers Expanded Scope for Cross-Disciplinary Exchange of Ideas and Know-How

In the ninth year of its existence, BASF's designfabrik (design center) is extending its premises to cope with the increasing volume of inquiries. The consultancy work of the team, now strengthened by additional personnel, focuses not only on plastics but also on complete material solutions using BASF's broad product portfolio. At the same time, the designfabrik serves as a source of inspiration for ideas and a hub for cross-disciplinary know-how exchange. It also provides direct access to the comprehensive internal technology network of the group, tailored to the special needs of product designers.

The BASF designfabrik is a contact point for designers wanting to engage with the potential of modern (polymer) materials (figures: BASF)



More space and more staff for ideas and unusual projects – this could sum up the event that took place at the end of January in BASF's designfabrik. The first designfabrik day ("Fabriktag"), an information event for designers from sectors as diverse as auto manufacture, furniture production, electrical engineering and electronics, household goods, and sports equipment, offered a balanced program for the 120 or so visitors that had gathered in building H612 right in the

center of the Ludwigshafen chemical complex in Germany. At the same time, the day was a good opportunity to officially open the new extended designfabrik facilities.

Since its opening in 2006, the designfabrik has become a point of contact for designers to crystallize their ideas and in recent years has seen exciting development. This has involved changes in the range of materials presented and growing acceptance of the institution, which

has now acquired a very good reputation among its target group. As a result, the area of the designfabrik has recently been nearly doubled (**Fig. 1**). Along with this, the number of staff has been increased and pigments expertise has been added to the range of consultancy services.

This was apparent on designfabrik day, when the visitors were able to exchange numerous ideas on materials, colorants, and trends and initiate new projects. The members of the designfabrik



Fig. 1. At the start of 2014, the area of the designfabrik was nearly doubled. The new premises can be used for seminars etc. and also serve as an inspiring showroom

team demonstrated the esthetic potential of many BASF materials with the support of colleagues from right across the different divisions of the company. The main focal points were the appearance, feel, and surface characteristics of various BASF materials. On specialized topic islands, it was also possible to gain insights into the current state of plastics research, colorants and paints and coatings, surface finishing, new BASF materials, and the Ultrasim simulation tool.

Extended Premises – Increased Range of Services

In its early years, the work of the designfabrik was essentially limited to advising industrial designers on colorants; the focus on materials was much narrower. Today, the designfabrik offers a very wide portfolio of the many different BASF products, including engineering thermoplastics (polyamides (PA), polybutylene terephthalates (PBT), polyoxymethylene (POM), polysulfones (PSU)), polyurethanes (PU), and thermoplastic polyurethanes (TPU), various foams (such as Neopolen, Basotect, Neopor), and pigments for paints and coatings.

This versatility is the real strength of the designfabrik, as it offers designers from different industries the opportunity to broaden their perspective and adapt solutions from other areas to suit their own requirements. The premises of the designfabrik are therefore always used to

directly link designers and technical specialists from widely diverse sectors.

Plastics Are Playing an Increasingly Important Role

The growing importance of modern high-performance plastics is usually covered rather superficially in the education of trainee product designers: even students at prestigious design schools at the beginning of the 21st century are only marginally familiarized with modern polymer materials. For this reason, BASF supports projects carried out by members of the designfabrik team in collaboration with renowned academic partners such as the Hochschule für Gestaltung, Offenbach, Germany, Staatliche Hochschule für Gestaltung, Karlsruhe, Germany, or the Royal College of Art, London, United Kingdom.

In the recent past, projects such as Material Grove or Sun Heat particularly stand out. In the Material Grove project, design students were asked to engage with current materials without any prescriptive brief. Not only plastics, but other materials, too, were included, such as leather. In the Sun Heat project, the focus was on the creative use of high-performance (polymer) materials for solar heating.

Quite often, at the end of such cooperation, projects suitable for commercialization result. An inspiring example that can be mentioned is a lamp devel-



Fig. 2. Minimalistic and bold: the new Winkel w127 desk lamp from Swedish manufacturer Wästberg was developed by designer Dirk Winkel in collaboration with the BASF designfabrik. With its all-plastic design, micro gas springs, and LED light source, it is solid and high-quality at the same time

oped by the Berlin designer Dirk Winkel for the Swedish manufacturer Wästberg. The Winkel w127 lamp (Fig. 2) is produced from Ultramid S Balance, a BASF polyamide consisting of up to 60% renewable raw materials. The idea for this project came from collaboration between the designfabrik and the Royal College of Art; Wästberg jumped in fast when the results of this seminar were announced at the Milan Furniture Fair in 2010. The Winkel w127 is probably the first desk lamp with arms made from solid, injection molded plastic; its design also posed a considerable challenge for BASF, since sink marks and warpage of the material had to be avoided.

Trend towards Unlaminated and Honest Surfaces

The design world aims to translate existing concepts into new ideas. One trend, for example, is leading to the use of visible natural fibers in furniture manufacture (for example in the Hemp Chair by Werner Aisslinger). This idea is now also catching on in the automotive sector. Here, there is a trend to unlaminated, honest surfaces that no longer allow (natural) fiber-reinforced plastics to disappear under coatings or other materials but »



Fig. 3. The Concept 1865 bicycle shows how an established product can be reinvented using new materials; the project is inspiring designers from many industries



Fig. 4. Functional colored pigments from BASF help to reflect thermal radiation. Products do not heat up so quickly. In the test set-up shown in the figure, the difference in temperature rise is clearly apparent

use them as an esthetic feature. The authentic, living surface of the Winkel w127 lamp also illustrates this trend.

Deliberately presented as a source of inspiration, the Concept 1865 bicycle, developed by BASF in collaboration with the design studio Ding3000, shows that it is possible to reinvent an everyday product like a bicycle with modern materials (**Fig. 3**). In this bicycle, not only engineering plastics such as Ultradur, Ultramid and Ultraform but also polyurethanes such as Elastollan and Elastoflex and foams such as Infinergy, Neopolen and Kerdyn have been used in a hitherto unaccustomed application. Designers will find numerous stimuli for new ideas here – one example is the maintenance-free, low-wear all-plastic pedal, which operates without ball bearings thanks to the excellent sliding friction properties of the BASF polyether sulfone Ultrason KR4113. This bicycle concept has really attracted the interest of product developers from all sectors, including auto manufacture.

The job of the designfabrik is therefore not just to develop suitable answers to existing challenges – designers think in terms of solutions to problems rather than specifically of materials. So the current trend towards unconventional surfaces offers an opportunity to use, for example, the pigments know-how of the designfabrik to pioneer new ways. These include functional pigments (**Fig. 4**) for solar heat management, which also demonstrate how far the designfabrik has progressed from “color laboratory” to an integrated design approach.

Transfer in Both Directions

The keyword productivity reflects another trend. In recent years, the designfabrik has proved an important instrument for opening up the company to users. The members of the designfabrik team are linked to all relevant divisions of the company, which gives customers access not only to material competence but also via this network to experts with the required BASF processing know-how – in relation, for example, to technical processing details, mold design, test methods and analysis, and the potential of the latest simulation technology.

A highly respected international competition known as sitdown.move. (**Fig. 5**) was launched amongst others by the designfabrik in September 2012. The results were presented at last year’s K International Trade Fair for Plastics and Rubber and it was not only the winners that benefited from this competition. The brief was to develop innovative car seats, which at present generally consist of many different metal parts. Instead of this, the entrants were challenged to solve the design task using BASF polymer materials, such as Ultracom, Infinergy, valure, Acrodur and Elastollan. The creative use of materials that in some cases had customarily been employed in other applications also inspired the BASF engineers with new ideas.

Another lesson from recent years is that engineers and designers can have fundamentally different esthetic responses to a material. While engineers, for ex-

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Fig. 5. The three best design concepts for car seats from the sitdown.move. competition were implemented and can be seen in the designfabrik and at trade fairs. The competition was very well received, with over 170 entries from 33 countries



Fig. 6. The four new Ultramid SI grades from BASF (SI = surface-improved) combine the typical technical properties of polyamide with a very high-quality surface finish. One of the first volume-manufactured products in this material is the MOVYis3 office swivel chair developed by furniture manufacturer Interstuhl

ample, tend to prefer and develop materials with a flawless appearance, creative designers can find visible glass fibers and even ribbing on plastic parts inspiring and desirable. These structures were therefore deliberately left visible in the Concept 1865 bicycle.

Surface-Improved Polyamide for the World of Design

Seeing a material through the eyes of a creative designer can enrich development work. An example of a specific BASF innovation that derived inspiration from

designfabrik projects is the BASF surface-improved polyamide Ultramid SI. This material, which has very high surface quality, offers a virtually unlimited choice of colors from the masterbatches of BASF Color Solutions and is already being used to produce strong office chairs (Fig. 6). At the present time, four Ultramid SI variants are available with a glass fiber content of up to 50%.

Inspiring Ideas for New Materials

It can definitely be asserted that in the designfabrik target group appreciation of the value of plastics has increased and new polymer materials are no longer being judged simply in terms of their technical capability but also from a new, positive esthetic perspective. All this can provide inspiring ideas for the development and acceptance of new materials. It can mean, for example, that there no longer needs to be a contradiction between high strength (high glass fiber content) and surface quality.

At the heart of the designfabrik's work is practical, everyday design in plastics. Through this, the designfabrik has become an integral part of the BASF value chain in the area of polymer materials and pigments. Over the medium term, the designfabrik will help all those involved in product development to become aware at an increasingly early stage in the development process of the potential for using high-performance plastics. Among other advantages, this will reduce the need for time-consuming and costly optimization loops. Plastics users will benefit from material- and cost-optimized production and increased market recognition. ■