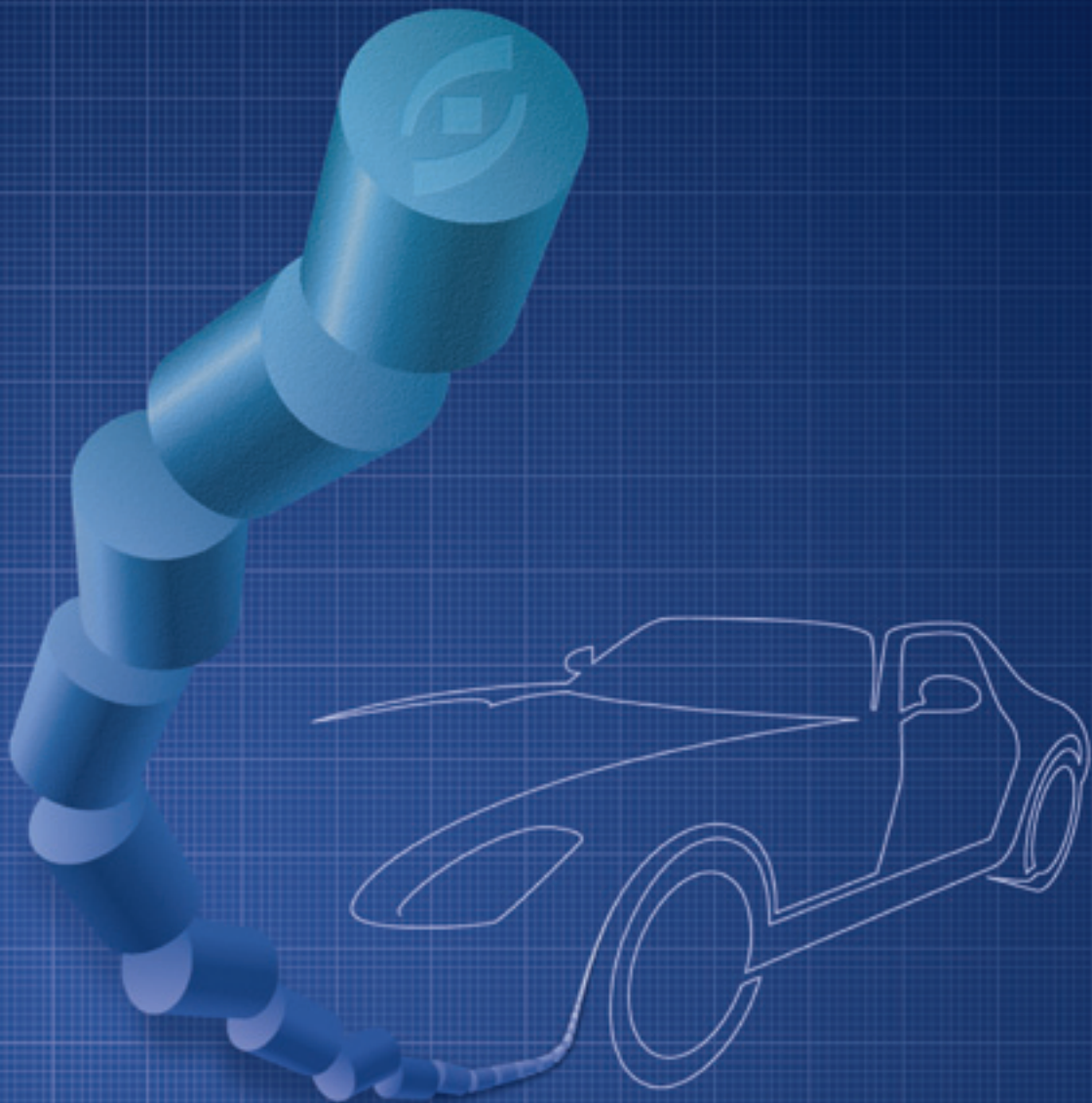


Total Perfection. Precision in Every Detail.
Compounds Made of Engineering Plastics.



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Total Perfection.

Since 1986, geba has been the brand for high-quality compounds made of engineering plastics. From modest beginnings, the company has evolved into a dynamic Group with international production locations, global sourcing and a Europe-wide sales presence has developed.

Decades of experience in compounding and in the plastics' market, multiplex know-how combined with a consistent orientation towards our customers' wishes together create a perfect overall concept: a complete portfolio of engineering plastic compounds and convincing services – from development talks to advising, conditioning and compounding to laboratory analysis and just-in-time logistics.

As a dynamic team we provide regular communication and are on familiar terms with our customers.

geba is the reliable supplier for plastic processors because we offer the right material for every application, work out the ideal recipe, find the exact colour and suitable effect as well as – apart from new material – economical solutions for the recycling of production rejects.

geba is the competent production partner of raw material producers because we always guarantee day by day consistent quality for small and big batches and compound on a subcontract basis for well-known producers and distributors.

Last but not least, geba is the creative development partner of known innovation drivers and OEMs because our experts in close co-operation with automotive companies, producers of electrical and household appliances, medical engineers and toy manufacturers consistently break new ground, when pioneering the creation of plastic materials with as yet unknown properties.

geba – The perfect overall concept comprising ideas, products and services that customers and partners alike can rely on. Just total perfection.

Chronicle

1986	Foundation in Gütersloh/Germany
1987	Move of production and administration to Ennigerloh/Germany
1990	Setup of new own production buildings in Ennigerloh
1998	Start of production in Valencia/Spain
2002	New building of the 6.000 m ² logistics centre and foundation of geba Polymer Logistik
2005	Expansion of production and storage capacities in Valencia
2006	Start of production in St. Veit/Austria
2008	Expansion of storage capacities in St. Veit
2011	New construction of a service centre with prototype testing facility, application laboratory and training rooms

Precision in Every Detail.

Total perfection requires complete accuracy. For 25 years now, geba has demonstrated precision in every step – from advising to developing and producing, to laboratory services and logistics.

Via compounding we improve polymer raw materials to become tailor-made plastics: by adding individually chosen organic and inorganic colorants, fillers and additives, we develop unique materials with defined properties for very specific fields of application areas. In order to guarantee our customers the highest batch

consistency and safety, we exclusively use materials that meet the highest quality standards.

Our team of chemists, engineers and application engineers is highly trained and has many years of experience. On the basis of latest scientific insights, the team develops appropriate material solutions for your special requirements. With an innovative compounding technique, we create special materials as accurately on a small scale as in large volume batches for plastic producers on a subcontract basis –



Defined product quality

Customer-specific solutions

Experienced applied engineering

with guaranteed batch consistency and extremely tight tolerance ranges up to 20 tons.

By using ultra-modern reprocessing technologies we can – apart from new plastic materials – also use your production rejects, thus reducing the material input and costs as well as protecting the environment. Compounds made of recycled production material generally match the quality of those made using new materials. Each developed recipe is constantly tested and documented in geba's own laboratory. We keep granulate

samples and colour patterns as official reference standards with which we ensure that we can reproduce the quality of your specific settings at any time.

Throughout all working and production steps we meticulously apply quality management in accordance with ISO 9001:2008. Just precision in every detail.



Latest
compounding
techniques

Careful
quality
testing

Comprehensive
laboratory
services



Tailor-made
product
properties

Tightest
tolerance
ranges

Guaranteed
batch
consistency



Portfolio with Profile.

As an expert for high-quality compounds made of engineering plastics, geba offers a complete portfolio of injection moulding and extrusion grades as well as master- and functional batches for engineering plastics.

As a basis for the compounding we, in co-operation with our customers, develop recipes that meet their specific requirements. Our base plastics are all technical thermoplastics and modified high-performance plastics.

We apply fillers, reinforcement materials, functional additives, processing aids as well as a multitude of further options of additives to give each type its distinctive profile with tailor-made product properties and individual colouring.

Our product portfolio is perfected by master- and functional batches for engineering plastics as well as by a various specific compounds and materials: electrically and thermally conductive compounds, tailor-made thermoplastic polyurethanes, afterglowing compounds, powders cold-ground out of thermoplastics, elastomers and polyurethanes for powder-slush applications meet customised performances for special equipment. Just a portfolio with profile.

Base Plastics

- › Engineering plastics ABS, ASA, PC, POM-H, PM-C, PMMA, PBT, SAN
- › Wide range of polyamide portfolio with PA 6, PA 6.6, PA6/6.6, PA 4.6, PA 11, PA 12, PPA
- › Blends with PMMA/ABS, PC/PBT, PBT/ASA
- › High-performance and high-temperature plastics such as CLCP, PEI, PPS, PSU, PES, PEEK
- › Thermoplastic elastomers (TPE)
- › Thermoplastic polyurethanes (TPU) which we additive and market jointly with Bayer MaterialScience
- › Fluoroplastics PVDF, PFA
- › Bio-based engineering plastics

Fillers

- › Minerals › talcum › chalk › calcium sulphate › barium sulphate › molybdenum disulfide
- › Carbon black › graphite powder › iron powder › carbon fibres › glass fibres

Products with Character.

For manufacturing master- and functional batches, we store a wide selection of colorants. Regardless whether for standard or specially designed solutions, small or large series: We will consistently customise our colourings to meet your specific requirements. We will adjust the colour shade you wish, regardless whether it is according to your template or to the common colour palettes such as RAL, Pantone or HKS, we set the shade you wish.

Even special effects are possible, too: compounds with a high-gloss metallic effect render cost-intensive additional varnishing unnecessary. Materials with an outstanding afterglow luminosity in various colours give safety in construction, in transport and in lighting technology. We also guarantee the quality of your shade definition – just like we guarantee the quality of our numerous standard products.

Easily dosable, dust-free colour masterbatches in various colourings that are both colour-fast and strong open up a high degree of flexibility and profitability when colouring. Combined batches do not only cover colour matching, but also UV stabilisation, fire protection, impact modifiers, antistatic agents, lubricants or mould-release agents. We custom-build all our masterbatches according to your specifications regarding granulate size, density, bulk density, flow characteristics, mechanical properties, flame retardants and conductivity are realised.

With this comprehensive portfolio of engineering compounds, numerous specialties as well as master- and functional batches, we consistently succeed in offering tailor-made product properties combined with an individual colour shade. We give your product unique characteristic properties. Just for products with character.

Colorants

- › Colouring carbons › organic and inorganic coloured pigments
- › Daytime and afterglow pigments › optical brighteners › titanium dioxide
- › Metallic and effect pigments › iridescent colours

Reinforcing Agents

- › Glass fibres › glass beads › carbon fibres › aramid fibres

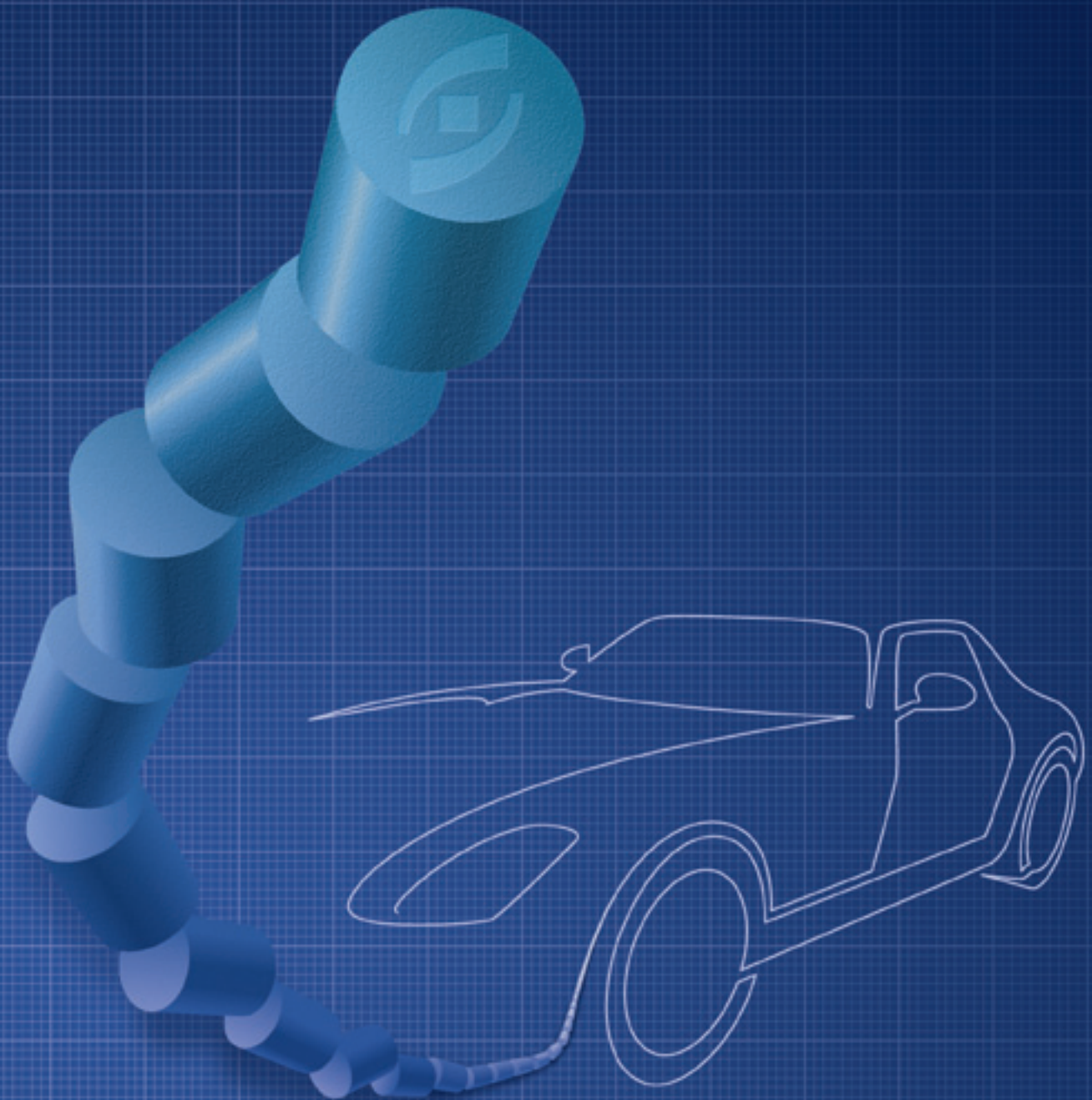
Functional Additives

- › Flame retardants (halogen-free)
- › Impact modifiers › light protection agents › PTFE › UV absorbers
- › Antioxidants › nucleating agents › matting agents

Processing Agents

- › Lubricants › antistatic agents › mould-release agents › separating agents › acid scavengers

geba supports the automotive industry with specific compounds – even for very special applications. Due to exactly defined property profiles, a high degree of surface quality and material stability, compounds made out of recycled material guarantee safety, reliability and durability.



With New and Recycled Material.

With its international set-up and flexible character of a medium-sized company, geba is the ideal partner of the automobile industry. We convince automotive companies with our ideas for components made of innovative plastics and make them ready to go into mass production. We support our customers through our own network of development departments in each of our locations, always taking economic and especially environmental requirements into account. We often co-operate with the automotive manufacturer and the injection moulder to develop the optimum material: Hence, even at an early stage in the manufacture of a moulded part, we are able to develop a material with rheological, mechanical and thermal values that meets a component's specific functional and operation requirements.

With low emissions, good UV and hotlight ageing resistance, high heat stability and corresponding impact strength and stiffness proportions, our materials meet the required profile even in cold surroundings. We help you save wasteful and cost-intensive follow-up processes and already integrate the specific effects via colour-matching into the mouldable. This mostly renders subsequent finishings unnecessary. In this way you save in many cases the follow-up refinement.

geba is the designers' sought partner with respect to developing new colour shades. Thus, geba's compounds are to be found in many interior and exterior, but also in motor and functional components.

OEMs and consumers do not only permit but also explicitly demand the use of quality certified recycled materials, especially in the automotive sector. geba is intensively integrated in the recovery of homogenous production rejects. Nowadays, our recycled materials fulfil the same high quality specifications as new materials, but are substantially more inexpensive. geba offers reliable material sources, quality-controlled processes, comprehensive know-how as well as the corresponding certifications. Aside from the technical requirements, this also applies to legal issues such as waste management law, the chemicals directive REACH and many more.

For a lot of interior parts such as centre consoles, door panels, pillar covers, glove compartments, cup holders, lighting and operation units, roof consoles and decorative elements made of back-moulded film, but also for components in engine proximity and exterior parts, geba nowadays mostly supplies recycled materials. Our materials achieve the desired properties while also meeting your customers' delivery and factory specifications. With our international orientation and three production facilities in Europe, we ensure a customer-focussed and comprehensive supply. Just with new and recycled material.

Its high impact strength at cold temperatures predestines thermoplastic polyurethanes Desmovit® for ski-tips, ski-bindings or ski boots. In both warm and cold surroundings, sports shoes and shoe soles made of Desmovit® ensure the best grip under extreme conditions with their wear resistance, resilience, bonding ability, skid resistance and adhesive force. Further important areas of application for reinforced Desmovit® types are functional clothing, safety helmets and other protectors, toys as well as further winter sport items.



With Transparency and Conductivity.

Desmovit® is the registered trade name for reinforced, additived thermoplastic polyurethanes of geba-Group and Bayer MaterialScience AG. On the basis of Bayer MaterialScience's TPU types of Desmopan®, we develop tailor-made TPU compounds. Additionally, we offer an own, comprehensive range of polymer specific colour and additive systems. The Desmovit® type range is continuously further developed for new application areas, in order to complement the classic and well-proven types of Desmopan® and satisfy new customer requests.

Reinforced Desmovit® compounds on ester or ether basis can be equipped with features such as wear resistance, impact resistance at low temperatures, heat distort resistance, thermal conductivity, noise absorbance, low friction, resistance to grease, oil, microbes and hydrolysis, paintability and printability.

Electrically conductive Desmovit® compounds protect against discharge with sparking, are mechanically resilient and have pleasing haptics. They do not only as shoe soles cut a fine figure in charged environments. In fact, electrically conductive equipped Desmovit® LFCs achieve a specific surface resistance of $<10^3$ Ohm and specific volume resistances of $<10^3$ Ohm·m.

As a permanently antistatic, transparent and flexible material, Desmovit® LFC types achieve a specific surface resistance of $<10^9$ Ohm and specific volume resistance

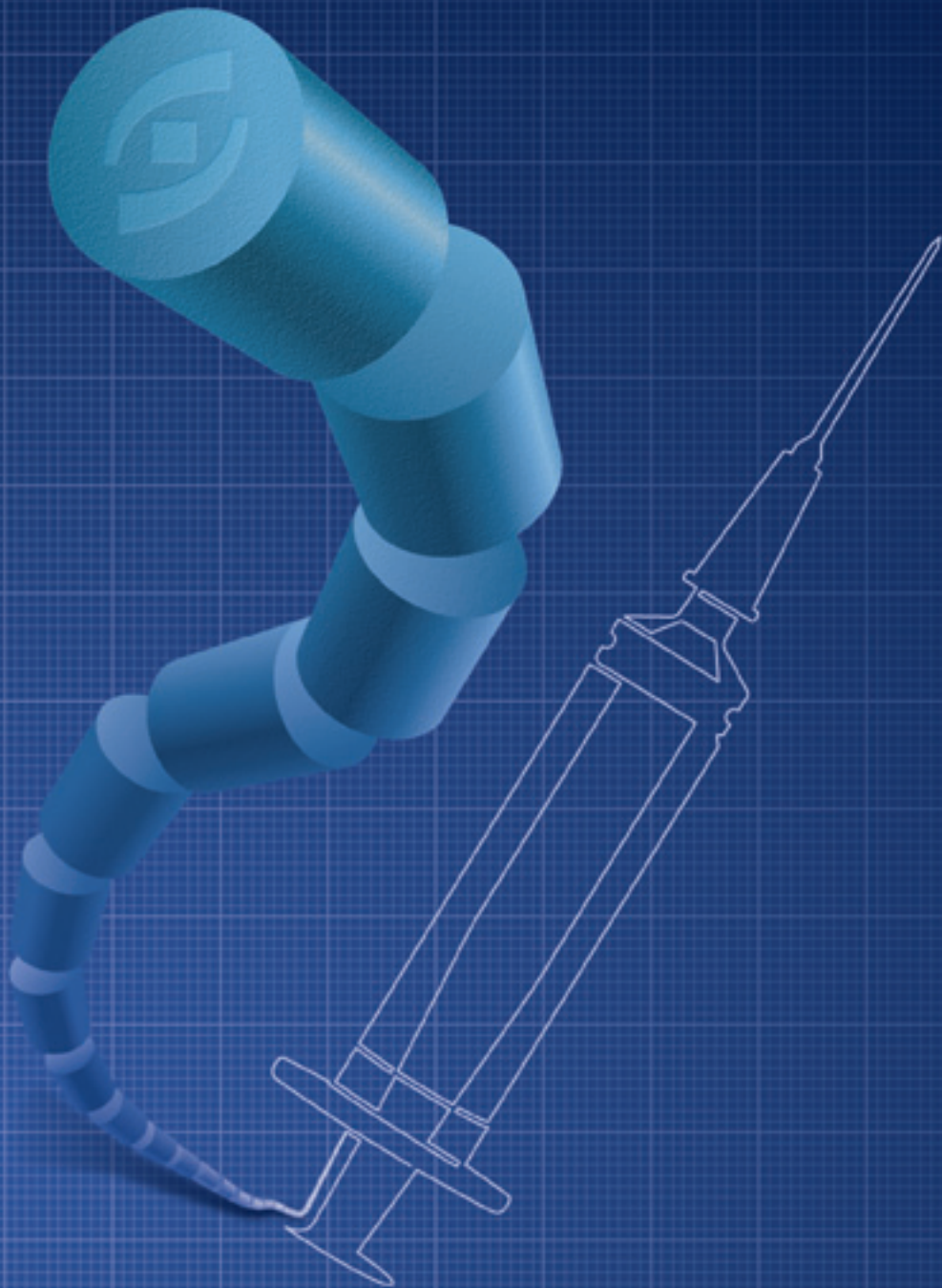
values of $<10^9$ Ohm·m and offer optimum mechanical parameters. Despite being antistatic, they are also transparent and can thus be coloured in accordance to your specifications. Furthermore, the components are FDA-approved for the use in medical and food engineering.

Additives very evenly disseminated in the plastics guarantee reproducible conductivity performance properties of the entire component in application. Neither specific environmental conditions, nor a certain humidity are required to achieve the desired permanent conductivity and neither additional UV stabilisers nor mould release agents do have negative effects on the conductivity.

Colour and functional batches based on Desmovit® achieve brilliant colours for defined mechanical properties while simultaneously offering special surface settings for pleasant haptics to improve the processability and increase the throughput.

In the chemical industry, in process and food engineering Desmovit® LFD can not only be used for storage and transport containers for flammable liquids, but also for conveying and ventilating pipes. Conveying hoses made of this material observe the requirements of the Health and Safety Rule TRBS 2153 for the prevention of ignition hazards due to electrostatic charges. Just with transparency and conductivity.

Individually fine-tuned to the concrete field of application, geba develops safe material mixes for medical technology. Thus, we achieve various resistance ratings in your product – an essential property for sophisticated disposable products. Toxicologically tested, approved pigments ensure the physiological safety of our compounds.



With Safety.

For important properties, geba's compounds stay within the tightest tolerance ranges – from batch to batch and throughout the whole delivery period. In close co-operation with you we ensure that your material meets the legal requirements e.g. for the use in medical and food engineering.

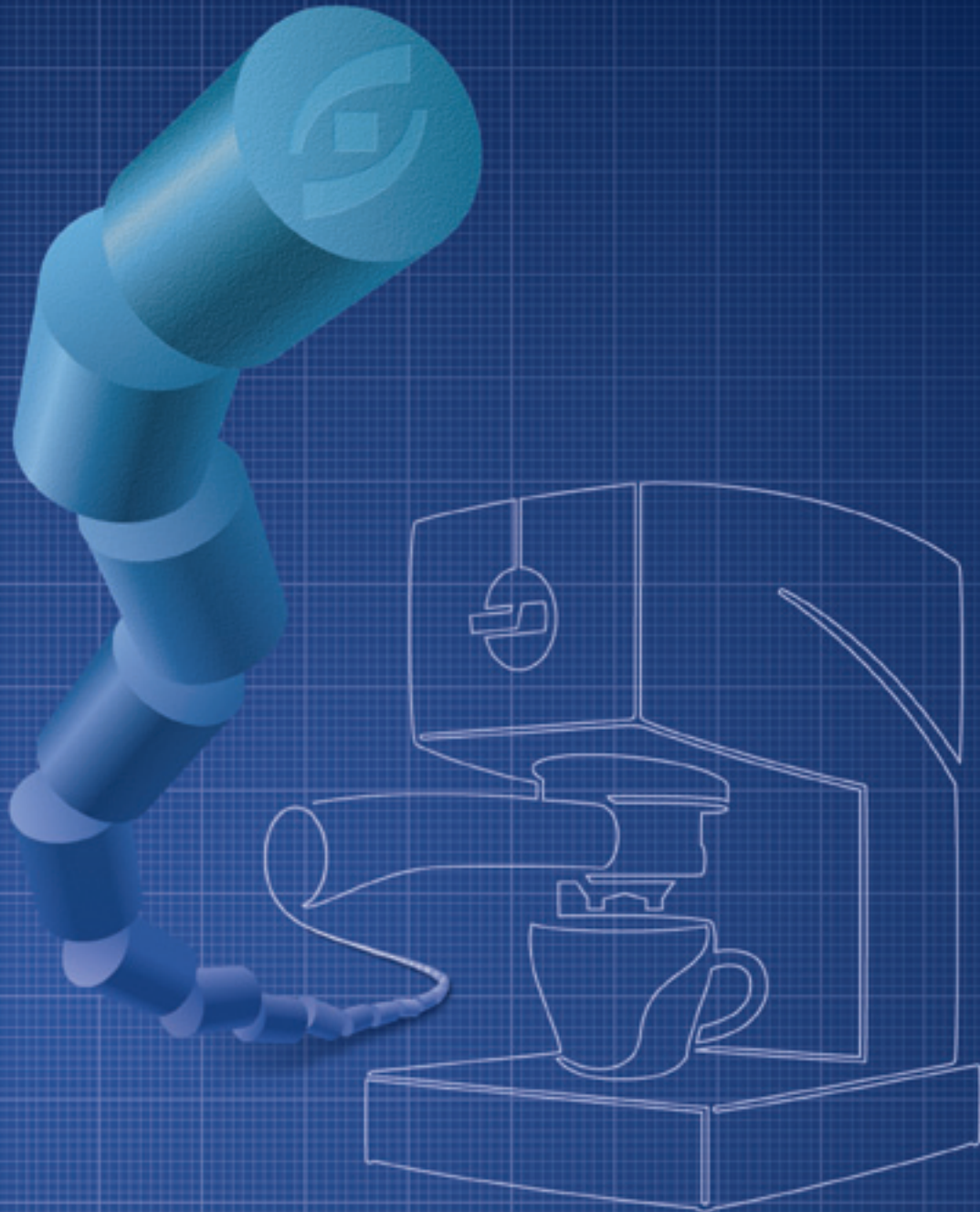


Especially in sensitive areas such as medicine and food technology we ensure the physiological safety of our compounds.

In co-operation with our customers from the medical industry, we provide the highest possible user-friendliness for healthcare professionals as well as the highest possible safety and comfort for the patients. Sophisticated plastic products for medical engineering that come into direct contact with drugs, tissue or blood are produced without heavy metal stabilisers. An antibacterial effect is achieved via defined additives.

Naturally, we only use toxicologically tested and approved additives for medical and food engineering. If desired, we only use USP-approved materials. We use FDA-approved pigments to match your individual colour shades – the same applies to specified chemical, electrical, magnetic, mechanical, thermal or optical property profiles. Just safe.

As a long-standing partner of the electrical industry, geba is the preferred supplier of engineering compounds. Chlorine-, bromine- and antimony-free flame-retardant polycarbonates and polycarbonate ABS blends with simultaneously a high degree of heat distort resistance are an ideal fire prevention for household appliances, notebooks, monitors, and printers as well as for plug-in connectors and distribution boxes. Last but not least our compounds in household appliances are to be found in hot water bearing components and in very specifically coloured visible parts.





Signed and Sealed.

geba is the pioneer in satisfying the continuously rising requirements on engineering compounds. We support producers of electrical devices with chlorine- and bromine-free, flame retarded thermoplastics specifically tailor-made to their applications that meet the EU regulations WEEE and RohS.

We avoid using substances that are of ecological concern such as polybrominated flame retardants or heavy metals. Instead of this, we offer years of know-how in bromine- and chlorine-free, flame retarded compounds for the most diverse applications in electrical and electronics engineering as well as in the IT and household appliances industry. In co-operation with you we develop the best solution for new challenges – if either the property profile of the application or new regulations, stricter fire safety standards or higher demands by environmental labels render this necessary.

Chlorine-, bromine- and antimony-free, flame retarded polycarbonates and polycarbonate ABS blends combine ideal flame resistance with a high level of heat distort resistance.

geba operates at its three production sites comprehensively equipped laboratories. Immediately after compounding, we examine the physical, chemical, mechanical, electrical, rheological and/or colour-related properties of our products. Regular laboratory tests and analyses are agreed upon individually with our customers. A final inspection according to DIN EN 10204-3.1B is standard. As a matter of safety for you and your customers, product, production and quality data are documented in detail and match your individual requirements. Just signed and sealed.

Physical Tests

- › Density
- › Bulk density
- › Filler content
- › Water absorption
- › Particle size distribution

Mechanical Tests

- › Tensile strength
- › Tensile and bend test
- › Impact strength and notched impact strength according to Charpy
- › Shore hardness A and D
- › Ball indentation hardness

Electrical Tests

- › Specific electrical surface resistance
- › Specific electrical volume resistance

Rheological Tests

- › Rheological measurements
- › Melt volume index
- › High pressure capillary viscosimetry

Colouristic Tests

- › Colour values according to CIELAB
- › Colourimetry on slush skins

Thermal Tests

- › Ash content
- › Hot wire resistance according to IEC
- › Fire test according to UL 94 / EMVSS 302
- › Vicat softening temperature
- › High distortion temperature
- › Ball indentation test at 125 °C, in accordance with IEC



With Advice and Practical Support.

Do you want to improve an existing product? Do you want to increase your productivity? Do you have an idea for a new product or are you competing for an attractive order?

Then geba's experts are ready to develop the optimum solution for your material and the most favourable specifications for your production process. We will gladly review the whole product life cycle with you and define the technically, economically and ecologically ideal overall concept for the material recycling of production rejects. To do this, we carry out comprehensive trial runs in our prototype testing facilities. All new developments are accompanied by an intensive technical application consultation so that your compo-

nents combine an ideal functionality with a convincing price-performance ratio. We will also support you in certification or approval processes, e.g. with the Food and Drug Administration (FDA).

Whether you are looking for advice, pre-series development, serial compounding, material testing or quality assurance: we communicate promptly and directly – internally and with you so that you quickly get all information for your continued success.

geba is always there for you – with advice, development and application technology. Just with advice and practical support.



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- > Bayer MaterialScience
- > Böllhoff
- > Brill & Adloff
- > Busch-Jaeger Elektro
- > Ensto Industry
- > Evonik Röhm

- > Fischer Automotive Systems
- > Geobra Brandstätter (Playmobil)
- > Hella
- > Henkel
- > Holopack
- > Key Plastics
- > Kostal
- > Lubrizol Advanced Materials
- > Minda KTSN

- > Möllertech
- > PAS
- > Polytec Riesselmann
- > RPC Group
- > Saia Burgess
- > Simon
- > Somfy
- > Ticona
- > Zizala





With Know-how and Service.

From three production sites in Germany, Spain and Austria, we serve and supply our customers throughout Europe and beyond. We realise well over half of our turnover in Germany and roundabout 40 % in the other European countries; we already achieve almost 10 % with customers from overseas.

With respect to your supply, we meet your needs as individually, as we do in setting material properties. In our modern logistics centre with a capacity of more than 6,000 m², geba Polymer Logistik e.g. stores your full annual requirement at favourable conditions – including raw materials not purchased from geba.

Via networking with your EDP systems, you can at any time see your current stock and request the sub-quantities you need at your convenience. Our well-practised logistics team with its own, modern fleet will deliver the requested product promptly and efficiently. If required, we guarantee just-in-time supply – even within our 24 hour emergency service and regardless of whether you only require 25 kg or several tons of material.

Since geba's foundation in 1986, we consistently follow our customers' wishes. As a family company, the direct exchange of ideas and wishes as well as the personal support of our customers especially matter to us.

Your trust is the driving force behind our commitment and will to optimise performance. We continuously invested in production technology, laboratories and logistics. More than 150 employees are currently committed in your favour at the compounding sites in Ennigerloh, St. Veit and Valencia.

We will support you when you follow your customers into the internationalisation of production. Just know-how and service.





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GEBA Kunststoffcompounds GmbH

Industriestraße 11 - 21
59320 Ennigerloh
Germany

Phone: +49 (0)2524 9312 - 0
Fax: +49 (0)2524 9312 - 26
e-mail: info@geba.eu



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**GEBA Kunststofftechnik
GmbH & Co. KG**

Industriepark Str. 18
9300 St. Veit an der Glan
Austria

Phone: +43 (0)4212 33060 - 0
Fax: +43 (0)4212 33060 - 26
e-mail: info@geba-kunststofftechnik.eu



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Gecomplast S.L.

Antigua Carretera Nacional III, KM 309
46360 Buñol, Valencia
Spain

Phone: +34 96 250 4826
Fax: +34 96 250 1850
e-mail: info@gecomplast.com