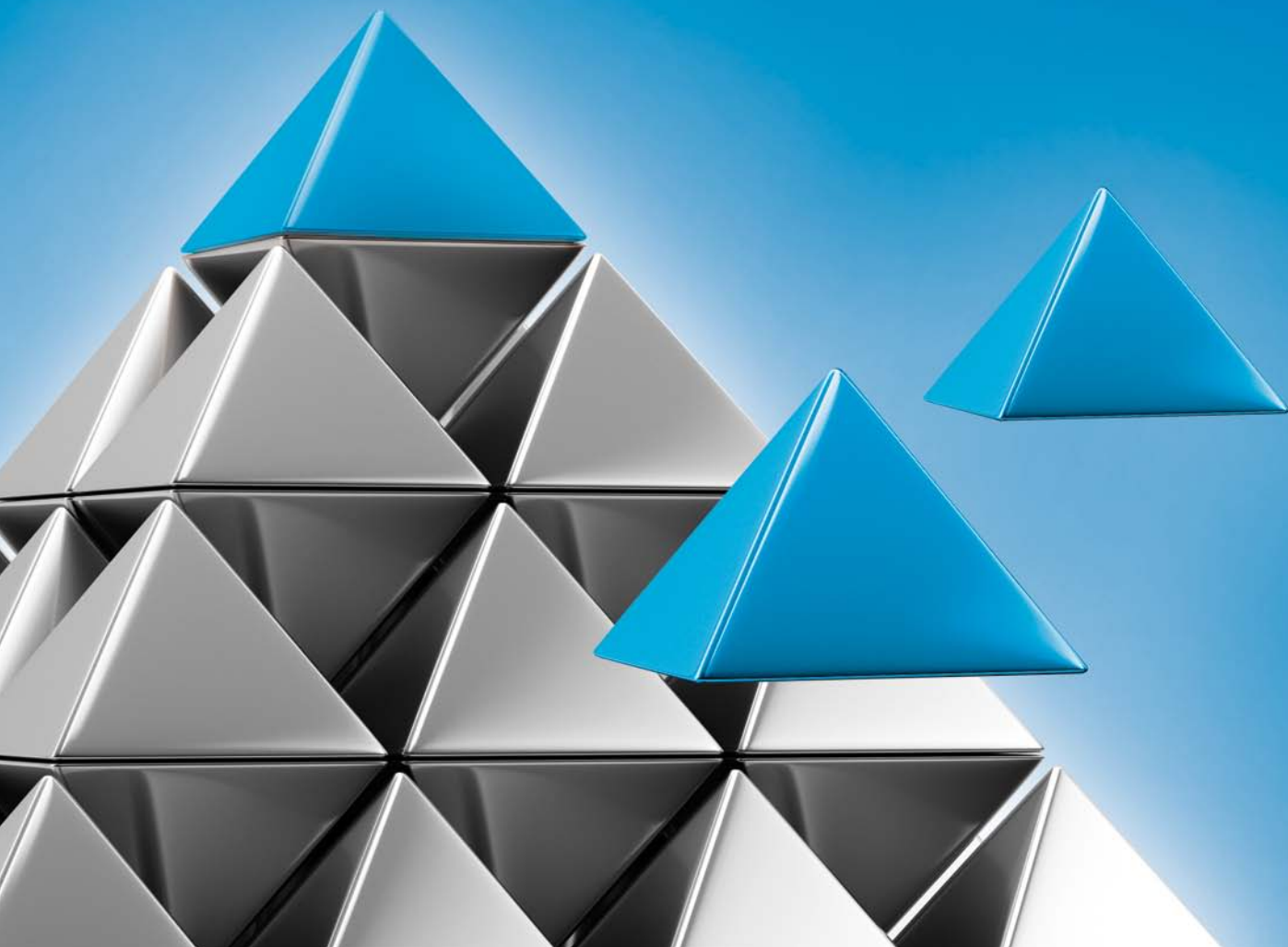


Your specialist for innovative and application-oriented plastic compounds



AKRO-PLASTIC 
Think Polyamide

AKRO-PLASTIC GmbH
Member of the Feddersen Group

Innovative, application-oriented plastic compounds

From 1988 to today: Providing customer satisfaction with tailor-made solutions

With the construction of a new production facility in the summer of 2002, a new addition to the warehouse and administration building completed in 2010/11 and expanded production capability as of August 2012, AKRO-PLASTIC today keeps pace with the steadily increasing demand and growing requirements for plastic compounding in one of Europe's leading state-of-the-art production facilities.



Since we began operating in 1988, we have grown to some 220 employees and a production capacity of more than 100,000 tonnes annually. Our guiding principle has always been individuality. We do not concentrate merely on offering a broad product line ranging from standard compounds to special compounds; much of our focus lies in cultivating a comprehensive expertise in the application-oriented use of polymers.

Since 2004 AF-COLOR, specialist in the manufacture of high-grade technical master batches, has operated as a subsidiary of AKRO-PLASTIC GmbH under its own name

within the Feddersen Group international alliance of companies.

Here custom raw materials are produced on a large scale for big customers such as automotive manufacturers, with their production facilities located on several continents, and OEMs, with global operations in the electrical and electronics industry, as well as in small batches for small-scale processing facilities. But they all have one thing in common: high standards. That's why we're more than just a producer. We see ourselves equally as a service provider. Not only do we continually work to advance our products, we are also industry trendsetters with

our certified Quality Management System and accredited testing laboratory.

The sole owner of all companies within the Feddersen Group is K.D. Feddersen Holding GmbH, whose own sole owner, the non-profit K.D. Feddersen Foundation, operates an assisted-living facility in Hamburg. With our earnings, we contribute to a large extent to the work of the Foundation – an aspect of humanity which we also carry over to our daily contact with customers and suppliers, true to the motto of our company's founder, Karl Detlef Feddersen: "Acting on behalf of people – acting through global trade".

Ultra high-tech production lines – investments in the future

Ongoing investment in state-of-the-art plant technology and in-depth training for our employees in all sectors are essential components of our corporate philosophy.

This is how we ensure continuous process control for our exacting customers and their demanding products.

Since 2005 we have been successfully represented in China with our own production facility. The original factory between Shanghai and Suzhou, which began turning out products on one compounding line in 2005, could no longer keep pace with the domestic industry's high

demand. So at the end of 2010, we began operating a new factory located in Wujiang, in the province of Jiangsu. Starting off with two compounding lines, we have now expanded our yearly production capacity to 7,000 tonnes. Additional lines will be added successively. The

plant is designed to accommodate growth.

A production facility in Brazil utilizing the same plant technology as in Germany and China is currently in the planning stages.



We offer our customers:

- Ultimate production flexibility
- Deliberate focus on specific polymer solutions – individuality is our speciality. This is where we see our best competitive edge: top quality, custom-made for each of our partners. Where others are downsizing their portfolio, we are implementing a strategy of diversity.
- Expertise for the benefit of all: We use the knowledge of application-oriented polymer processing that we have gained through collaboration with global companies to advance smaller customers as well.
- Comprehensive material specifications give our customers the assurance that they will be able to meet the high standards of their clients through consistent quality.

Maximising Synergies

Cooperation between the different company divisions within the Feddersen Groups creates „value added“ for our customers. With our distribution partner Feddersen GmbH & Co. KG and its European subsidiaries which specialise in the market development and sales of engineering thermoplastic polymers, we are able to draw on comprehensive technical expertise in all aspects of plastics engineering. K.D.

Feddersen & Co. Ueberseegesellschaft mbH rounds out the global sales network with its international subsidiaries.

We are also backwards-integrated with FEDDEM GmbH & Co. KG for the construction of compounding facilities. We maximise the synergies resulting from this partnership to ensure your success.

Our goal – excellent product quality and a clean environment

Our certified quality and environmental managementsystems

Outstanding quality, satisfied customers, a corporate management policy of environmental stewardship and a healthy work environment for our employees – these are the commitments we do business by and are the pillars of our company's economic success.

These certifications are at the same time part of a comprehensive, Integrated Management System we call AKRO Excellence. The system, established in 2008, also governs the legal matters pertaining to our production sites.

We are certified to the following standards:

- ISO 9001:2008
- ISO 9001:2008 IQNet
- TS 16949:2009
- ISO 14001:2004 + Cor 1:2009
- ISO 17025:2005 (DAkkS-Accreditation)
- Attachment to certificate D-PL-14280-01-00
- ISO 14001:2004 + Cor 1:2009 IQNet
- ISO 50001 : 2011
- BS OHSAS 18001 : 2007
- BS OHSAS 18001 : 2007 IQNet



From small orders to full service

In the area of toll compounding, we offer a flexible, efficient production environment as well as the high quality standards we have become known for. Our production expertise comprises cutting-edge facilities for strand pelletising and underwater pelletising, as well as twin-screw

extruders featuring variable process lengths. Moreover, we operate two production sites so you can rest assured that all products will be delivered on time and in accordance with the highest quality standards.



Improving our products and developing new solutions

Our research and development work aims to utilise trends and new ideas to serve the needs of our customers. Our experts combine the latest developments from the markets in which we operate with their long-lasting experience to create innovative products. Of course, we do not act alone in this endeavour. To meet our customers' demands in the best possible man-

ner, we work within a broad network of institutes, research organisations and partner companies.

Our highly developed service expertise in the areas of formulation development and toll compounding serves as a benchmark in the industry. We focus on the product and its specific requirements. The service package we offer our cus-

tomers provides solutions that span the entire value chain, increasing productivity and efficiency as a result. This is the approach we take to forge strategic partnerships for the future.

Expert knowledge of material testing and production know-how

As one of few medium-sized providers of plastics production and compounding services, we can also offer you the option of assured materials testing.

You, the customer, benefit from our experienced laboratory staff – experts whose technical knowledge is maintained at a high level through practical work in production environments and ongoing training.

Our test methods have been certified by the Deutscher Akkreditierungsrat (German Accreditation Council) in accordance with DIN EN ISO 17025.



Plant engineering

In collaboration with our sister company FEDDEM GmbH & Co. KG., we are able to design state-of-the-art turnkey plants tailored to your requirements. We have successfully implemented a compounding plant concept operating on the optimal material flow principle and on this basis, we are able to plan and design turnkey facilities according to our customers' specifications using a team of project engineers. Lean management to run the plant is part and parcel of the package, as are specific customer interests and contractual confidentiality agreements.



Your product requirements – our challenge!

Our mission is to impress every one of our customers with our products. From the automotive industry to the sports and leisure business, virtually every sector of industry has applications for our products.

AKRO-PLASTIC materials are in especially great demand in situations calling for strict mechanical requirements and maximum reproducibility. Hardly any other manufacturers are capable of guaranteeing specifications in such narrow ranges as we do. Our comprehen-

sive advice and consulting on technical application issues provides you with optimum support when selecting the right product and delivers viable and effective solutions for your product developments. We will also be glad to assist you with our technical skills, providing

useful instruments such as infrared cameras. Here are some examples of the most important market segments which our customers are involved with and which we will be happy to assist you in:

Electrical engineering and electronics

Flame retardants free of halogen and red phosphorus: We use AKROMID® FR (Flame Retardant) to handle this challenge. The requirements placed on AKROMID® FR in the field of flame retardant applications are very demanding. Our product is used in plugs and plug inserts. Plug connectors, electronics housings, circuit breakers and capacitor housings are other examples of potential applications. AKROMID® FR types are UL-listed (Underwriter Laboratories), RoHS compliant and in accordance with the IEC 60335 standard (where applicable).



Sports and leisure

Nowadays, amateur athletes have the same demanding requirements for their sporting equipment as professionals do. We have developed some very strong products for this area of applications in our AKROMID® family.

The last few years have seen a growing trend towards high-end mate-

rials in sporting goods and equipment. From hockey skates and ski bindings to home workout equipment and bike components: impact-resistant AKROMID® HI is an ideal material in all of these fields.

Our products can also be used for safety gear such as helmets and protectors.



Automotive

From beauty covers to cylinder head covers, transmission components to coolant thermostat housings: Our AKROMID® T and AKROLOY® PA offer you two types of polyamide which meet the most demanding of requirements. In times of rising fuel prices, weight reduction is a major issue for the automotive and supplier industry.

You will achieve the best cost-to-benefit ratio with the compounds AKROMID® A, B and C (6.6, 6 and 6.6/6) with their high reinforcing glass-fibre content.

Compare our values, which were determined in our accredited laboratory and meet the highest industry standards. AKROMID® A3 GF 60 achieves flexural strengths of 400 MPa, while B3 GF 60 reaches 370 MPa. This means it can support enormous loads, even at very high temperatures.

The AKROMID® Lite series offers even more ways to reduce weight while delivering the same performance. The products are based on a PA/PP blend and enable weight reduction of up to 9% while keeping strength at a comparable level.

The products based on PA 6.6, PA 6 or PA 6.10, both reinforced and unreinforced, also boast improved resistance to chemicals. For instance, our fibre-glass-reinforced types based on PA 6.6/PP and PA 6/PP even pass the 200-hour ZnCl₂ test based on the SAE 2044 standard. AKROMID® A3 GF30 4 L can even handle being stored in G12++ coolant according to VW TL 52682. At 70 MPa, it is also much stronger than the minimum required value of 25 MPa. This makes it an ideal

type for making radiator tanks or other components in the cooling circuit.

The AKROMID® T product family is based on polyphthalamide (PPA), making it very well-suited for use in applications under high temperature loads, such as components in the engine area. We also provide you with top-notch materials for the interior, such as AKROMID® RM, with its reduced moisture absorption for high dimensional stability.



Mechanical engineering/metal substitution

Outstanding resistance to chemicals combined with perfect mechanical characteristics – those are the main reasons to use products based on AKROMID® S, AKROMID® T, AKROLOY® PA and AKROTEK® PK in mechanical engineering.

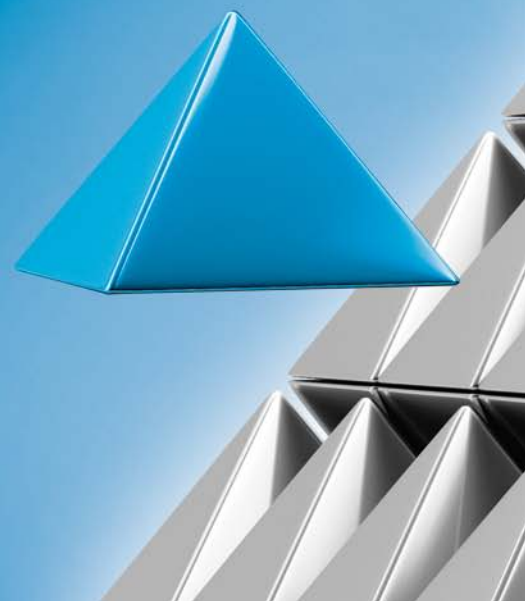
AKROMID® S (PA 6.10) sets itself apart from PA 6 and PA 6.6 with its higher resistance to chemicals and hot water. It absorbs 50% less moisture and has higher dimensional stability. It also has a higher low-temperature impact strength and a

very good surface. What's more, it boasts extremely high resistance to high-stress media (such as 50/50 glycol-water mixture).

The greatest cost advantages compared to die-cast alloys based on aluminium, magnesium or zinc are another major factor in favour of metal substitution (replacing metals with plastics). AKRO-PLASTIC has expanded the AKROMID® T, AKROLOY® PA and AKROMID® S product families by adding products which were specifically developed

for applications involving drinking water. For instance, high-strength AKROLOY® PA has been approved for use with drinking water, meaning that it is compliant with all currently required standards, such as KTW/W270, NSF 61, and WRAS. Approval for ACS will follow shortly.

We will be pleased to meet you!



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