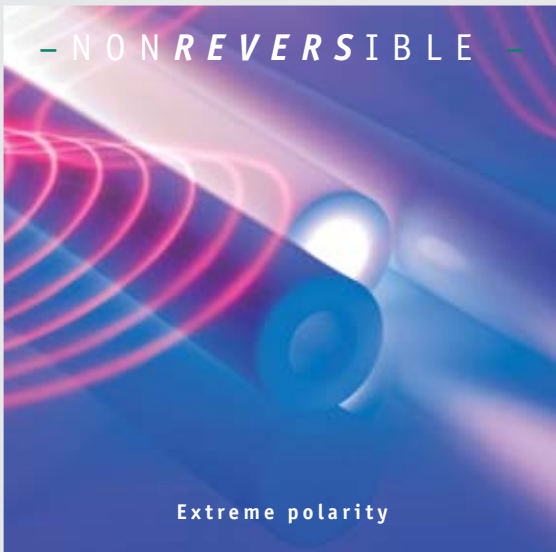
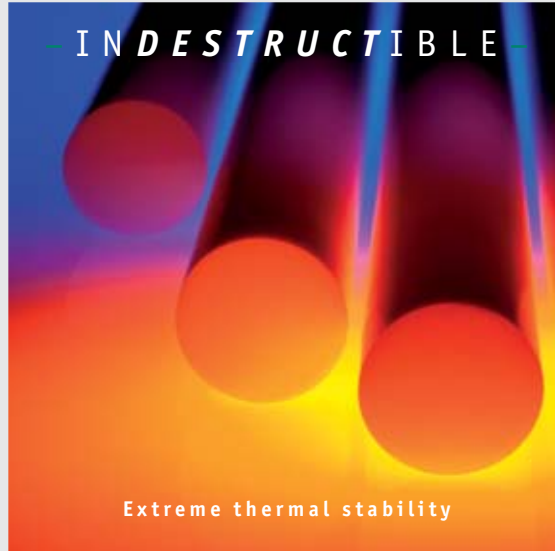
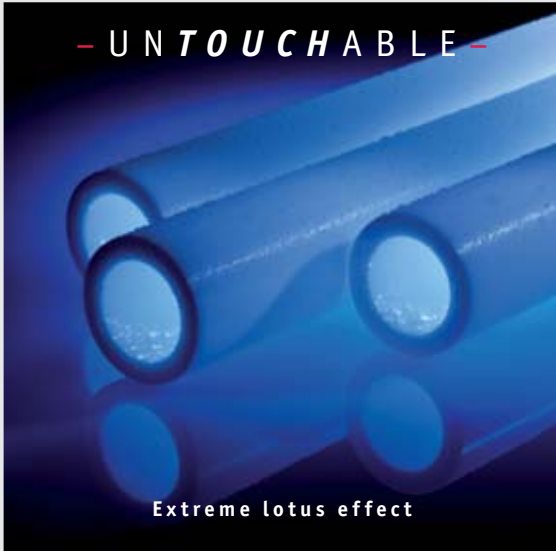


# PTFE extrudates...

*... with unrivaled properties*



**Intelligent plastics solutions  
for unmistakable results**

## High-tech plastics solutions – if the customer wants something, we make it possible!



**Beichler + Grünenwald** designs, develops and produces innovative plastics solutions in the material PTFE.

We are a medium-sized family business boasting extensive expertise and decades of experience in the production of customer-oriented semi-finished products, extrudates, coatings and special shapes for a wide range of industrial sectors and application fields.

An in-house design office combined with a superbly equipped production center with a high-end machine park allow us to produce large or small series of technically challenging finished parts based on a drawing or sample. Our committed team of experienced employees supports our customers with technical expertise and a high level of service.

We are always willing to take unconventional routes and to accept new challenges. By combining the unbeatable properties of PTFE with other materials and substances to form new high-performance products, for example.

We are happy to be guided by the challenging specifications of our customers in this respect. Our motivated and rigorous team develops chemical formulations, designs customized tools and employs a wide range of technologies to produce the required results.



Our goal is to exploit the huge versatility of PTFE and to derive benefit from this material.

Innovative spirit, creativity and the ability to implement ideas are always governed by the objective of creating a profitable and customer-oriented solution.

### PTFE – a material with infinite possibilities

Polytetrafluoroethylene – PTFE for short – is one of the best-performing plastics ever thanks to its extremely long molecular chain. Its outstanding properties make it possible to produce a virtually limitless variety of products for use in a wide range of application fields and sectors.

### PTFE – extraordinary material properties

- Thermal stability from -200°C to +260°C
- Extreme media resistance
- Absolutely anti-adhesive
- Non-flammable, self-extinguishing
- High electrical insulation

### Virgin PTFE – plastic in its purest form

In 1938, the chemist Roy Plunkett accidentally discovered this polymer composed of fluorine and carbon which exhibits all the qualities outlined above. Thanks to its superior chemical resistance and high thermal stability, PTFE has become a very sought-after high-performance material.

### TFM® from Dyneon – modified PTFE for optimized processing

Second-generation PTFE, which is created by the addition of modifiers, retains almost all of the material's properties. Shorter molecular chains result in a tighter and denser molecular network. The main advantage of this modified, diffusion-proof variant is improved material weldability.

### Compounds – for tailor-made properties

The addition of selected fillers makes it possible to produce customized PTFE properties in accordance with requirements. Glass fibers enhance compressive strength, for example, and carbon or carbon fibers optimize abrasion resistance and dry-running properties. B+G has the expertise to produce and process compounds for customer-specific requirements using mineral or organic fillers.

### The B+G purity law

B+G works exclusively with high-grade materials from reputable and reliable global suppliers. This provides us with the best possible foundation for the production of first-class semi-finished products for our customers.



### PTFE processing – at the highest level

B+G produces semi-finished products from PTFE, modified PTFE and compounds. Our extensive range of production facilities allows us to offer our customers unique, quality-oriented, commercial potential for both extrusion processes and isostatic pressing.

Our in-house research and development team achieves optimal results in the production of customer-specific, application-related semi-finished products based on decades on experience in PTFE processing. Highly competent advice and first-class service accompany this process from the determination of requirements stage through to the perfect product.

Needless to say, our process complies with all the necessary quality standards and norms. Our archive organization allows us to create 3.1 inspection certificates in accordance with DIN 10204 and/or declarations of conformity at any time – even retrospectively – at the customer's request based on the material certificate and the material inspection number.

### Ram extrusion

In this continuous press-sintering process, PTFE granulate – defined by the piston stroke and tool area – in the form of tablets is pressed through the heated section of the tool and processed to form semi-finished products. We produce accurately calculated tool dimensions at the customer's request so as to permit maximum material savings and an economical production process.

### Pressing processes

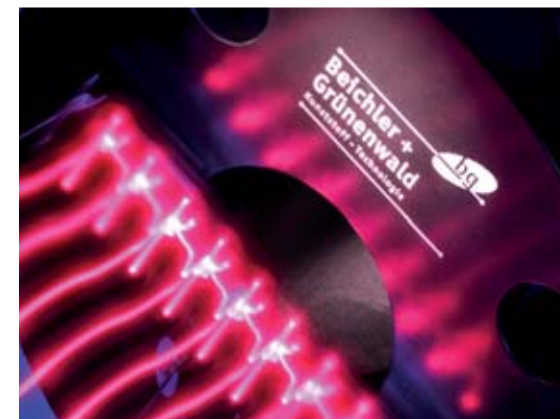
Static processing uses hydraulic pressure to compress PTFE granulate in press molds to form simple molded parts.

These unfinished parts are sintered in the furnace based on accurately defined sintering curves.

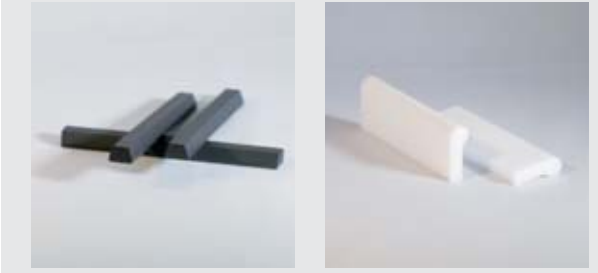
The unfinished parts are also sintered in the case of isostatic pressing. In this case, however, the PTFE granulate is first filled into custom-made tools – very close to the contour of the finished part – and pressure is applied on all sides. This is the most efficient method of processing PTFE for finished parts with extremely different dimensions.

### Laser branding

We use the latest laser techniques to label our PTFE products, thus ensuring that they are unmistakable and traceable. This allows our customers to reliably and conclusively verify the origin and quality of our semi-finished products and extrudates.



## Extrudates from B+G – diversity of form and application



# PTFE properties...

... an overview

WA-B-E-R-G.de/16.2015 engl.

Property	Unit	PTFE pure white		PTFE TFM 1600		PTFE + 25% glass fiber		PTFE + 25% carbon	
		Extruded	Pressed	Extruded	Pressed	Extruded	Pressed	Extruded	Pressed
Tear strength	N/mm <sup>2</sup>	>22	>23	>25,5	>28,5	>11	>14	>11	>13
Tensile elongation at break	%	>230	>260	>300	>300	>140	>160	>90	>100
Hardness	Shore D	>54	>54	>56	>56	>59	>59	>63	>63
Elastic modulus	N/mm <sup>2</sup>	550	550	650	650	-	-	-	-
Continuous thermal stability	°C	-200 +260	-200 +260	-200 +260	-200 +260	-200 +260	-200 +260	-200 +260	-200 +260
Density	g/cm <sup>3</sup>	2,12 - 2,20	2,12 - 2,20	2,12 - 2,20	2,12 - 2,20	2,19 - 2,27	2,19 - 2,27	2,05 - 2,13	2,05 - 2,13



### Our certifications

**Beichler + Grünenwald** has been certified according to the DIN EN ISO 9001 quality management system since 1996. Our products comply with nearly all quality standards and norms. Our archive organization allows us to create 3.1 inspection certificates according to DIN 10204 and/or declarations of conformity at any time - even retrospectively - at the customer's request based on the material certificate and the material inspection number. Moreover, we will be one of the first PTFE processors with this specific certification once the migration tests that are currently in progress for approval according to EU 10/2010 are complete.

### It's all in the mix!

**Beichler + Grünenwald** employs innovative methods to design, develop and produce extrudates, semi-finished products, coatings and special shapes for customers worldwide. Leading plastics technology is born out of Swabian inventiveness combined with a commitment to the location and the people of the region.

Extrudates/Semi-finished products



Coatings



„There is Pow(d)er inside“

We advise you...  
...develop with you...  
...produce results...  
in accordance with the B+G PTFE purity law.

Special shapes



Special mixtures

