

# SPECIAL POLYMERS FOR ADDITIVE MANUFACTURING APPLICATIONS



**360°** GAS TIGHT  
LIQUID TIGHT  
**PROTECTION**

- Impregnation, infiltration and sealing
- Potting compounds for hybrid parts

**DIAMANT**   
POLYMER SOLUTIONS



## ENHANCING THE FULL POTENTIAL OF 3D PRINTING

### Introducing the dichtol series – the revolutionary solution for enhanced performance and durability

The use of 3D printing in the industry offers a multitude of impressive advantages. This technology allows for rapid and cost-effective production of highly precise and complex parts. The flexibility of 3D printing enables the realization of individual designs with ease and brings unparalleled design freedom. As a result, creative and innovative solutions can be found for various applications.

One particularly remarkable aspect is the reduction of material waste through 3D printing and the ability to create light-weight yet incredibly durable parts. This not only contributes to a more sustainable production but also opens up new possibilities for use across diverse industries. Shortened development times and increased adaptability are further advantages that make businesses more competitive.

What makes the integration of our **dichtol** product line even more appealing is the ability to enhance and impregnate the 3D-printed parts. By utilizing our **dichtol** products, these parts can be sealed and treated to achieve improved performance and durability. Conventional sealers only provide limited protection, as they are limited to the surface. **dichtol** on the other hand, penetrates into all pores, no matter how fine, and thus impregnates the treated surface in depth. Besides the surface refinement **dichtol** also improves the basic properties of your workpiece. Thanks to its excellent capillary activity, the polymer penetrates deep into your workpiece and hardens there. The hard-elastic high-performance polymer anchors itself in the treated part and seals it reliably even at changing temperatures.

An illustrative example of this is the manufacturing of eyeglass frames, where 3D printing technology allows for the production of customized and stylish eyewear frames in a fraction of the time, and with the application of our **dichtol** solutions, these frames attain enhanced functionality and longevity. This showcases the transformative power of this technology and the added value our **dichtol** products bring to the 3D printing industry.



## GUARANTEED RELIABILITY FOR THE LONG TERM

### Internationally proven full-service provider of innovative polymer systems and impregnation materials

For over 130 years DIAMANT has been the internationally proven full-service provider of innovative polymer systems and impregnation materials. Producing in Germany means sticking to our family tradition. With the seal „Made in Germany“ we guarantee the high quality, which is proven by the DIN EN ISO 9001 and DIN EN ISO 14001 certification.



Made in Germany

## IMPREGNATION, INFILTRATION, SEALING

### DIAMANT **dichtol** series – sealer for 3D printed parts

Discover our high-quality products for sealing and impregnating your 3D-printed parts and additive manufacturing - **dichtol** AM (#2567) and **dichtol** AM Makro (#2569). These innovative solutions have been specifically designed for SLS-printed parts made of PA (Polyamide).

Additionally, for filament printing, we recommend our **dichtol** AM Hydro (#2589), a water-based solution that offers effective sealing and impregnation, making it ideal for various 3D printing applications.

## Advantages

#### **dichtol** AM **dichtol** AM Makro

- Solvent-based sealer
- Well suited for SLS printing processes
- Well suited for PA materials



#### **dichtol** AM Hydro

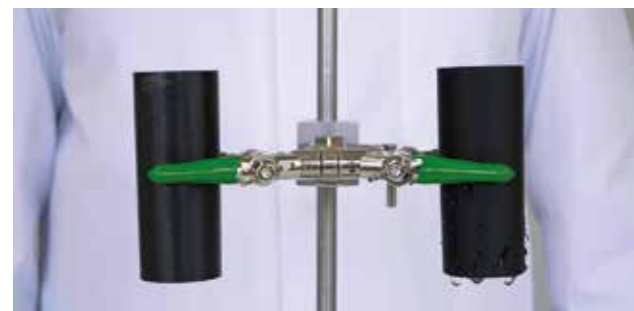
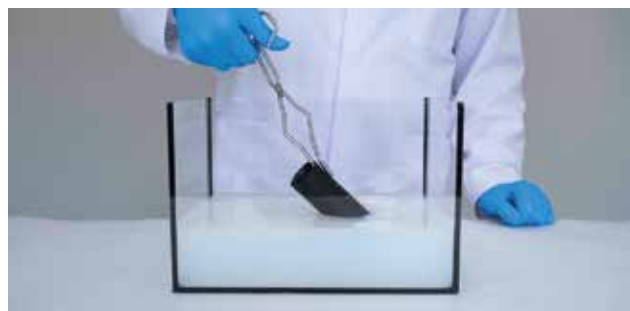
- Solvent-free, water-based sealer
- Well suited for filament printing processes
- Well suited for PLA, ASA and ABS materials
- VOC-free, non-hazardous and non-flammable



- Generates gas- and liquid-tight components
- Efficient use of materials
- Good pore sealing
- High chemical resistance (e.g. oil)
- Easy to clean surface (with common household detergents)
- Easy application, no machines or equipment required
- Can be used indoors and outdoors
- Protects your printed part from dirt

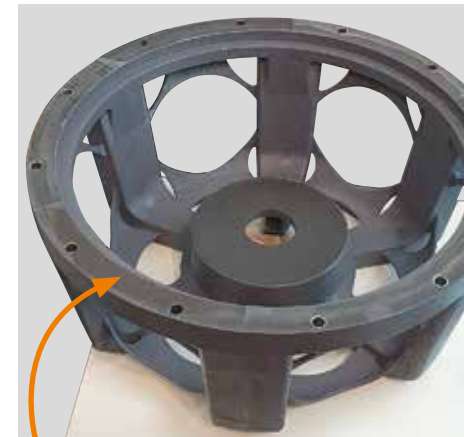
## Application

**dichtol** adapts versatily and flexibly to the respective application conditions in additive manufacturing in 3D printing: The polymer system is equally easy to brush, inject or dip. It reliably seals pores up to 0.2 millimetres in diameter.



## 3D CASTING RESINS

### DIAMANT **DWH** – casting resin for 3D printed parts



3D-printed measuring system holder incl. metal bushings, moulded with **DWH**

Modern manufacturing processes such as additive manufacturing enable new component geometries and approaches. With the help of DIAMANT 3D casting resin **DWH**, we enhance these processes by adding an additional component and enabling the production of highly functional hybrid components.

The hybrid components, mainly manufactured as hollow or cast bodies, thus benefit from the properties of both materials and manufacturing processes. The components can be printed with a minimum wall thickness, saving time and money. The voids are filled with **DWH** resulting in highly rigid components. By choosing the appropriate potting compound, the component weight can also be adjusted. This means that very lightweight and dimensionally stable components can be easily produced, as well as heavier components. The insertion of threaded sleeves is also possible through the casting process. The cast hybrid components can also be machined.

## Advantages

#### **DWH** Filler Light

- Light potting compound  
= 0.5 kg/litre (floats in water)



#### **DWH** Filler Heavy

- Heavy potting compound  
= 5.0 kg/litre (heavy and magnetisable)

- Simple, cost-effective production
- Pouring of 3D printed parts possible without problems
- Very low heat development (< 40°C)
- Mechanically workable e.g. by milling, turning
- Extremely stiff and stable components
- Create magnetic parts and improve the isolation

## Application – filling, grouting or injecting

DWH is offered ready to mix. Weighing or measuring is not required. The 2-component polymer system can be used without special expertise.

#### **Pouring:**

The low viscosity product is poured into the cavities after mixing.

#### **Injection:**

Cartridges after mixing can be injected into cavities.

#### **Benefits:**

- Hybrid components open up a wider range of applications for 3D printed components
- Weight and stiffness tuning
- Time and cost savings through thin wall thicknesses
- Thermal insulation/magnetisable



DICHTOL SELECTION GUIDE

Find the right **dichtol** product for your application right here.  
Do you need support? Contact us, we are happy to help you!

The table shows an excerpt of our complete product portfolio. All products come from our own production. dichtol is only available exclusively from the manufacturer. Benefit from over 130 years of experience. Quality made in Germany.  
You can reach our service at +49 2166 - 98 36 - 0 or by e-mail [info@diamant-polymer.de](mailto:info@diamant-polymer.de)

Product overview	dichtol AM	dichtol AM Makro	dichtol AM UV Protection	dichtol AM Hydro
Item number	#2567	#2569	#2546	#2589
Special feature	fine pores	large pores	large pores, added UV protection	water-based
Base polymer	PMMA	PMMA	PMMA	Polyester-Polyurethan
Organic solvent	yes	yes	yes	no
Pore size (mm)	0 - 0,1	0,1 - 0,5	0,1 - 0,5	0 - 0,2
Shelf life (years)	5	5	5	2
Sealable area with 1L (m²)	20	10	10	20
Printing material suitability				
PA, PETG, ASA, ABS, filled material	good	good	good	good
PVB, PP, TPU, PLA	limited	limited	limited	good
Technical data				
Density (g/cm³)	0,88	0,99	0,91	1,05
Viscosity (mPas)	15 - 30	40 - 60	30 - 50	3 - 6
Permanently temperature resistance	300 °C	300 °C	200 °C	130 °C
Acid resistance	medium	medium	medium	less
Alkali resistance	good	good	good	good
Solvent resistance	less	less	less	good
Oil resistance	good	good	good	good
Recoatability	solvent-free and water-based paints	solvent-free and water-based paints	solvent-free and water-based paints	all paints
Curing time (The specified times apply when the solvent has evaporated well. Increased temperature and very good flash-off shorten the curing time.)				
Dust dry at 20°C (minutes)	6	6	6	60
Fully cured at 20°C (hours)	24	24	24	24
Dry film thickness (µm)	4	10 - 15	8 - 15	7
Container sizes	1 L, 5 L, 10 L, 200 L 500 ml Spray can (#2568)	1 L, 5 L, 10 L, 200 L 500 ml Spray can (#2570)	250 ml, 1 L	250 ml, 1 L, 25 L





We keep  
the world  
moving



## DEVELOPMENT ACCORDING TO CUSTOMER REQUIREMENTS

### Use our expertise to your advantage

In order to find the right sealer for your application, we make many things possible. The starting point of a successful development embodies a joint initial meeting. To determine your individual needs and to define with you which tests and parameters are relevant for your application. We then create a test plan and set the development goals.

The tests are always carried out on real coating samples you have produced with your own materials, parameters and systems. This guarantees that real-world results are achieved so as not to shipwreck later when transferring the product from the lab to the real world. Success with plan, guarantee and proof. Of course, you will also receive complete documentation of the Results. The tests prove the function of our sealers in your shifts. And you will receive a tested product together with the proof of function for your shift.

## APPLICATION SERVICE/SUBCONTRACTING

### Whether at your site, on the construction site or at our factory

Are you looking for support in using our products? The **DIAMANT** technicians and fitters are professionals with many years of experience and in-depth expertise. Talk to us, we would be happy to arrange an appointment at your location. Or simply send us your parts and we will apply the products in our factory.

## CONTRACT MANUFACTURING

### Continuously growing partnership

We are a manufacturing company with adequate and professional equipment to produce polymer products of the highest quality and quantity. In addition to fillers, coatings and adhesives, other products can also be manufactured with it. Renowned national and international manufacturers and/or recipe owners have had their products manufactured by us for more than 25 years. We manufacture these products according to recipe templates and then calculate the provision of the equipment, the staff and the services. Everything always according to the ISO 9001 quality standard. And we do not act as an extended workbench, but as your permanent and trustworthy partner with the same goals and quality standards.

## OWN LABEL

### Our product under your good name

Would you like to sell **DIAMANT** quality products under your own name? No problem. Talk to our customer service and we will be happy to make you an individual offer. We take care of label printing and packaging. If desired, we can even take over the worldwide distribution of the goods to the destination for you. You receive REACH-compliant labels and safety data sheets in all European and many non-European national languages. Customs clearance and forwarding our experienced clerks will be happy to register for you.



## PRODUCT OWNERSHIP

### Maximum exclusivity - a product just for you

It does not work? Yes, it works. Our ultimate goal is to offer you a functioning and profitable solution with real added value. To do this, it is necessary to understand your requirements and processes in detail. We realize that this often touches on sensitive areas of your business. In order to be a reliable partner for you in such situations, we also offer the option of manufacturing the jointly developed product exclusively for you in addition to individual non-disclosure agreements (GHV, NDA). According to old merchant custom, confirmed with letter and seal. Because your know-how is safe with us. Promised.

Tradition, innovation, consistency

Already in the 5th generation, we are developing and manufacturing special polymer-based products for you. Our special Know-how lies in extremely highly filled compound systems, which are used in the areas of wear protection, power transmission, Form fit, force fit or used in metal repairs. In addition to these systems, we also serve the other extreme with extremely low-viscosity unfilled polymer systems, such as those used in the areas of impregnation, sealing or infiltration. The modern and environmentally friendly product solutions are used for repairs and maintenance, but also for production or in new buildings. **DIAMANT** products preserve values and protect your investments. Our products thus contribute to the efficient use of scarce resources. Because one thing is as true today as it was 130 years ago: the resources of our world are finite. Therefore, they should be used efficiently and judiciously.



OUR MISSION

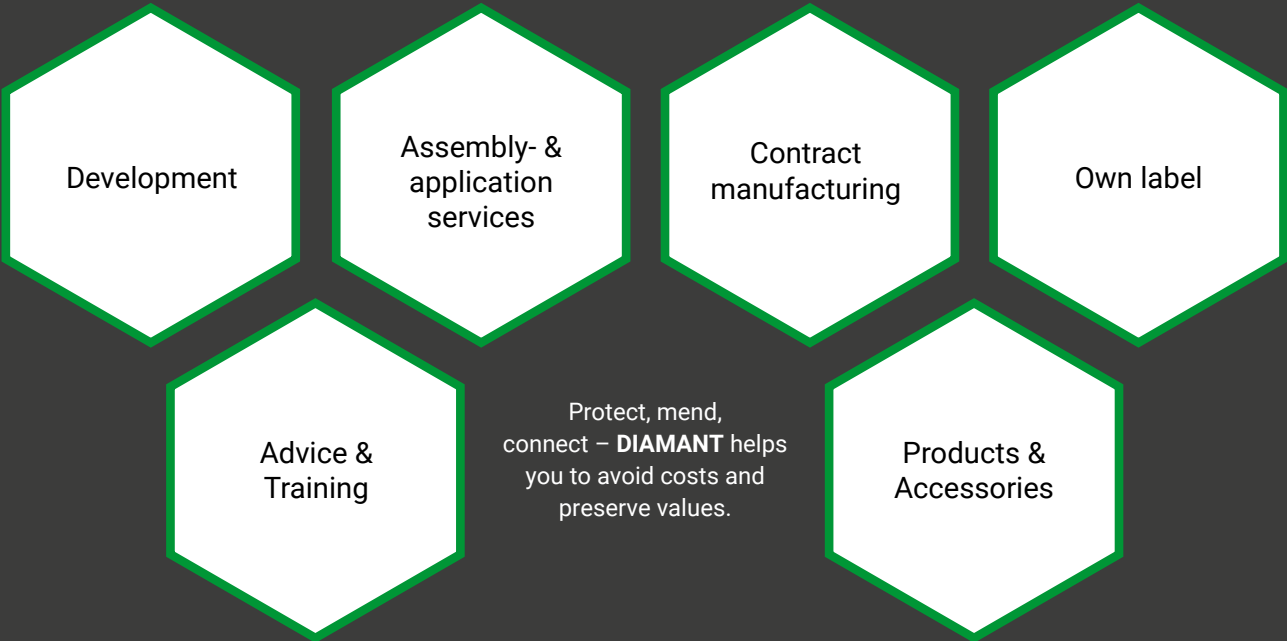
Mission

- Protect, mend, connect: DIAMANT products and services help you avoid costs and preserve value by:**
- as composite materials protect surfaces and thus extend the service life of pipes, pumps, pipelines, extend containers etc.
  - correct defective castings as repair materials and make them usable,
  - as impregnating materials to protect porous structures and increase their durability, as well as
  - as a „liquid lining plate“ non-positive and form-fitting, full-surface and permanently corrosion-resistant
  - create connections without mechanical processing.
- DIAMANT product and application solutions protect the environment and conserve resources by:**
- increase the stability and service life of machines, systems and constructions,
  - reduce waste and thus unnecessary consumption of raw materials,
  - help significantly to identify defective products, machines, systems, constructions and buildings
  - to repair and make usable again,
  - limit material losses as well
  - shorten construction times and thus also reduce energy consumption and wear and tear on the machines used.

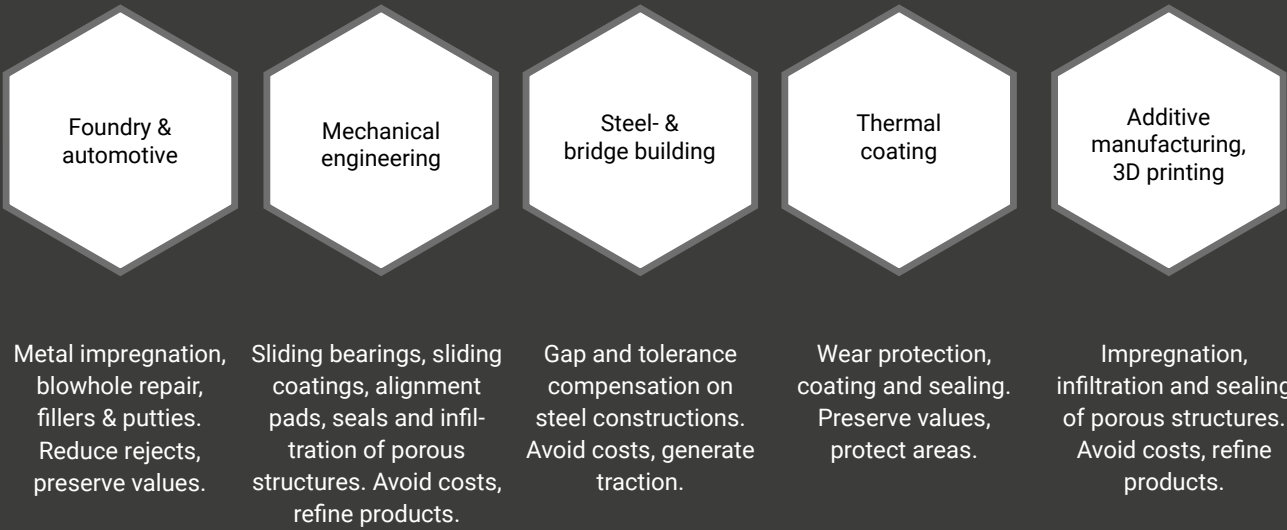
The excellent quality of our products and application solutions give our customers the security to keep the quality promises they have made.



Our services



Application areas of our products





DIAMANT Polymer GmbH  
Marie-Bernays-Ring 3a | 41199 Mönchengladbach | Germany  
Phone +49 2166 - 98 36 - 0 | Fax +49 2166 - 8 30 25  
info@diamant-polymer.de

**[www.diamant-polymer.de/en](http://www.diamant-polymer.de/en)**

