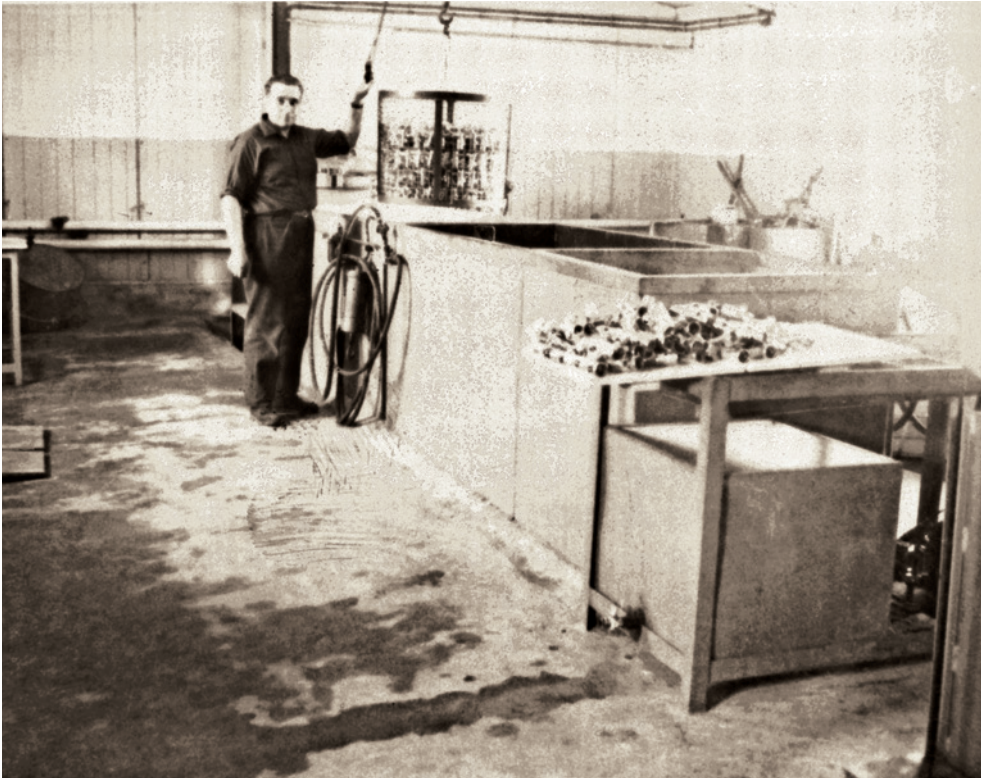




Impregnation Services

Our experience – Your benefit



First synthetic resin impregnation system in Europe 1963

The work pieces supplied are carefully packed into charge baskets specifically suitable for the individual parts. These are then processed in our impregnation systems. Our impregnation sealant is a special low-viscosity resin that enters even the finest of pores.

After impregnation and draining, any sealant is removed from the surface by washing with water. The impregnation sealant remaining in the pores is polymerised at 90 °C,

and the parts are then dried under a vacuum. No traces of the impregnation sealant will remain on the part surfaces or in the blind bores and threads. The impregnated parts cannot be distinguished from non impregnated parts after treatment. Expensive rework for cleaning threads and passages after sealing is omitted. In our job-shops, even larger quantities of leaking castings are processed very quickly, so that our customers will receive parts without any delay for further processing.

To convince new customers of the quality of our impregnation, we offer free impregnation trials that can also be performed in the customers' presence. We welcome you to take up this offer, so that you can then say:

**Porosity?
No Problem –
we use Maldaner!**

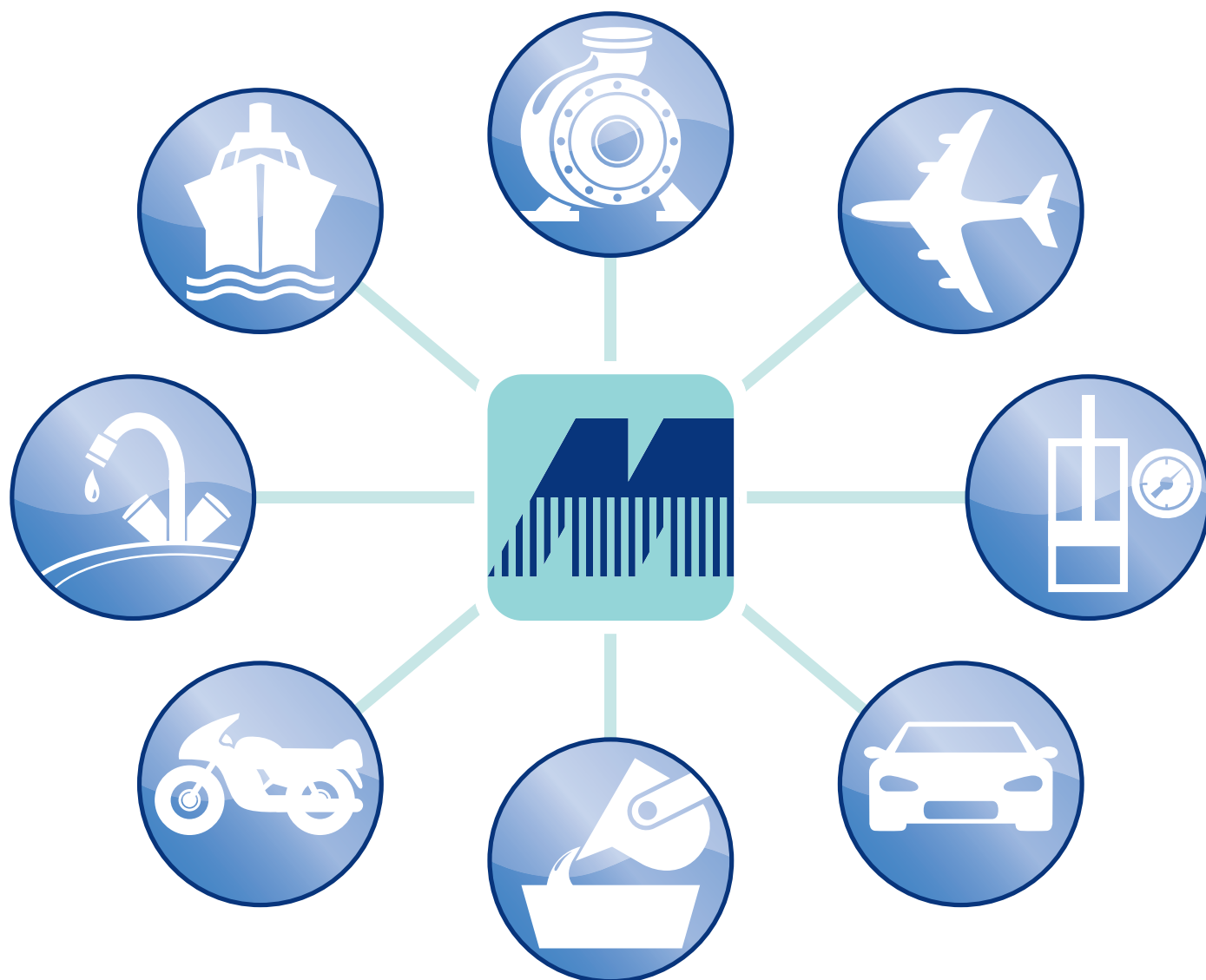
We impregnate your parts quickly and cost-efficiently

For more than 50 years, we have been serving a great number of customers from different industries using our equipment and process among them foundries, engineering, pneumatics, automotive and aerospace industry. We impregnate components of all shapes and sizes and all types of material. We have the experience to undertake one off specialised processing, including items that will not fit into one of our impregnation systems. The know-how collected with many years of experience and continuous development of new and improved impregnation methods guarantees that our process and technology are always state of the art to meet with our customers' demands.

We can proudly say that many of our customers call **impregnation with synthetic resin "Maldanering"**, meaning particularly good quality.



You'll meet us virtually anywhere!



Examples of Applications

Basically, you can impregnate all porous components, no matter if they are machined or unmachined, have fine or gross porosity, as long as they do not have blowholes or cracks.

The areas of application range from simple **grey cast iron housings** to finished machined complex **die-cast parts** made of **light metal alloys**.

Pipe fittings made of non-ferrous metal or stainless steel are also impregnated in large batches.

The range goes from small parts that weigh only a few grams to parts weighing several hundred kilograms.

Plastic parts with metal inserts are impregnated to seal the gap resulting from different shrinkage factors and assembly methods.

Sintered parts made from many different materials do not have any homogeneous structure and therefore are sealed if the application requires. Even briquette and ceramic parts are sealed by us.

Galvanisation of porous parts will often come with problems from blooming or air inclusion. These defects can be prevented if the pores are closed by impregnation before galvanisation. Impregnation is also required for pre-treatment to achieve a better result in galvanic processing of sintered parts.

Special Sealants

IM3000 / IM4500r

Our impregnation sealants IM3000 and IM4500r are suitable for sealing fine and medium porosity in many different materials.

The sealants consist of cross-linking mono- and poly-functional acrylates and methacrylates. They do not contain any halogen compounds and are PCB- and solvent-free.

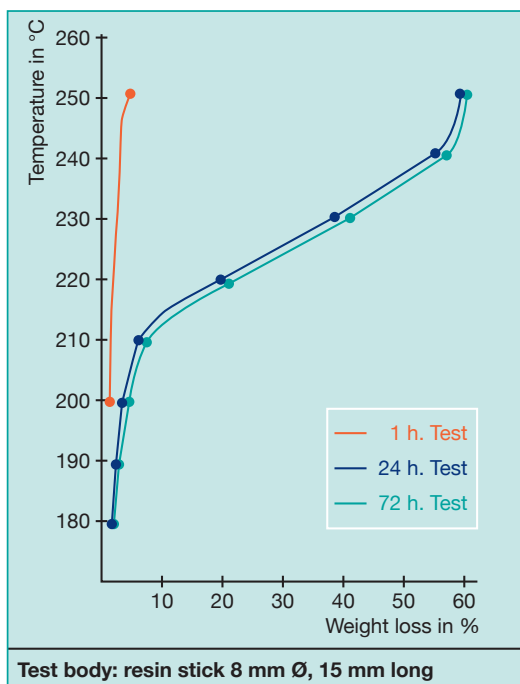
IM3000 and IM4500r can be washed off easily; even complicated shaped and completely machined work pieces will not require any rework.

IM4500r can be recycled from the cold wash water of the impregnation system. The recycling process is simple and requires minimal control. IM4500r has good tolerance of normal impregnation system contamination.

Physical data of liquid sealants

	IM3000	IM4500r
Density (20°C)	1,04 g/ml	0,94 g/ml
Viscosity (20°C) Frikmar Cup No. 3	27 s	22 s
Vapour pressure	<15 Pa	
Appearance	yellow clear (also fluorescent on request)	
Smell	weakly ester-like	

Temperature resistance of IM3000



IM3000 and IM4500r are characterised by extreme heat resistance. In permanent temperature exposure, this ranges from -110 °C to + 200 °C.

Impregnated work pieces can be subjected to the same pressure as tightly-cast parts. The chemical resistance to petrol, oils, hydraulic liquids, anti-freeze, gases and hydrous acids is good to very good.

Approvals and expertises

Suitability of IM3000 and IM4500r as sealants for cast impregnation is confirmed by international approvals and certificates by the following test institutions:

- GWI Gaswärmeinstitut e.V., Essen (IM3000)
- Hygiene-Institut des Ruhrgebiets, Gelsenkirchen
"KTW test certificate"
- Lloyd's Register of Shipping, London
- Department of the Navy, Washington D.C.
MIL-I-17563 B und MIL-I-17563-D (IM3000)
- Approvals of the automotive industry



Maldaner GmbH

Max-Planck-Ring 3
40764 Langenfeld
Germany

Tel.: +49 21 73 9 84 99 0

Fax: +49 21 73 7 40 12

E-Mail: mail@maldaner.de

Internet: www.maldaner.de