

5

Industrial Polishing

FACTS

to Boost Cost-Effectiveness

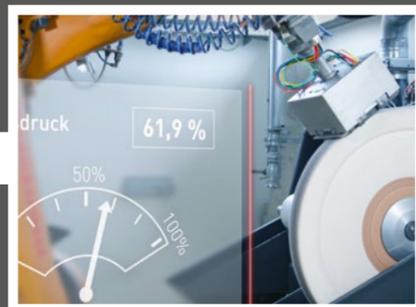
1

To save money, you have to consider the **ENTIRE** polishing process.

The Menzerna concept: "process partnership"

Menzerna helps companies develop the perfect polishing process. Together, we will improve your quality and productivity, achieving measurable results. The key to success? Understanding all aspects of the process. The road to improved quality and lower costs starts with data analysis and also includes process/formula development as well as waste management.

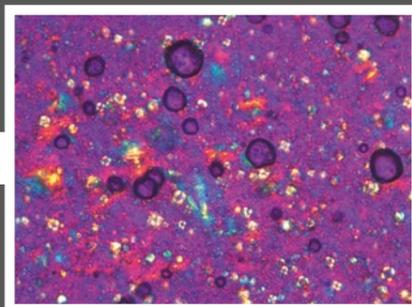
Application technology



The **Menzerna fingerprint process** enables precise performance comparisons of polishing methods.

At the **Menzerna technical center**, we will recreate your processes. One to one. This allows us to identify the best and most cost-effective process.

Measuring equipment



Cutting-edge measuring equipment supplies data for the evaluation and improvement of polishing processes.

Are you sure that your grinding and polishing processes really are cost-effective? **Menzerna will provide you with profound measurement data** on your application and will indicate starting points for measures to boost productivity.

Compounds



Formulas developed for **top performance** ensure consistently excellent polishing results.

High-performance compounds and emulsions cover the full spectrum of industrial applications. Thanks to certified production of large batches, we can reliably supply major customers around the world.



Service



We are here to help and will see your process through to its successful implementation.

Menzerna technicians are there when you need them. Drawing on their experience and specialist knowledge, they will ensure a perfect fit between processes and products.

2

Polishing processes are complex. **UNDERSTANDING** them puts you one step ahead.

01



Expertise gets to the facts!
By virtue of our many years of consultancy expertise, we have developed a precise understanding of the interdependent factors in automated polishing processes. Unique testing and analysis methods have arisen over thousands of hours spent at the technical center. Having Menzerna as a process partner means benefiting from this specialist knowledge.

Choosing the right process inputs saves money.

Menzerna will identify, test, and recommend the right inputs for your process (abrasives, polishing rings, and compounds). As a result, **you cut costs** while achieving the best possible finish for your application.

02



The greatest potential lies in the process.

We will help your experts **calibrate your systems just right**. Downforce, application quantities, and many other factors play a decisive role in the quality and cycle times of grinding and polishing processes. Thanks to cutting-edge measurement and visualization technology, it is possible to give feasible recommendations that, for instance, reduce the reject rate and lower the amount of manual follow-up work.

The Menzerna fingerprint process clearly illustrates differences in the performance of polishing tools and processes. In turn, this provides a solid basis for taking the right decisions.

03



Anyone who speeds up their processes while boosting quality is one step ahead.

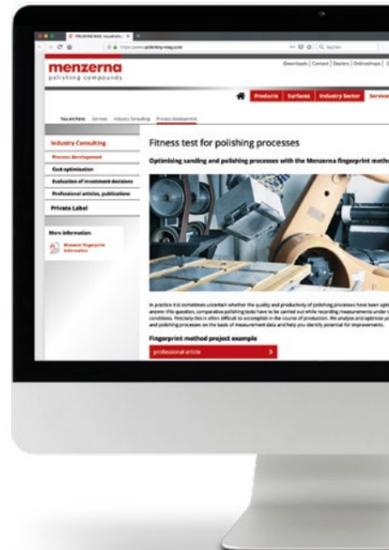
For the first time, Menzerna has managed to profile polishing processes in terms of cut and **surface quality** (shine). In other words, figures can be used to indicate how a desired surface quality can be achieved at maximum cut per unit of time, i.e. productivity increases can be measured directly.

04

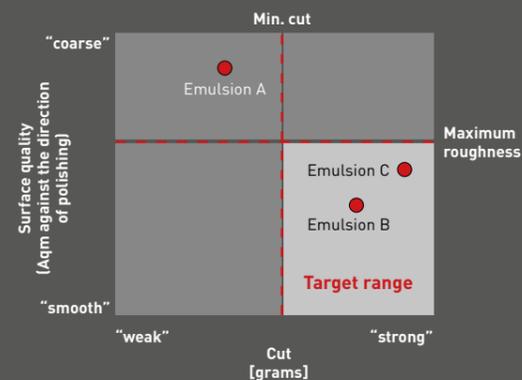


Waste-optimized polishing is good for the planet.

Polishing waste is bad for the environment. It's difficult – and increasingly expensive – to dispose of. Therefore, anyone looking to **optimize polishing processes** has to give some thought to the amount of waste generated. We determine the PW (polishing waste) index for each formula; this indicates the amount of waste produced by each compound. By choosing a Menzerna process or compound, you may also be choosing to help the environment.

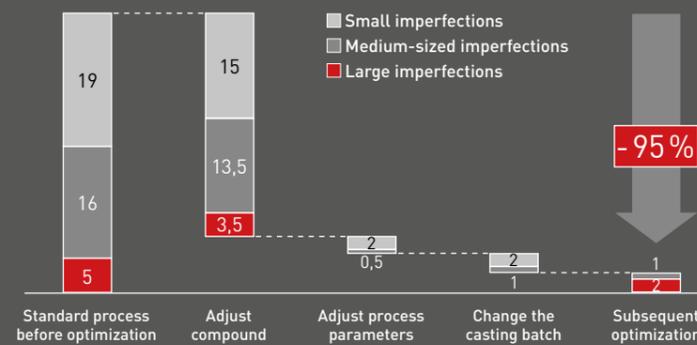


A comparison of the performance of polishing emulsions on aluminum using the Menzerna fingerprint process



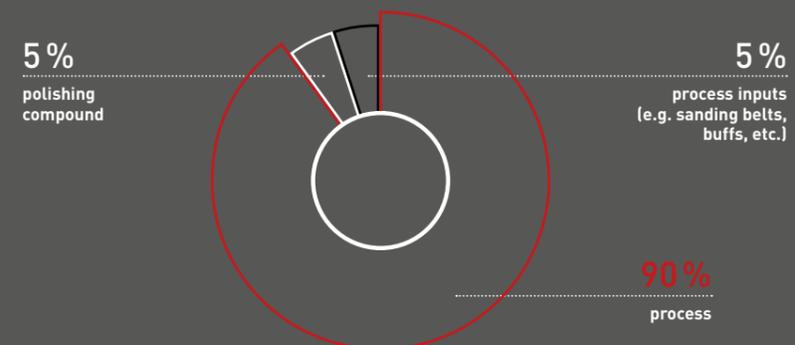
It is possible to pinpoint which polishing emulsion can achieve the desired surface result in the most cost-effective way.

Process analysis to eliminate imperfections on brass



Result: by gradually isolating parameters within the process analysis, imperfections (and therefore subsequent manual corrections) can be reduced by more than 90%.

Cost factors in the polishing process



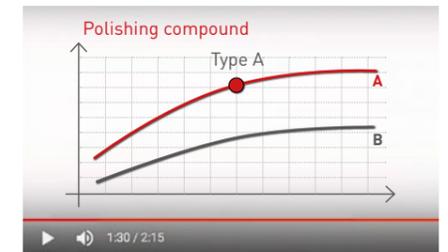
The process itself is the largest cost factor. That's why it also harbors the greatest potential savings.

3

DATA trumps gut instinct.



Full transparency: by collecting and precisely analyzing all key process data, we are able to identify potential improvements for quantifiable increases in efficiency and cost-effectiveness.



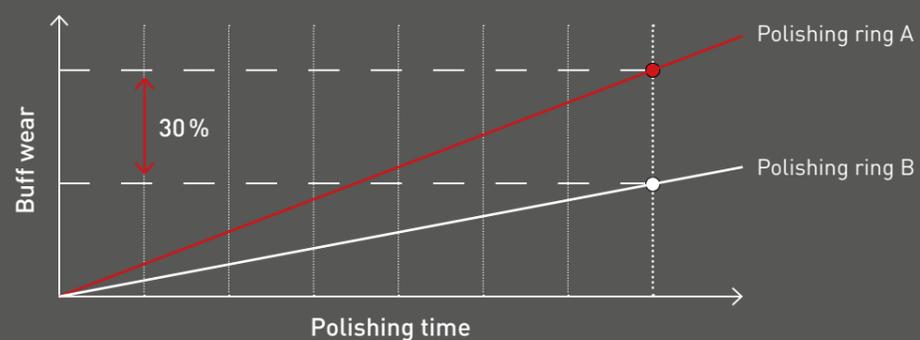
Process data

The **fingerprint process**, developed by Menzerna, is unparalleled on the market. It enables quantitative and cost-effective performance comparisons between polishing processes. The process parameters can be varied at random. The measuring technology used generates valid data; we can then use this data as a basis on which to make feasible recommendations for our customers.

Product data

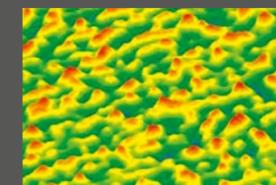
Are you sure that you're using the right polishing tools? Menzerna offers the certification of polishing tools on the basis of **transparent performance comparisons**. As such, we make it easier for you to choose suppliers and spare you the need for lengthy testing. You gain reliable information about service lives and the suitability of different polishing tools for your application.

Service life analysis of different polishing rings

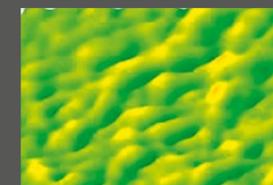


> Polishing ring B has a 30% longer service life than polishing ring A.

The topography of an aluminum surface, measured using scattered light



unpolished surface



half-polished surface

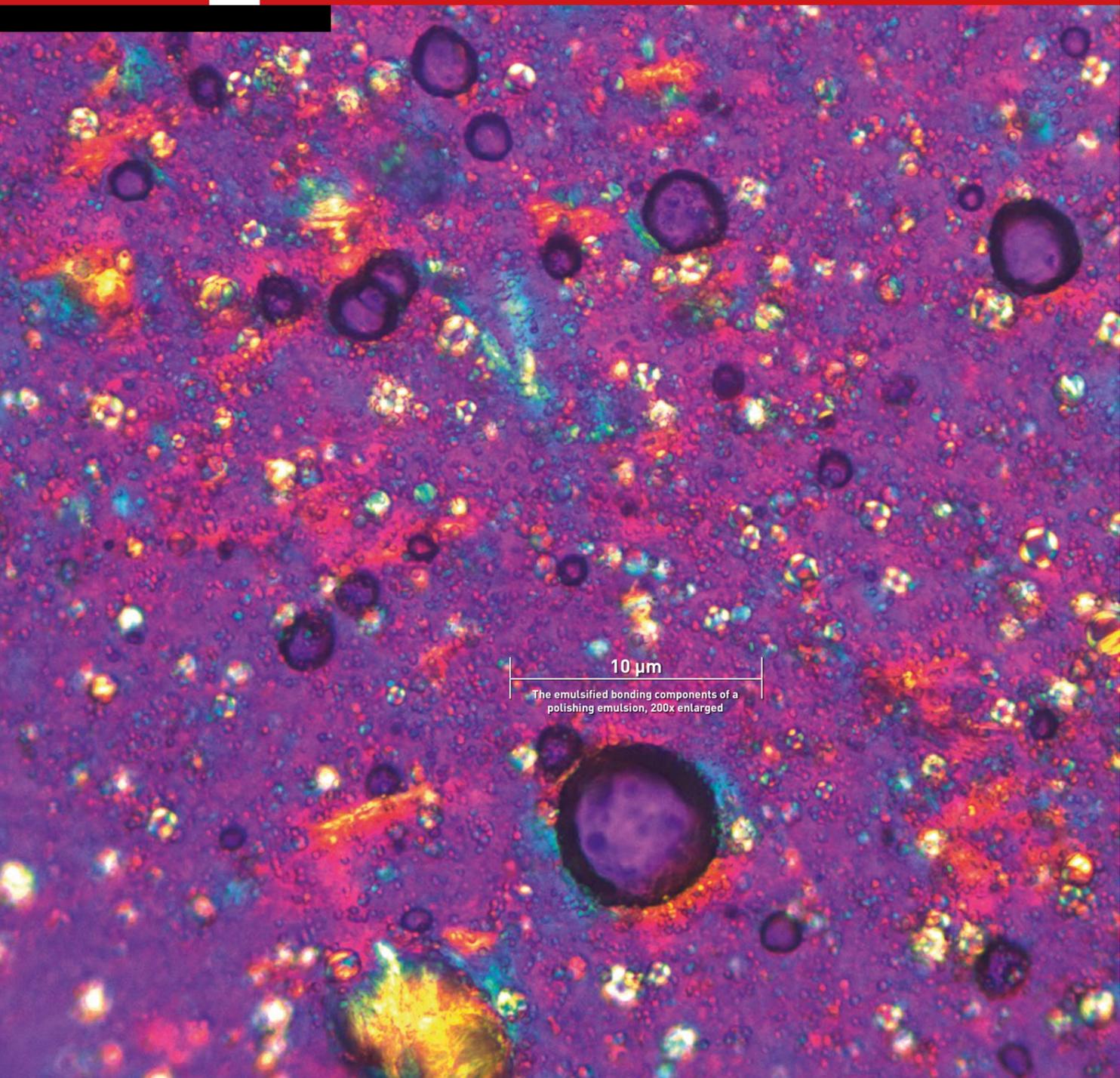


fully polished surface

> Polishing results can be subjectively analyzed using 3D visualizations.

4

MEASURING EQUIPMENT is essential.



Cutting-edge measuring equipment is the only way to get data. The polishing systems at the Menzerna technical center are equipped with sensors that measure all key operating data, including downforce, application quantity, temperature, rotational speed, cut, shine, and cycle time. The data collected is then analyzed and interpreted using tools and methods developed by us.

Leadership qualities: thanks to innovative methods, state-of-the-art equipment, and high-performance large-batch production, Menzerna is the preferred development and production partner for perfect polishing processes.

Measuring shine and roughness

Surfaces can be accurately measured using **scattered-light technology**, with changes in the polishing method immediately visible. Quantitative measurements and **visual representations of the surface** enable objective evaluation of the polishing result.



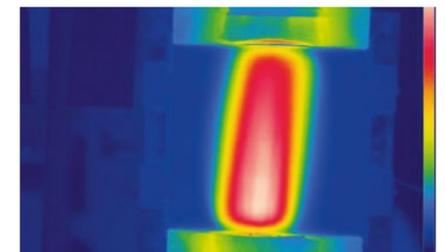
Scattered-light measurement device to determine surface quality

Precision weighing technology to determine cut

The cut of a compound or a method can only be ascertained by **precisely weighing** the workpiece. To this end, we use **precision scales** that can identify differences in weight of thousandths of a gram, even with heavier workpieces.

Infrared cameras to measure workpiece temperature

In some polishing applications, the workpiece must not be heated above a certain level. We will monitor the **workpiece temperature** in real time during the polishing process and will adjust the system's settings to reflect the **temperature tolerance of the material**.



Thermogram of a sample plate used in the fingerprint process

Flow measurements

Congested nozzles on compound application systems impede the production process. The tendency of emulsions to cause blockages can be quickly and easily determined using **fluid mechanics testing**.



Rheological study of a polishing emulsion

Viscosity measurements

Emulsions require a certain level of viscosity. This is measured and adjusted at various points during manufacturing. But as viscosity can also be altered by the measurement process itself, **highly sensitive viscometers** are needed.

5

The **COMPOUND** has to be right.

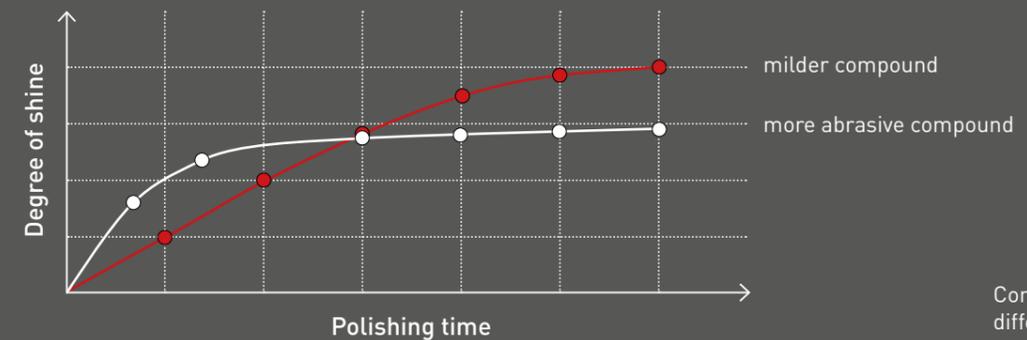


Whatever the application:

Menzerna offers a complete product portfolio of high-performance and innovative formulas for all industrial polishing requirements.

The performance of polishing emulsions can be precisely determined.

Measuring the increase in shine during the polishing process



Comparison of the effect of different polishing compounds



Solid polishing compounds and emulsions

For the cost-effective processing of all common materials. As part of our "process partnership" concept, we will tailor polishing compounds and methods to your individual application.



Menzerna Liquefaction Technology (MELT®)

This innovative, hot-melt process for the automated conveyance and application of solid compounds combines the benefits of polishing emulsions with those of solid compounds. The result: better surfaces achieved more quickly, with less waste as well as compounds with unlimited stability and shelf life.



Services

We know industrial polishing inside out. Thanks to specialist methods and modern analysis techniques, we get to the heart of every issue. As such, you benefit from maximum transparency and reliable decision-making bases that allow you to improve the quality, cost, and time situation during grinding and polishing.



Service

Our recommendations work in practice. We will therefore support you until the developed/optimized process is running smoothly in your production operations. Our expert application engineers are on hand to help in this regard – worldwide. ... and should any difficulties arise, **just give us a call.**

→ Link to the solid compounds video



→ Link to the industrial consultancy video



→ Menzerna customer service: +49-7222-915-70

Perfection in Polishing

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polishing compounds

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