

This newsletter appears several times a year, informing Menzerna customers about Menzerna projects and innovations.

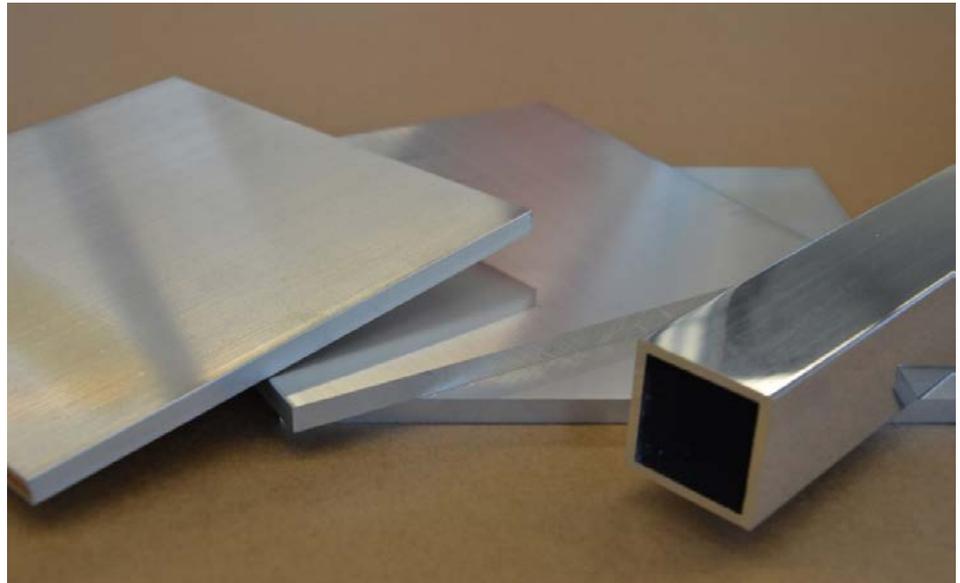
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Potential savings in aluminium polishing

Hardness of the aluminium affects the economic efficiency of the process . The relationship between the hardness of an aluminium alloy and the economic efficiency of the polishing process can be determined. Automobile manufacturers and their suppliers benefit equally from the results of this analysis. That is because it makes polishing processes calculable and potential savings visible.



The manufacturing process affects the hardness of aluminium profiles

Aluminium profiles for the automobile industry have different specifications and degrees of hardness. These are influenced by the temperature exposure during production. The raw material is cast and then shaped by extruding. In doing so, the material is pressed through a hollow die. The nature of the hardening process that follows determines the hardness of the material. Common elasticity limits (Rp02) of the alloy EN AW 6401 (Al 99.9 MgSi) are for instance sample 1 (30 N/mm²), sample 2 (100 N/mm²) and sample 3 (220 N/mm²).

Specification of the aluminium affects the economic efficiency of the process

Load-bearing aluminium components on motor vehicles or roof rails have higher strengths than, for example, non-load-bearing decorative trim.

Perfection in polishing. Made in Germany.

Since 1888 Menzerna develops and manufactures polishing compounds for industrial applications – and put the sparkle into the customers' polishing processes.

That affects the polishing process. This has been tested in test series using aluminium plates. In doing so it has been proven for the first time that a higher cut was achieved with lower tensile strengths. Accordingly results were obtained more quickly compared to harder grades of the same alloy. That has a significant influence on the polishing time and therefore on the cost of the polishing process.

The benefit for industrial enterprises: potential savings are revealed

Determining the dependency of the polishing performance on the aluminium hardness reveals the potential savings that can be realised by switching to an alternative specification. What's more, polishing pastes can be tailored even more precisely to the respective specification. That is because it is possible for the first time to precisely identify the different removal rates for sanding marks and "orange peel". What does that mean for industrial enterprises? They can optimise the efficiency of their polishing processes based on the new insights that have been gained. The result: improved economic efficiency for optimum surface quality.

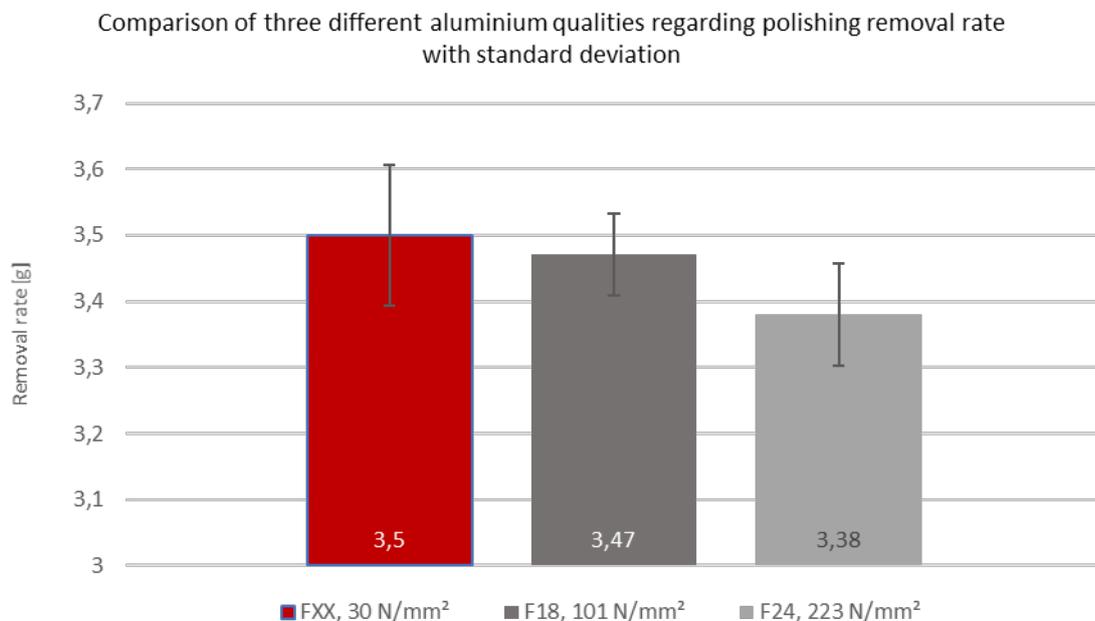


Figure 1: Comparison of three different aluminium qualities regarding polishing removal rate with standard deviation

Conclusion

The removal rate was determined for the first time in the course of polishing aluminium grades of the same alloy with different levels of hardness. This opens up new possibilities for industrial enterprises to improve the economic efficiency of their polishing processes. They can do so by switching to a grade of aluminium that is more favourable for the process, or by optimising the process parameter settings for the existing aluminium specification.

About the author

Menzerna improves the economic efficiency of industrial polishing processes with technical services. Within the Menzerna consulting offering, process optimisation for aluminium has focused on the process parameters to date. Now it is possible to also examine the material directly in order to identify potential savings. What's more, the insights about the polishing process with different versions of aluminium provide new impulses for formulation development. This reinforces the innovative orientation of the Menzerna aluminium polishing paste programme.