HOFFMANN MINERAL®

We supply material for good ideas

Natural fillers for modern coatings

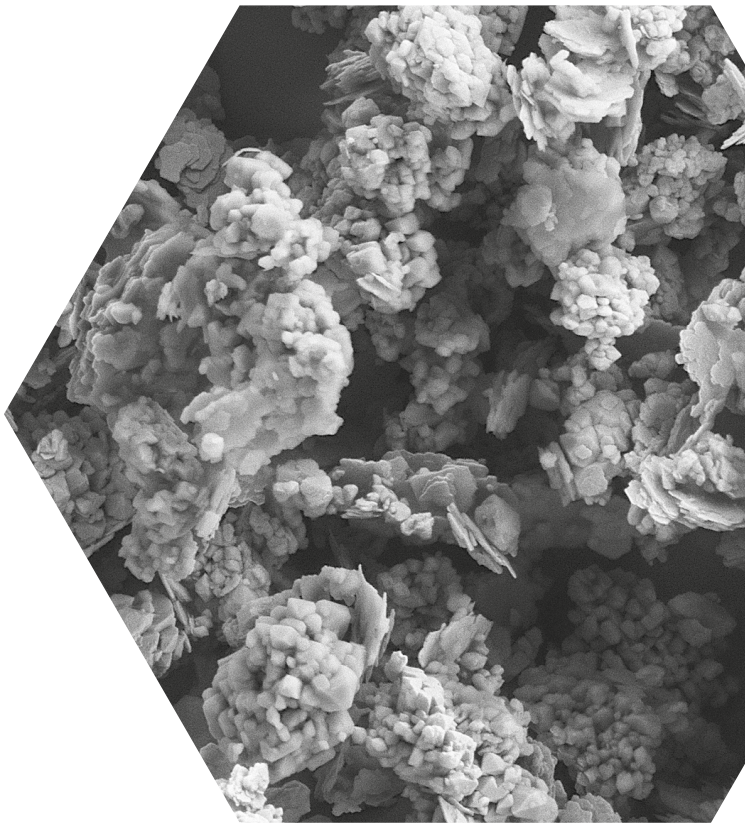
Functional
Sustainable
Made in Germany

www.hoffmann-mineral.com

CONTENT

Morphology of Neuburg Siliceous Earth

The company HOFFMANN MINERAL is located in South of Germany, in a little town called Neuburg an der Donau. Our raw material is called therefore Neuburg Siliceous Earth. It is a natural combination of corpuscular Neuburg Silica and lamellar kaolinite: a loose mixture impossible to separate by physical methods. As a result of natural aging, the silica portion exhibits a round grain shape and consists of aggregated primary particles of about 200 nm diameter. Such a unique structure is responsible for a relatively high specific surface area and oil absorption, which result, besides rheological activity, also in a whole range of application properties. This special mineral filler can be used in elastomers for the automotive sector, for construction or electrical industry, in thermoplastics as well as in adhesives, reactive resins and sealants. In paints and varnishes the functional filler can be used in metal as well as in wood or plastic coatings. It is suitable for water-based, solvent-based and transparent coatings and also for UV or excimer curing.

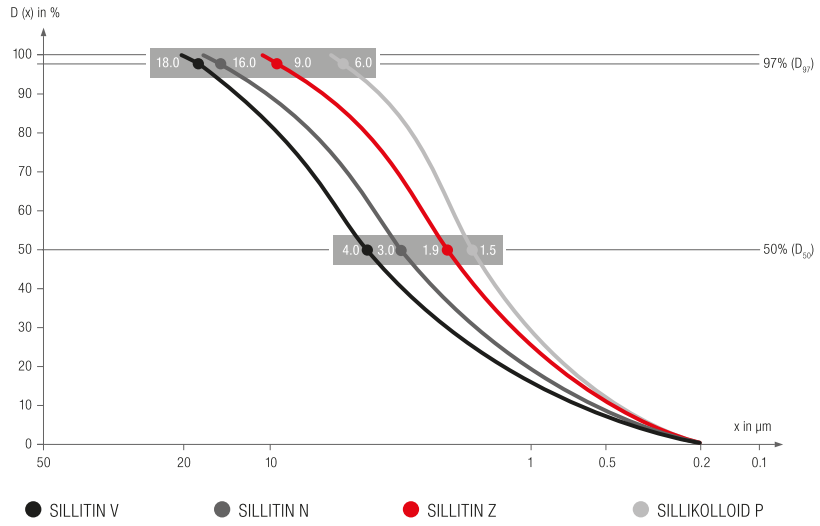


Sillitin®
aktiSil®
Silfit®
aktifit®
GLOXIL®

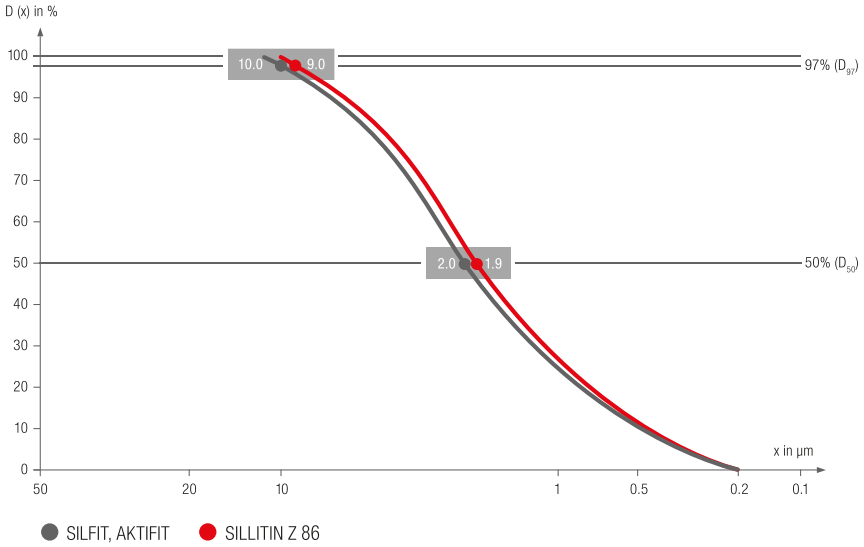
HOFFMANN MINERAL®

Particle size distribution

The most significant differentiating characteristics of Neuburg Siliceous Earth are particle size distribution and color neutrality. Our fillers are available in four different particle fractions, identified by the letters V, N, Z and P.

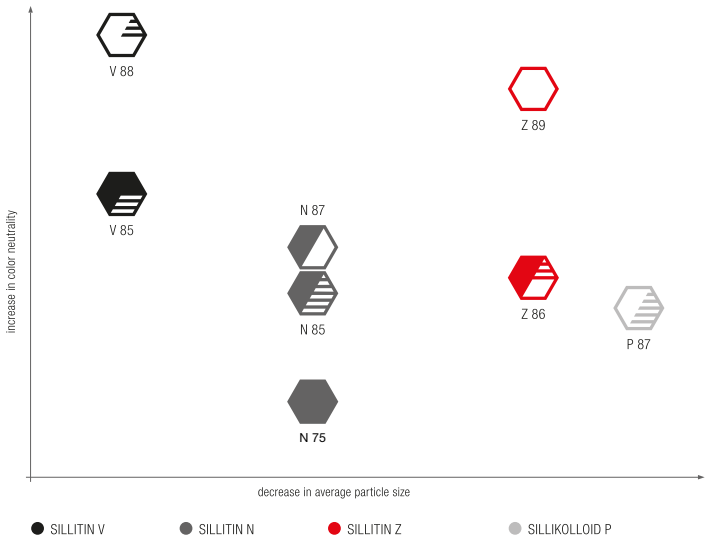


Our calcined products have a particle size close to that of the uncalcined basic material Sillitin Z 86.

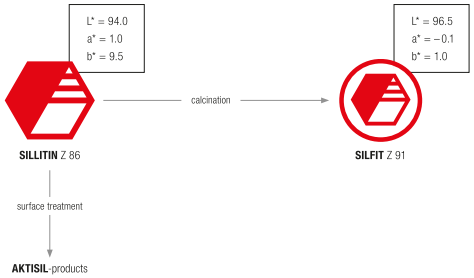


Color neutrality

In addition, Neuburg Siliceous Earth is available in different shades and colors ranging from yellow to off-white to white depending on the particle size distribution. This color neutrality is qualitatively expressed as numbers.



With regard to the CIELAB Color Values L*, a* and in particular b*, the calcined product Silfit is significantly brighter and more color neutral than the basic material Sillitin.

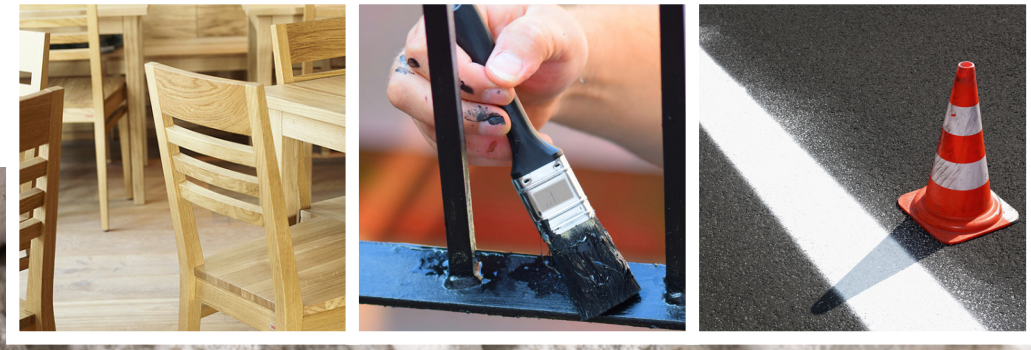


Surface-treated products

Our special fillers Aktisil and Aktifit are made by treating the surface of Neuburg Siliceous Earth with additives.

We have the solution for your application

Our functional fillers stand out for their versatility and are suitable for a wide range of applications. In our whitepaper, we exemplify various use cases where our fillers demonstrate outstanding performance. In each case, our products significantly outperform comparable competitive products. The exceptional properties of our fillers, combined with their adaptability to diverse requirements, make them a top choice for innovative and efficient solutions in numerous coating applications.

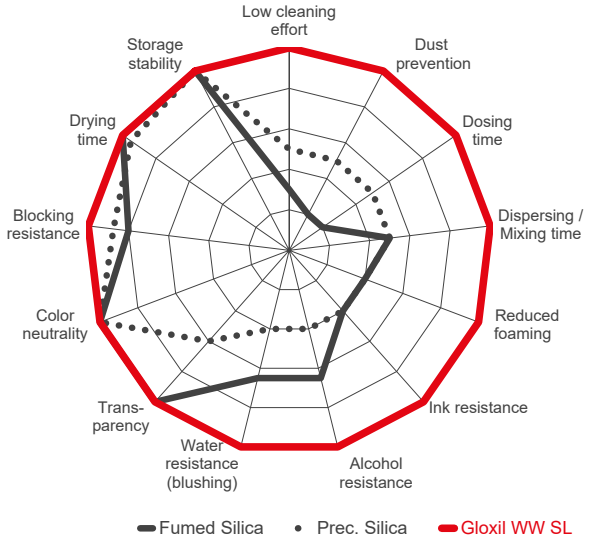


GLOXIL WW SL

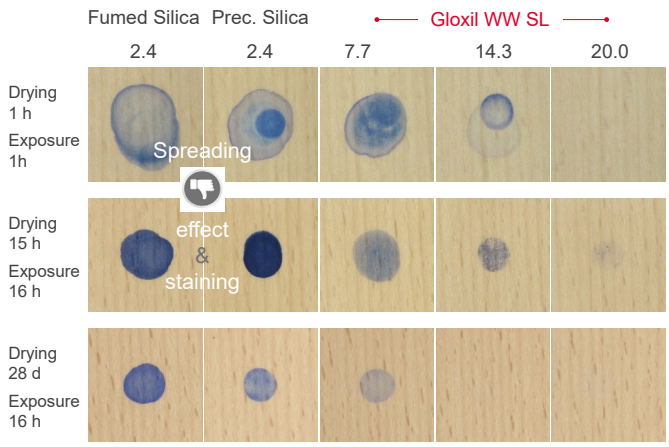
Clear wood coatings

- Aqueous slurry, easy to handling, no dust formation
- Good wood grain enhancement
- Matting effect, subsequent dosage possible
- Excellent early water and stain resistance

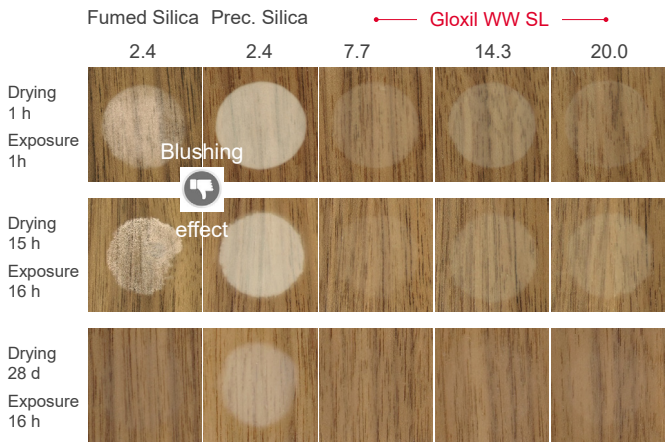
For example:
Water-based clear coats (i. e. for wood acrylic emulsion)



Ink resistance



Water resistance

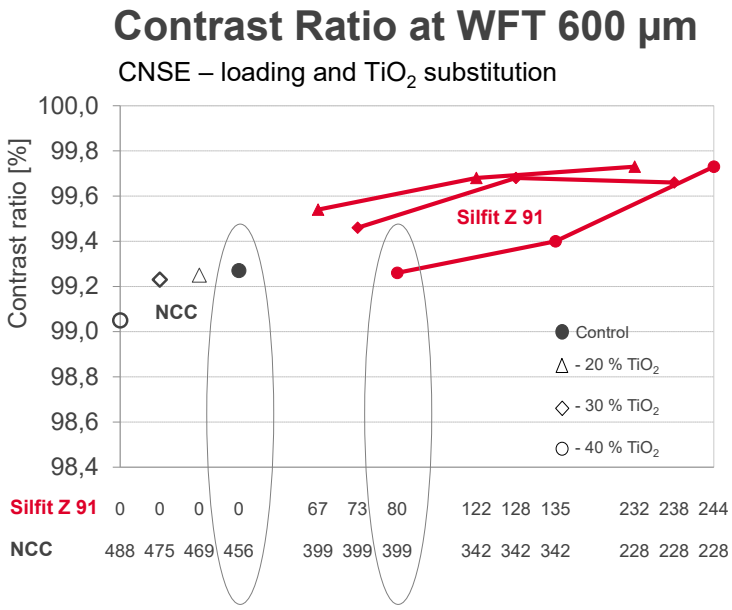


HOFFMANN MINERAL

Better hiding power

- Outstanding high degree of brightness and color neutrality
- Partial replacement of titanium dioxide
- For all kind of industrial and decorative paints
- For water-based and solvent-based systems

For example:
Road marking paint (white, water-based, WFT < 600µm)



This figure shows the contrast ratio at a wet film thickness of 600 µm (corresponding to 250-270 µm dry film thickness). For the formulations only filled with calcium carbonate, the hiding power becomes poorer with increasing titanium dioxide replacement. With Silfit Z 91, the hiding power remains at a high level. The more Silfit Z 91 is used and calcium carbonate is reduced, the better the hiding power becomes. Even with a 40 % reduction of titanium dioxide, the hiding power is at least as high as with the reference formulation with full titanium dioxide content (see the grey-circled points in above figure).

SILLITIN V 88 **AKTISIL** MAM

Matting/transparency and improved abrasion resistance

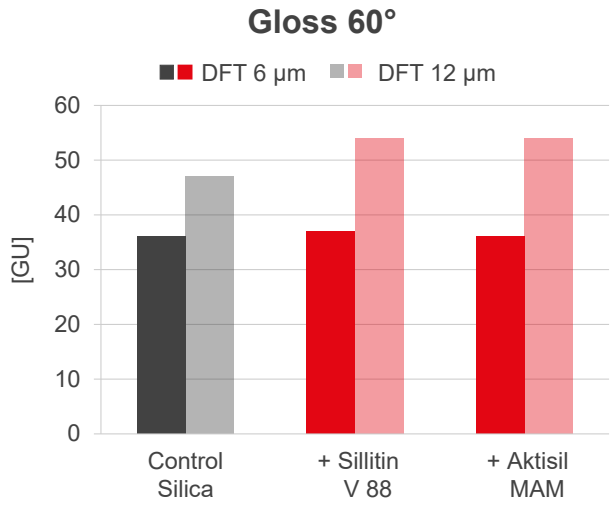
SILLITIN V 88:

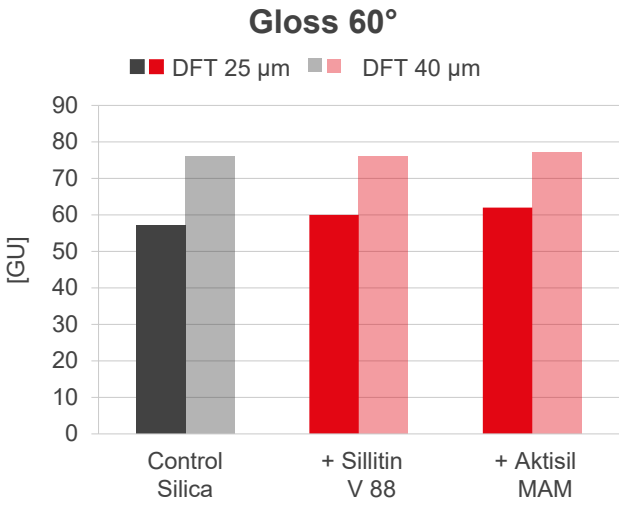
- Easy dosing and incorporation
- Matting effect along with homogeneous surfaces
- Good transparency in UV systems/clear coatings

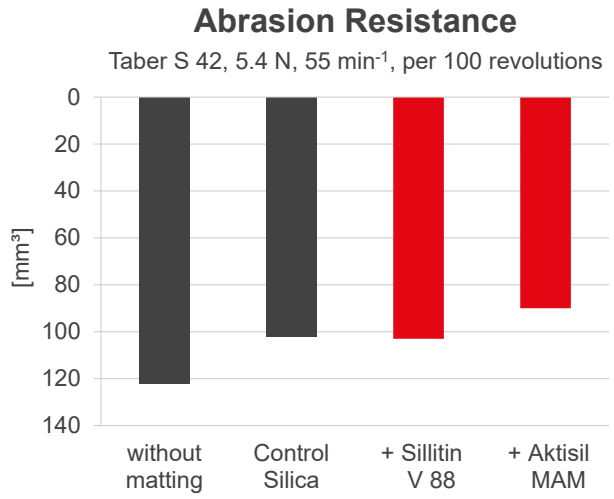
AKTISIL MAM:

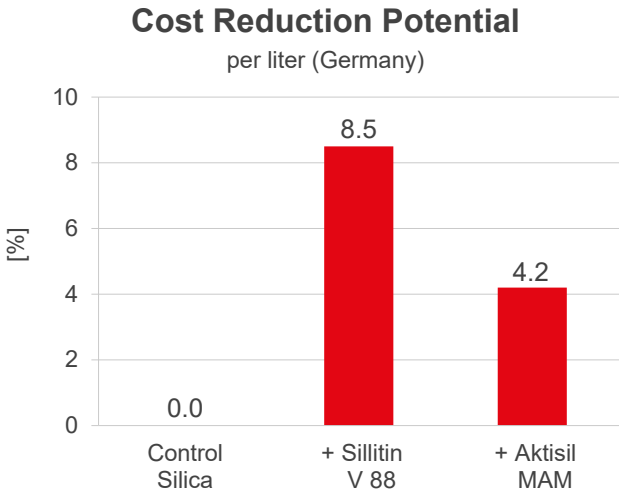
- Property profile of Sillitin V 88
- In addition methacrylic-functionalized
- Clearly improved abrasion resistance
- i. a. for UV systems and interior dispersion paints

For example:
UV clear varnish topcoat matt







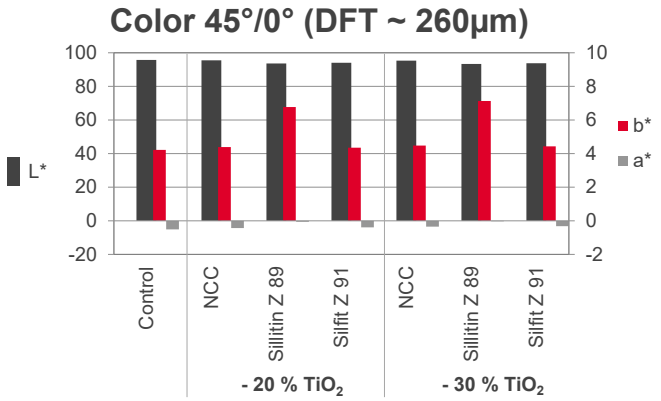


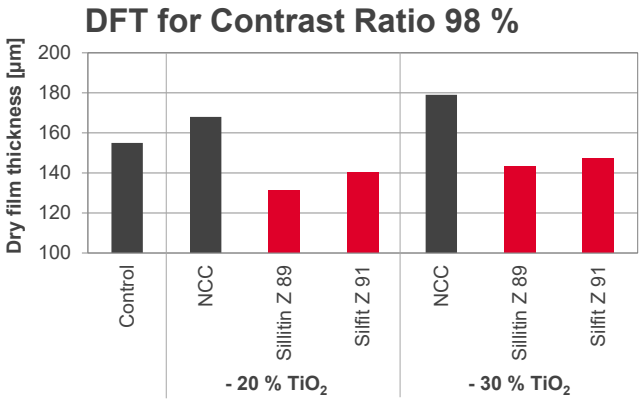
SILLITIN Z 89

Water-based, solvent-based and 100 % systems

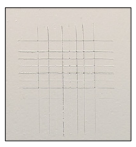
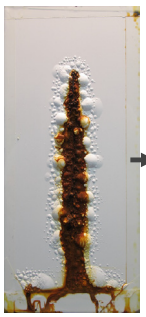
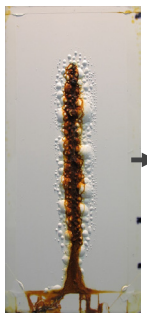
- Special color neutrality
- i. a. for metal and decorative paints
- Good gloss due to fine particle size distribution
- For water-based and solvent-based systems

For example:
Road marking paint (white, water-based, WFT < 300µm)





For example:
Corrosion protection (water-based, acrylate single-layer white)

	Calcium Carbonate		Sillitin Z 89	
Humidity test 1000 h	 cross-cut: GT 1-2 (24 h)	 stripped, incipient under-film corrosion	 cross-cut: GT 0-1 (24 h)	 stripped
Salt spray test 1000 h				
	delamination: 26.3 mm rust creep: 1.4 mm		delamination: 17.9 mm rust creep: 0.7 mm	

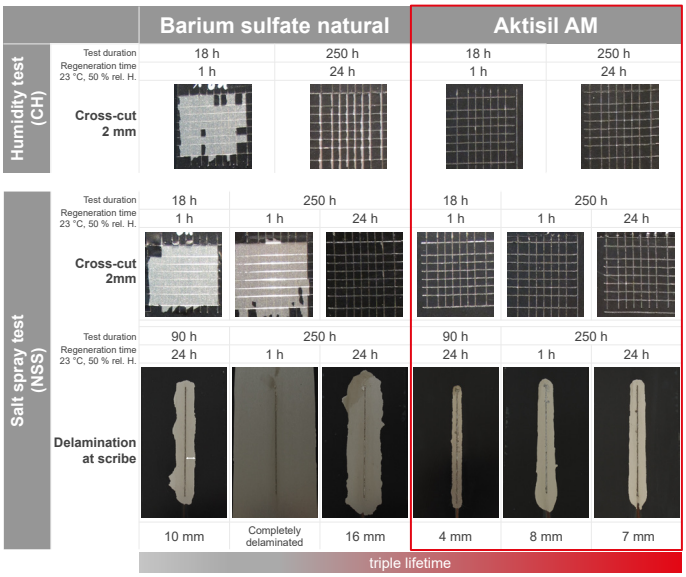
Cold rolled steel Q-Panel R 48, spray application, total dry film thickness 70 µm as single-layer, drying 28 d 23 °C / 50 % RH

AKTISIL AM

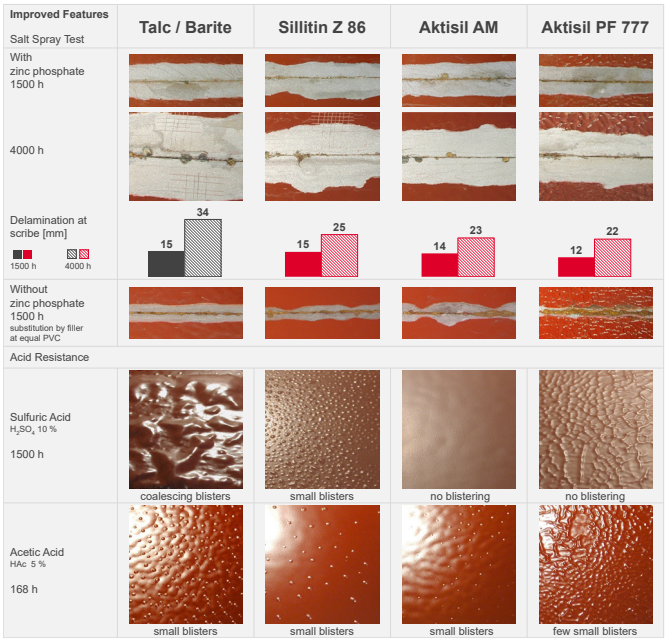
Long-term corrosion protection

- Amino-functionalized
- Improved adhesion
- Very good corrosion protection
- Excellent stone-chipping resistance

For example:
Corrosion protection DTM (water-based, acrylate single-layer black)



For example:
Corrosion protection (solvent-based, 2K epoxy, red)



HOFFMANN MINERAL

Life cycle assessment

Life Cycle Assessment
Regular Surveillance
TÜVRheinland CERTIFIED
www.tuv.com
ID 0000084978

HOFFMANN MINERAL sees environmental protection not only as a matter of law and regulations, but considers itself responsible for achieving continuous improvements on its own initiative. Through measures such as production processes with low emissions and cleaning of unavoidable exhaust air streams, minimization of waste and wastewater volumes as well as an economical use of raw materials and energy, we try to keep the environmental impact as low as possible.
In order to further promote the topic of sustainability, HOFFMANN MINERAL has therefore obtained life cycle assessments by TÜV Rheinland in accordance with ISO standards 14040:2021 and 14044:2021. This helps to balance the environmental impact of a product and shows where energy and emissions can be further optimized.
The LCA for our products provides a detailed and granular overview of each phase of its life cycle in terms of energy use and emissions, and shows how much energy is consumed in total for individual production steps and packaging.
By obtaining its LCA, HOFFMANN MINERAL can also support customers in their sustainability analyses - a great added value for all parties involved and a lever to effectively improve energy-intensive processes and resource consumption throughout the entire supply chain. This also takes into account the fulfilment of global regulatory requirements worldwide and the growing demand for sustainable and optimized products.

Responsible mining

Even when the extraction of Neuburg Siliceous Earth is particularly environmentally friendly, it always constitutes an encroachment on the environment. For several decades now, HOFFMANN MINERAL has planned the subsequent reintegration of a new mine into the respective ecosystem before it is put into operation, to minimize detrimental effects. In cooperation with the mining authority, forest rangers, nature conservation officers and owners, economic interests are reconciled with ecological requirements. For all layers, only natural materials are used for backfilling. The precious humus is put aside separately during excavation so that it can be used later for recultivation.

A new chance for the environment

With a passionate commitment and the use of considerable funds, completely new biotopes are being created. Here we use a concept combining recultivation and renaturation measures. Recultivation describes the restoration of a cultivated landscape after the extraction of raw materials. Renaturation calls for a natural landscape in its original sense, as it existed before human intervention. For this purpose, we leave the individual areas to be colonised by nature, on its own. This creates not only forests and useful agricultural land, but also habitats and retreats for rare animal species and plants. A new chance for the diversity found in nature!

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