

Quality has many faces.

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The Company:
From an idea to an
international firm.

"I grew up with the company and with its staff. This gives me a sense of my roots and a feeling of familiarity. And I feel the same thing with the staff, especially those who have been there a long time. We show a lot of commitment to something as important as this."

Manfred Hoffmann jr.

Managing Director



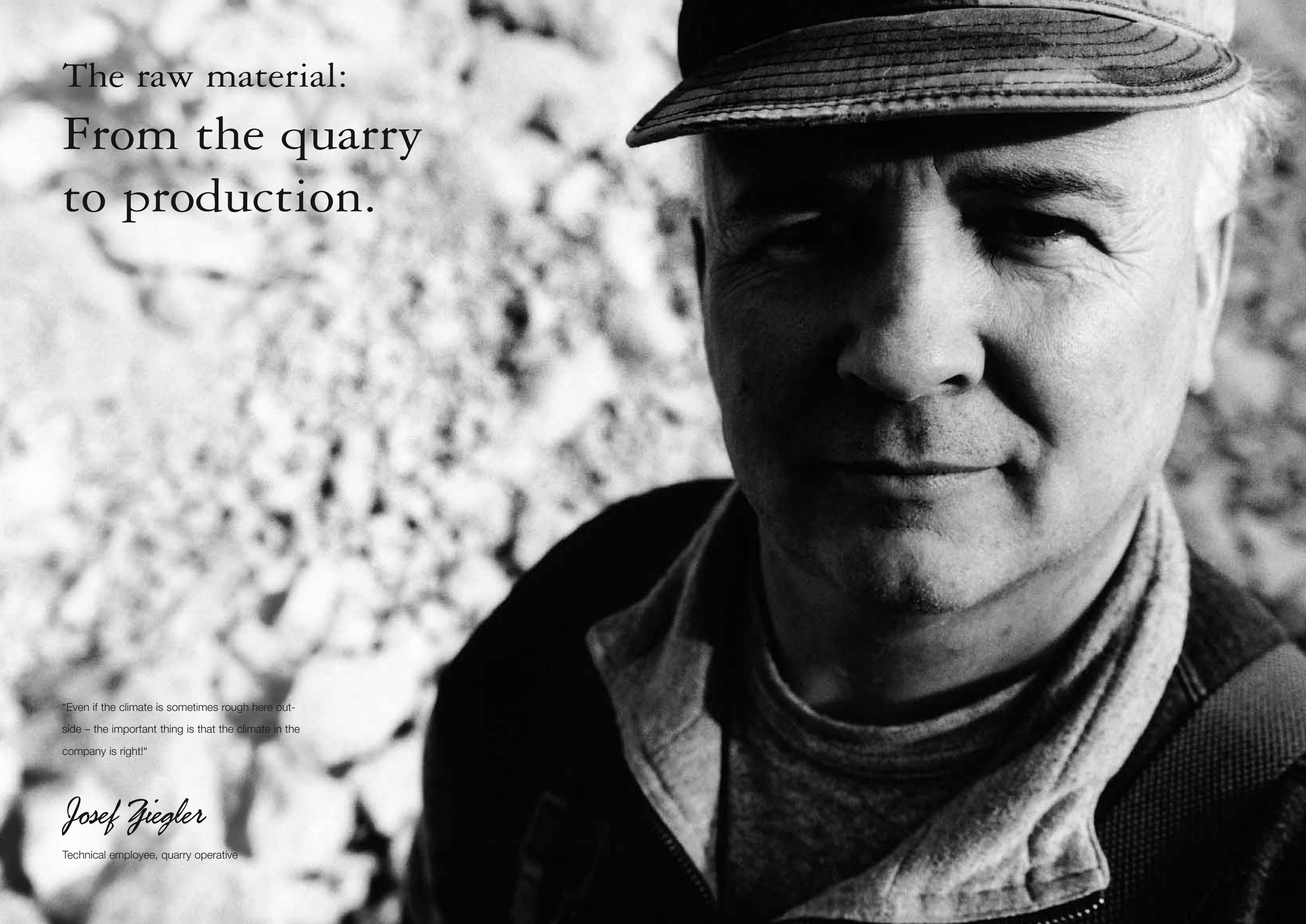
Today, HOFFMANN MINERAL is one of the most innovative suppliers of fillers in the market. Its affiliate, SONAX, is also a market leader in the car care sector. HOFFMANN MINERAL owes its gratitude for these successes not only to the Hoffmann family, but also to the many employees who work so hard for the company every day and are committed to maintaining the quality of Neuburg Siliceous Earth. And so the following pages are dedicated not only to a totally unique raw material, but also to a very special workforce.

Success runs in the family: HOFFMANN MINERAL.

The story of HOFFMANN MINERAL as a company is the story of people and of one family in particular. Back in 1903, the architect Franz Hoffmann starts to quarry Neuburg Siliceous Earth. In 1919, his sons Franz and Felix join the business and open up the way into the rubber industry for "Franz Hoffmann & Söhne". In 1950, Manfred Hoffmann – representing the third generation of the family – begins to share responsibility for the operation which is now producing over 4000 tons of Neuburg Siliceous Earth a year. In 1955, mining is also started. In 1963, the company takes the ecologically pioneering step of recultivating the first pit – long before the provisions of the law require it.

Finally, in 1984, Manfred Hoffmann jr. joins the firm. Over the next few years, the research laboratories for rubber technology and paints and varnishes are established, thus allowing completely new applications for Neuburg Siliceous Earth to be developed specially for customers. New electronic process control systems mean that both tighter tolerances and higher quality standards are possible, and the company is certified according to ISO 9001:2000 in 1993. In the years that follow, production is systematically modernized and rationalized. A new packaging system and the expansion of the dryer units set innovative standards. With its internet presence HOFFMANN MINERAL offers a special client service for both existing and new customers.





The raw material:
From the quarry
to production.

"Even if the climate is sometimes rough here outside – the important thing is that the climate in the company is right!"

Josef Ziegler

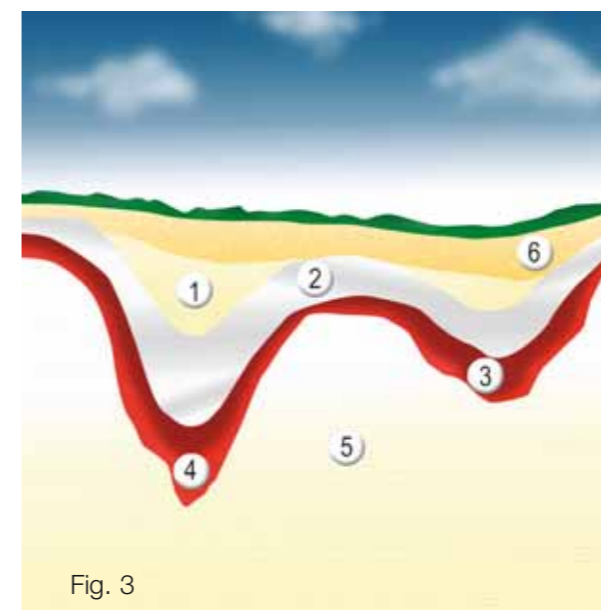
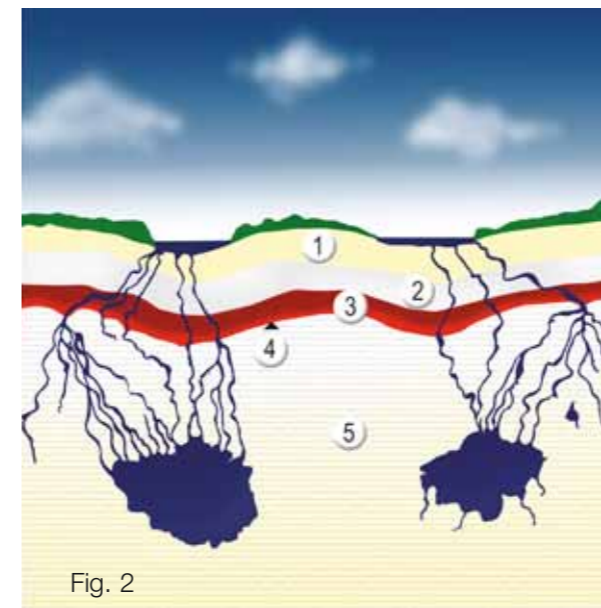
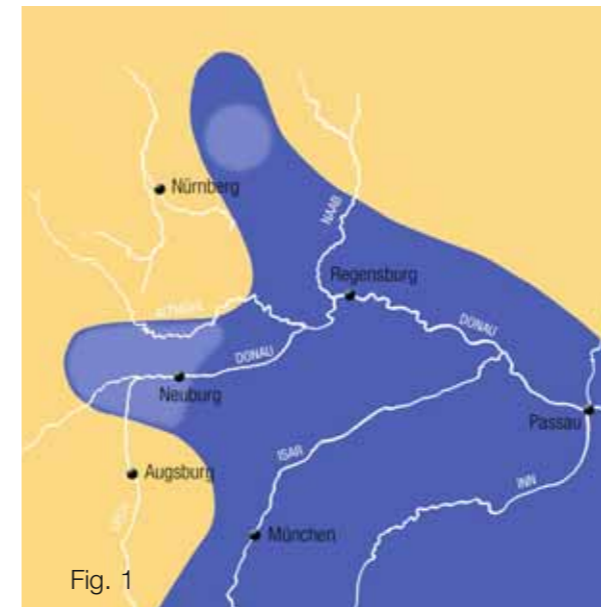
Technical employee, quarry operative



A good wine takes years to mature.
Our raw material takes 95 million.



Neuburg Siliceous Earth is a raw material with a history – one that started 95 million years ago! At that time, large parts of South Germany were covered by the sea, and in a bay within what is now Bavaria, the various strata of Neuburg Siliceous Earth were deposited on limestone sediment dating from the later Jurassic period (fig. 1). After the sea receded, the limestone strata collapsed, forming so-called karst funnels into which the siliceous earth fell and was preserved (fig. 2). This is where a raw material was created which – wherever you search for it on this earth – is totally unique (fig. 3).



- Stratum 1: Fine sand
- Stratum 2: Siliceous Earth
- Stratum 3: Coarse sand
- Stratum 4: Clay
- Stratum 5: Limestone
- Stratum 6: Overburden



If you take from nature, you must give something back.



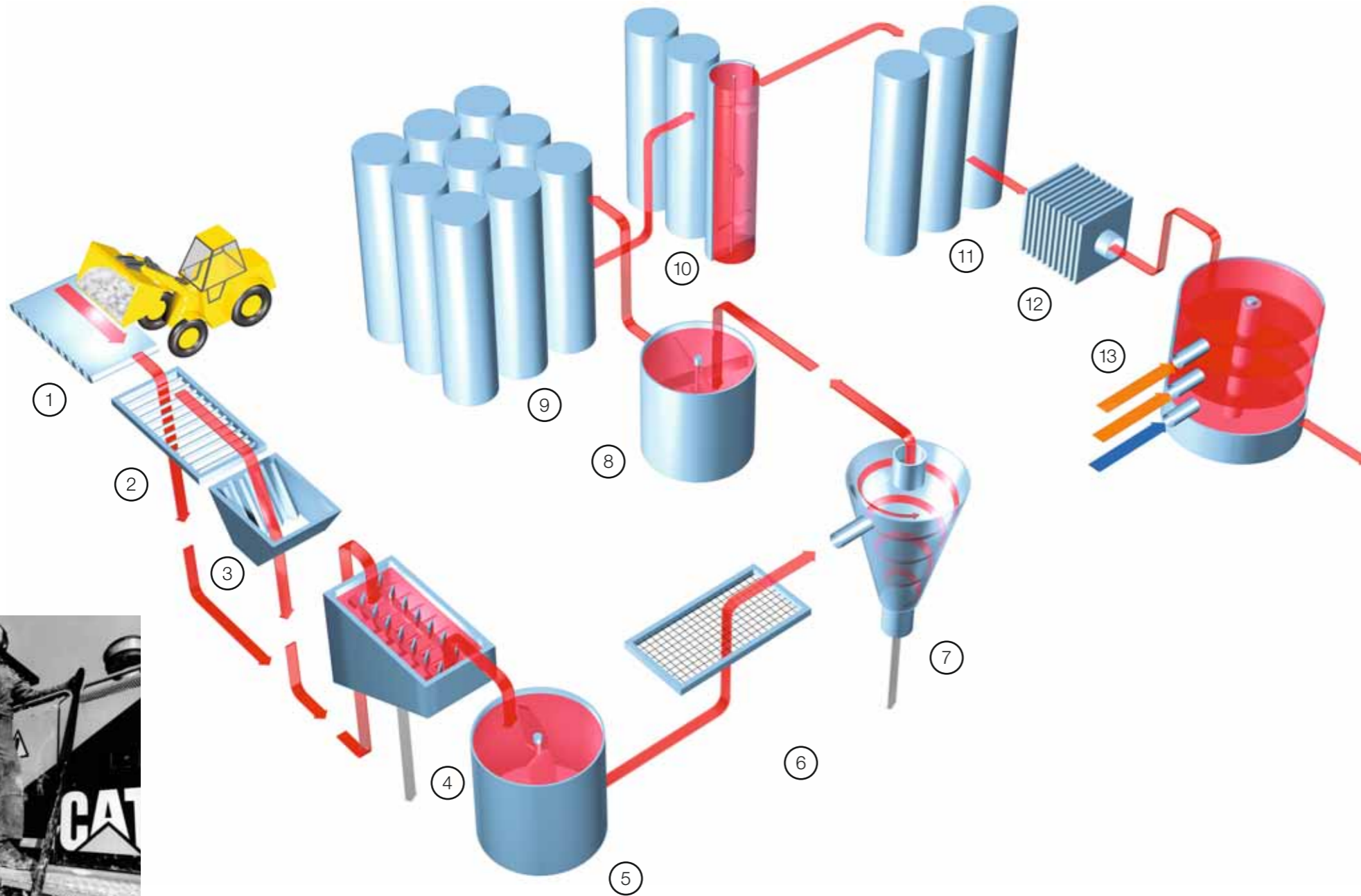
Even if Neuburg Siliceous Earth is extracted in a way that is as environmentally acceptable as possible, it is still interfering with nature. For this reason, many decades before the start-up of a new quarry, HOFFMANN MINERAL is already planning how it can be subsequently re-integrated into the relevant ecosystem. In collaboration with the Mining Office, foresters, nature protection officials and owners, both economic and ecological interests are harmonized. Only natural materials are used for back-filling all the strata. The precious top soil is stored separately when the initial excavation work is carried out so that it can be used again later for recultivation.

Giving nature a chance!

A good deal of hard work and considerable resources go into the creation of completely new biotopes, for example. A combined concept of recultivation and renaturation measures are applied. Recultivation is the term used to describe the restoring of a cultural landscape after raw materials have been extracted. Renaturing promotes a natural landscape in the original sense, as it was before humans intervened. Here, the individual areas are left to be taken over by nature on its own. This not only creates areas that can be used for forestry and agriculture, but also provides habitats and safe areas for rare species of animals and plants, providing new opportunities for the diversity of nature!



A separation process that only brings out the best!



Basically speaking, our entire production process is a process of separation – because only 30% of the raw earth extracted is usable fine product. A particularly gentle process separates the fine product from sand and quartzite. In the first step, the raw material is dispersed in water and the gravel fractions are separated out. The subsequent hydrocyclone plant separates out the sand portions and classifies the fine particles into different particle sizes. The slurry obtained is then concentrated and the water removed in filter presses. Finally, natural gas fired turbo-dryers remove the remaining moisture from the material. It is then pulverized and stored in intermediate silos as Sillitin or Sillikolloid.

- Stage 1–3: Supply of raw earth, separation of coarse material by vibrator screens and jaw breakers.
- Stage 4–6: Dispersion in water, separation of gravel fractions and conveying through feed tanks and screening units.
- Stage 7: Hydrocyclone unit: separation of sand fractions and classification into different grain sizes.
- Stage 8–11: After concentration, the finished products are stored in the form of slurry; individual product types are blended.
- Stage 12–13: Removal of water in chamber filter presses; elimination of residual water in turbo-dryers.





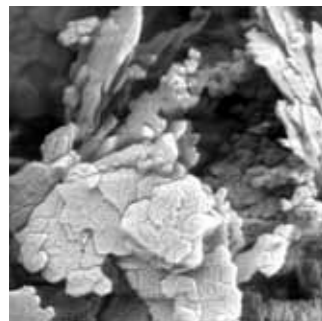
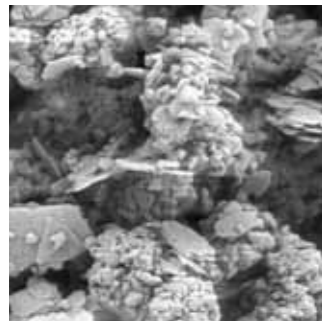
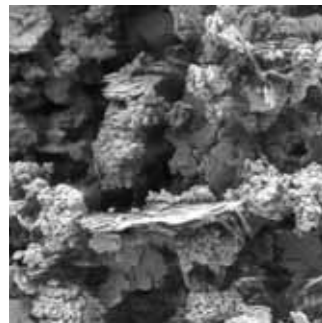
The products:
From Sillitin to Aktisil.

"I can see the end results of my work everywhere:
the brilliant color of a car, a tanker that doesn't
rust anymore. I have actually contributed something
everywhere."

Siegmond Hapetta

Technical Plant Controller

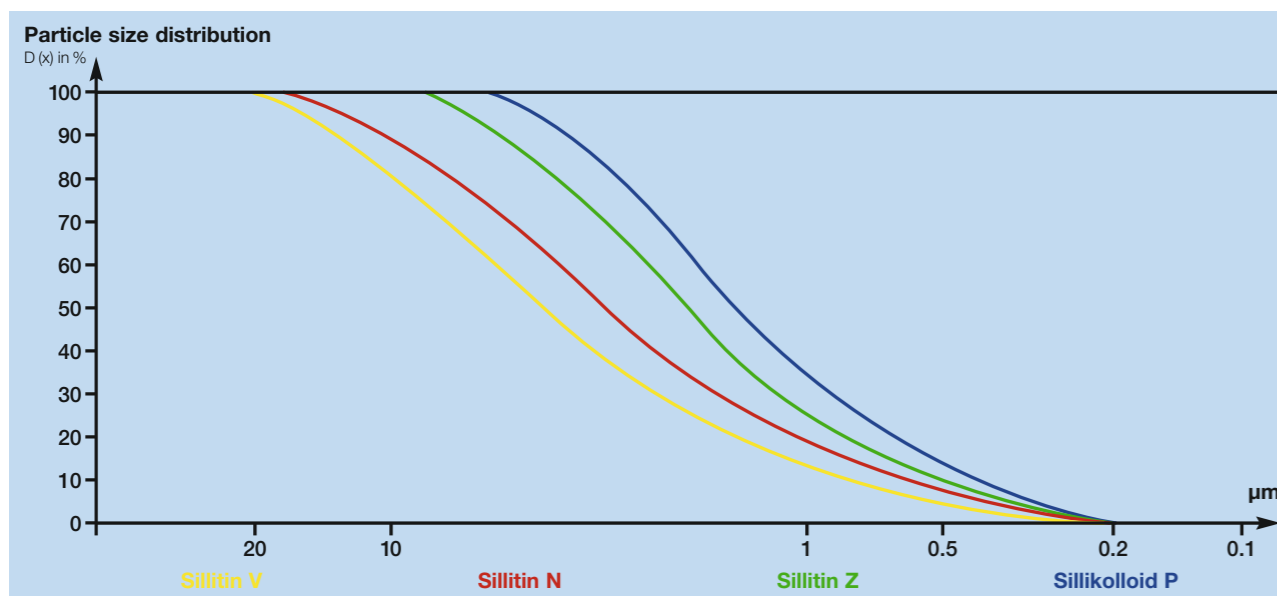
The basis of our success: Sillitin and Sillikolloid.



Classic Neuburg Siliceous Earth – also called Sillitin and Sillikolloid – is a natural combination of corpuscular, crypto-crystalline and amorphous 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 crypto-crystalline primary particles of about 200 nm diameter which are coated partially opal-like. 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 advantages.

Advantages at a glance

- Quick incorporation
- No filler agglomeration
- Minimal sedimentation
- Excellent dispersion
- High surface activity
- Excellent extrusion properties
- Low compression set in rubber goods
- Excellent scratch resistance in plastics, paints and varnishes



Examples of applications

In elastomers:

- for floor coverings and roofing sheets in the building industry
- in hoses, for example, in the automotive industry

In paints and varnishes:

- in electrophoretic paints

In polishes:

- in abrasive soaps and domestic cleaning products



Figure 1: Floor covering

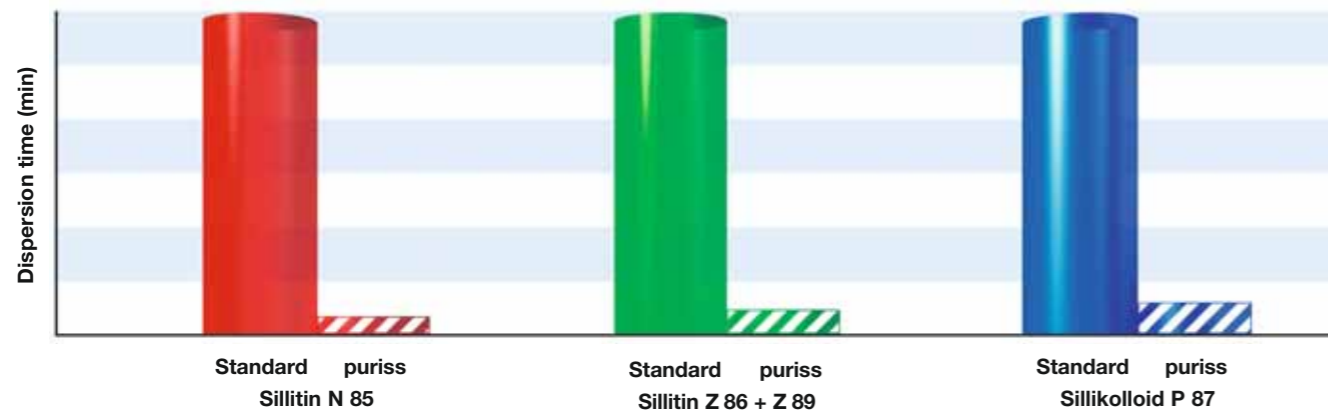
Figure 2: Roofing sheet

Figure 3: Cathodic deposition paint

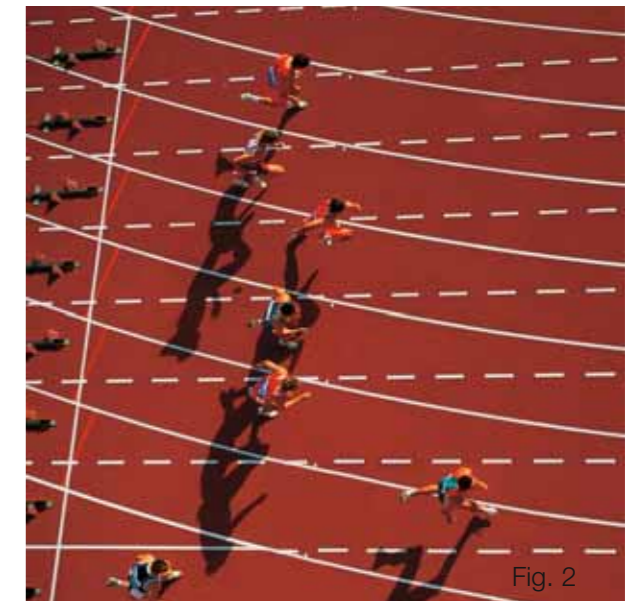
Figure 4: Abrasives

Our own special brand of purity law: puriss grades.

The puriss grades of Neuburg Siliceous Earth are even more fine than classic Sillitin. The grit portion (sieve residue) of these products – which is already very low – is further reduced in comparison with standard Sillitin. This reduces the abrasivity of this product range, thus protecting processing equipment, such as mixers, tools and nozzles for airless spraying. Dispersal behavior in low-viscosity systems is also considerably improved. These effects are achieved through a final process after actual production. Puriss grades are therefore ideal for the manufacture of thin-walled articles and all applications requiring an excellent surface quality, whether this is for paints and varnishes, elastomers or plastics.



It was soaked in ester plasticizer until no agglomerates >20 µm were found. The dispersion time defined in this way is a measure for assessing dispersion behaviour. The superb, fast dispersion of the puriss versions has a particularly marked effect with low gravities, such as those that occur in very soft mixtures containing a high level of softeners.



Examples of applications

In elastomers:

- in food contact materials and for pharmaceutical goods
- in machines and appliances, e.g. as a coating for rollers

In paints and varnishes:

- in softfeel plastic coatings
- in solder masks

In polishes:

- for car polishes

In adhesives and sealants:

- in sports coverings on racetracks



Figure 1: Softfeel lacquer

Figure 2: Racetrack

Figure 3: Pharmaceutical stoppers

Figure 4: Car polish

If you treat a filler well, it turns into something special: Aktisil.

Often, fillers have to meet very special requirements. Here, it is not only good dispersion characteristics that count, but also mechanical and dynamic properties. Improved electrical insulation resistance, better aging and fluid resistance in many materials and improved anti-corrosion properties have a crucial role to play in many areas. At HOFFMANN MINERAL, we developed Aktisil to meet these customer requirements. This special filler is made by treating the surface of Neuburg Siliceous Earth with chemical agents, especially silanes. The reaction products created during the manufacture of individual types of Aktisil are largely removed during the process itself. The coupling reaction fixes the silane to the surface of the filler. Any undesirable side-effects that can occur during in-situ mixing (direct addition of the silane) are virtually eliminated. So you, as a customer, can choose today from a complete product range of many different grades. This is the result of many years of in-house experience and of close cooperation with our customers. And this is expertise from which you can benefit!



Fig. 1



Fig. 2

Examples of applications

In elastomers:

- in cable sheaths and -insulations
- in car body seals

In paints and varnishes:

- as primer-surfacer and for anti-corrosive coatings

In plastics:

- in thermoplastics and friction linings



Fig. 3



Fig. 4

Figure 1: Co-extruded sealing profile

Figure 2: Polyamide wheel cap

Figure 3: Primer-surfacer (OEM)

Figure 4: Cable sheaths



We set standards – for our tailor-made work, too: toll manufacturing.

You've seen it yourself: we are the experts when it comes to the extraction, preparation and finishing of mineral raw materials. But this is not the end of our work by a long way! We provide our customers with in-depth advice when it comes to solving very specific raw material problems, because progressive product concepts make tough demands on the profiles of properties that inorganic raw materials have to provide today. We place the expertise gained from decades of experience at your disposal to help you solve application problems. In addition, we are happy to support you, as a toll manufacturer, to remove production bottlenecks by allowing you to use our own production systems. We guarantee continuous quality assurance, proper storage and prompt delivery! We already take on additional production processes regularly for our customers.

If you would like further information or wish to discuss your personal requirements, please contact our Technical Support Manager.





Logistics:
From the product
to the packaging.

"My job presents me with new challenges every day,
which I use as a chance to learn and develop."

Gerda Klarwein

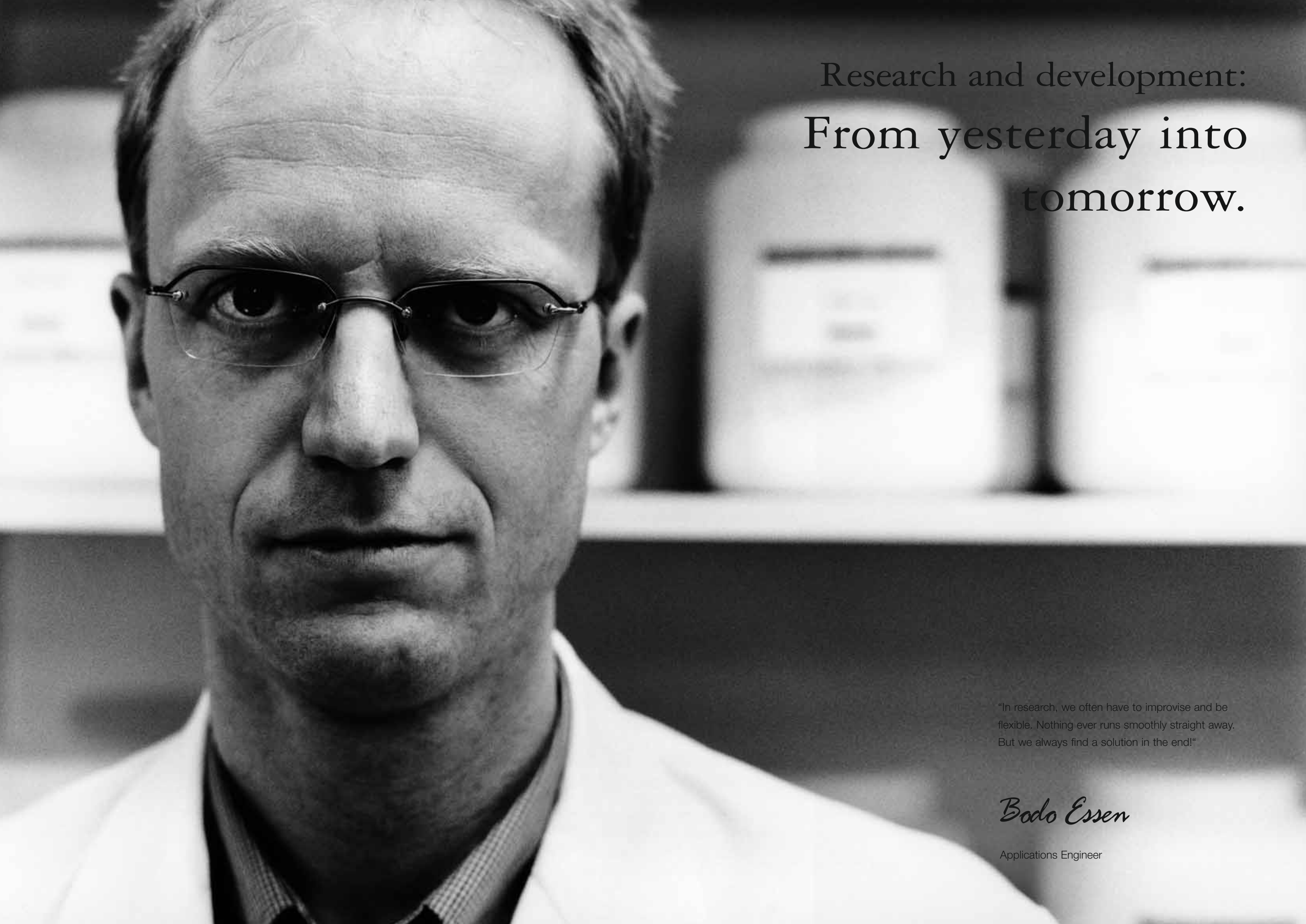
Order Processing, Logistics

It's the packaging that counts!

We also have plenty to offer when it comes to packaging and delivery. Speed and flexibility are our watchwords. As far as speed is concerned, we will happily demonstrate what we mean when it comes to delivery times. And we are always flexible in all the different types of packaging and sizes of containers that we offer, which means that we can meet all your requirements. All our products can be supplied in low-dust packaging, of course. You can choose, for example, between paper sacks, PE bags, EVA bags and big bags. Of course, we can also deliver loose or direct to your silo. Just give us a call!

The right packaging can also be vitally important when it comes to health and safety at work. The best solutions are still always silos or big bags. If the connection pipes are capped off so that they are dustproof during filling, there are no problems with dust pollution from leaked material. Our plastic sacks are just as safe, provided that the bags can also be processed in your equipment.





Research and development:
From yesterday into
tomorrow.

"In research, we often have to improvise and be flexible. Nothing ever runs smoothly straight away. But we always find a solution in the end!"

Bodo Essen

Applications Engineer



Application technology: a constant challenge!

Standing still is a step backwards: we look to the future!

At HOFFMANN MINERAL, we believe that we can always do things just a little bit better. Our answer to the rapid changes in the market is predictive action. Here, perfecting our versatile product range is one of the fundamental tasks of our Research and Development Department. Optimizing our production processes to improve efficiency and quality is also a constant challenge within our working processes.

One of the main focal points of our activity is in the commercial area of toll manufacturing, where you, as the customer, benefit directly from our experience and creativity. In this way new types of Aktisil and other filler preparations are tailored to customer requirements.

In all our development activities, we always look for an in-depth dialogue with you, as our customer and partner. In this way, we can solve your most pressing problems together.

Every risk under control: Risk management.

To ensure that our high quality standards are maintained in the future too, we have integrated our departments of Quality Assurance, Environmental Protection, Health and Safety and Product Safety into an overall Risk Management unit. Risk management is an important integral part of our process-oriented management system. The objective is the comprehensive analysis, evaluation and minimizing of all internal and external risks. To do this, we increase the awareness of all our staff and create a suitable organizational framework that runs through all areas of the company – from the strategic focus through the value creation chain to finances and corporate management.



In application technology in particular, time never stands still. HOFFMANN MINERAL started to expand its expertise here at an early stage. Application technology was therefore developed back in 1986 in the form of a Technical Center for polymer applications, with a paints and varnish laboratory being added in 1988. Today, these form the basis for technical responses to questions relating to the subject of fillers and their effect.

The range of services covers

- testing and evaluating new internal development products
- supporting customer developments and problems by taking on part-projects

A wide range of manufacturing, application and test equipment is available for this, supplemented if necessary by external facilities at institutes and universities.

We will try to find the right answer to your questions about fillers. Just talk to us!





Everyone talks about quality – we live it!

To make sure that we can always meet our customers' requirements in the best possible way, quality takes priority in both our attitudes and our behavior. The success of our quality policy was confirmed for the first time in December 1993 in a certification audit under ISO 9001:2000 and in August 2005 under ISO 14001:2004 carried out by TÜV Product Service. In monitoring audits every year and in several confirmation audits, we have been able to prove time and again what active quality management means. The more stringent requirements of the various quality management standards are a constant stimulus.

Our quality maxims

- Customer orientation throughout all levels in the company
- A clear structuring of all processes, skills and responsibilities
- Seeing environmental protection as a challenge and an opportunity
- Developing products that offer our customers the maximum benefit
- Consistently including our staff in problem-solving and decision-making
- Systematic training and continuing professional development of our staff to give a greater sense of responsibility

To make sure fineness stays a friend: health and safety aspects

The fineness and good dispersibility of Neuburg Siliceous Earth are of great advantage in application technology. However, processing and in particular incorrect handling can lead to the formation of unwanted fine dust that has to be suitably monitored. The portion of crypto-crystalline silica – above all in the case of long-term high exposure – means that the possibility of irreversible lung diseases cannot be excluded. Therefore, based on many years of experience in industrial hygiene, we recommend imposing a guideline concentration of $< 0.15 \text{ mg/m}^3$ measured in the percentage of alveolar dust for the portion of crypto-crystalline silica. This value, which is given in our MSDS, is a limit concentration under which a health risk is no longer to be expected.

A large number of risk assessments, performed and implemented in different areas of application of our customers, shows that such guideline concentrations can be realized without any great technical difficulty and in most cases measurements even fall significantly short of them. Our experience should be used to benefit our customers too, of course, which is why we offer you technical advice in the following areas:

- the design of health and safety measures
- making improvements to existing systems
- dust measurements free of charge on your premises!

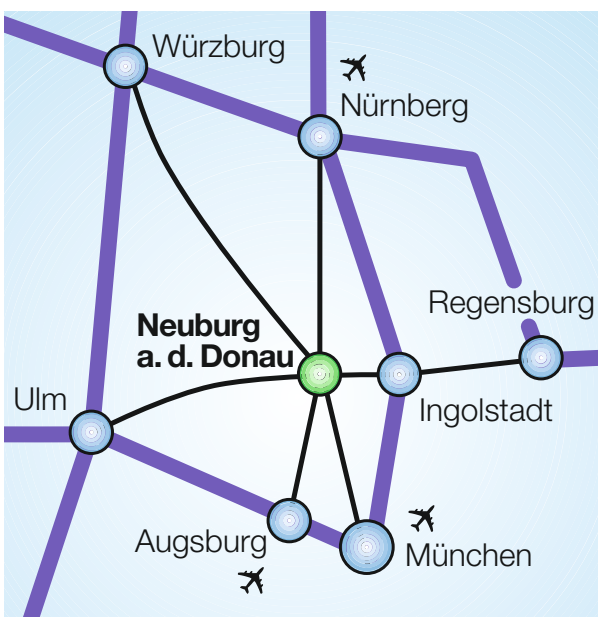
Experienced specialists from HOFFMANN MINERAL will also be happy to advise you on the planning of extractor systems and will carry out fine dust measurements around existing systems. In this way, you can really look after the health of your workforce.



We meet the purity requirements

Most of our products meet the purity requirements laid down under the German Food and Consumer Goods Act.

In addition, they may also be used according to the US regulations of the "Code of Federal Regulations, Food and Drugs" in the paragraphs listing silica and kaolinite. Our products can therefore be used safely as fillers for plastics, rubber, cellular glass, paper, carton, board, plastic emulsions, paints and varnishes that are used in the food sector and as food additives. You will find all the documentation about this matter on our web site.



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