

WACKER

CREATING TOMORROW'S SOLUTIONS



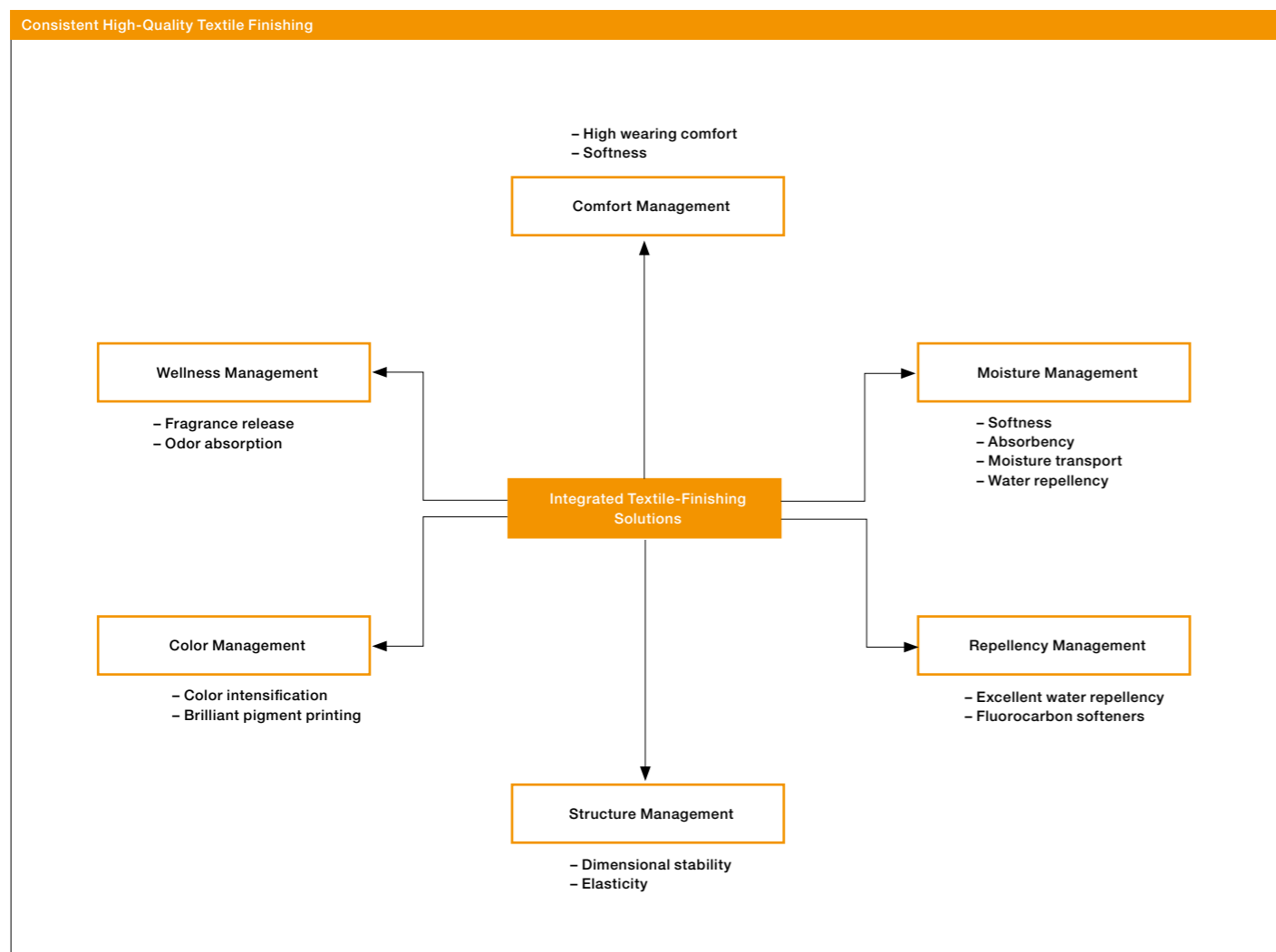
WETSOFT®

TEXTILES, LEATHER & FIBERS

NEW DIMENSIONS OF SOFTNESS

Optimize Your Products and Processes
with Perfect Textile Finishing

OUR SILICONES GIVE TEXTILES THE PERFECT FINISH



INTEGRATED TEXTILE-FINISHING SOLUTIONS

Whether soft and yet absorbent towels, non-iron polo shirts, fragrant laundry, high-quality woolen pullovers or water-repellent functional jackets – our integrated textile-finishing solutions lend garments and fabrics tailored properties.

Powerful Partnership

To succeed on today's textile market you need an effective business partner. Someone who knows exactly what you expect from textiles, whose innovative and efficient textile-finishing products enable you to tap into new markets and gain a competitive lead. Someone who can offer global service and constantly high quality standards. Someone, ultimately, with broad technological expertise and a consistent R&D strategy. In other words, someone like WACKER.

Customized Effects

WACKER is a leading global silicone producer and has a strong and extensive product portfolio to meet your individual textile-processing needs. Our products create a wide range of effects such as softness, hydrophilicity, dimensional stability, elasticity, color retention and odor control, to mention just a few. What is more, we supply effective auxiliaries for efficient and smooth production processes.

Versatile Applications

One of the many advantages of silicones is their versatility. They can be used to finish all kinds of fabrics, from wovens, hosiery and knitwear to nonwovens and yarns. Silicones can be used in totally inert to highly reactive environments and in conditions ranging from hydrophilic to extremely hydrophobic. Their versatile application potential is also due in part to their excellent compatibility with a great many chemical finishing agents, such as waxes, fats, polyethylene, reactive resins, wetting agents and optical brighteners.

Integrated Solutions

We care for textiles: this sums up WACKER's expertise in a nutshell. Our experts are more than familiar with the demands of the dynamic textile industry, which is strongly influenced by seasonal trends. We are part of the textile chain, so we identify with the sector and see ourselves as an expert partner to the whole textile industry. Whether you want high-quality, effective and innovative products or globally available and customized services, WACKER will always seek an integrated solution. In this way, we generate the potential to tap into a constant stream of new textile-finishing markets and applications together with our customers. Seize the opportunities.



THE WETSOFT® RANGE: EXTREMELY VERSATILE



Efficient in Use

Our hydrophilic WETSOFT® NE silicone fluids disperse easily and can be applied by padding or exhausting. As WETSOFT® NE 810 and WETSOFT® NE 820 may be blended in any desired proportions, you can tailor the hydrophilicity and softness of your textiles to precisely suit your requirements. We also supply a ready-to-use macroemulsion, WETSOFT® NE 230.

And because WETSOFT® NE generates a uniformly hydrophilic fiber surface, it is even possible to correct color errors during textile processing. This often cuts costs significantly.

Softeners with Little Risk of Yellowing

Yellowing is very often a problem when conventional softeners are used to finish white textiles. But WACKER has the right product for this application, too. In particular, WETSOFT® AE 200 makes product solutions soft and very hydrophilic, and yet has extremely little influence on color changes such as yellowing and red shift.

Self-Dispersing Softeners

- Emulsifiers mostly unnecessary
- Very deep penetration into fiber structure, thus increasing absorbency (WETSOFT® NE)

Alkali-Stable Softeners

The range of hydrophilic softeners is completed by WETSOFT® NE 580, a self-dispersing microemulsion concentrate that gives textiles excellent absorbency and a very soft hand. Other properties may be taken for granted, such as the softener's high stability in alkaline environments, at high temperatures or under high shear forces, as well as its straightforward processing and great versatility.

Wash-Resistant Softeners

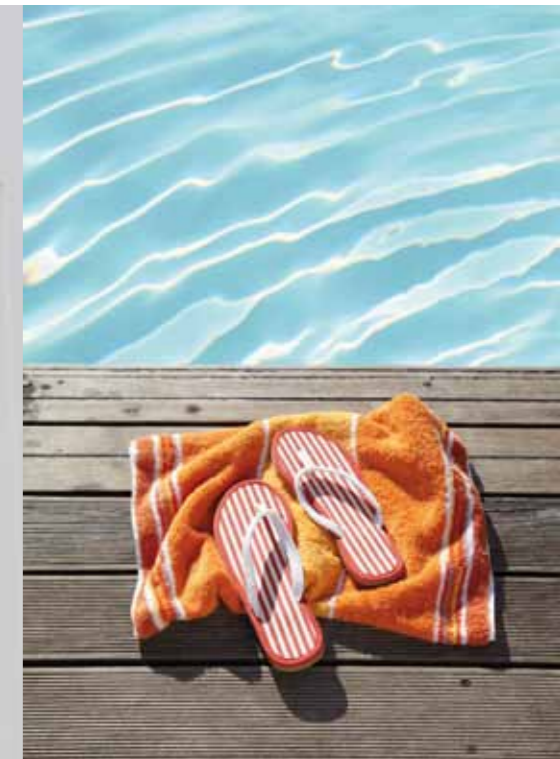
WACKER can now offer a product innovation in the form of wash-resistant hydrophilic softeners. WETSOFT® WP 101 is a concentrate that gives textiles excellent absorbency and a very soft hand – properties that remain even after several wash cycles.

Product Solutions

Hydrophilic softeners:

WETSOFT® AE 200
WETSOFT® CTA
WETSOFT® NE 230
WETSOFT® NE 430
WETSOFT® NE 580
WETSOFT® NE 750
WETSOFT® NE 810
WETSOFT® NE 820
WETSOFT® WP 101
WETSOFT® WP 201

WETSOFT® NE hydrophilic fabric softeners give textiles both an excellent soft hand and very high absorbency.



WETSOFT®: THE RIGHT HYDROPHILIC SOFTENER FOR EVERY FIBER

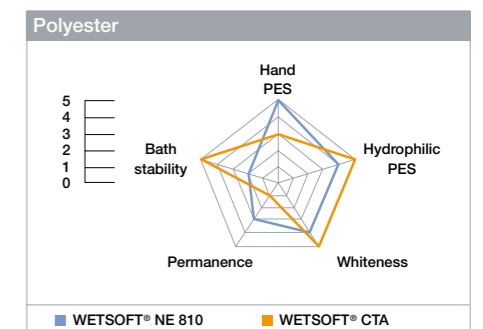
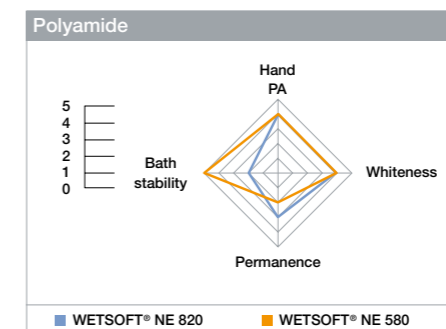
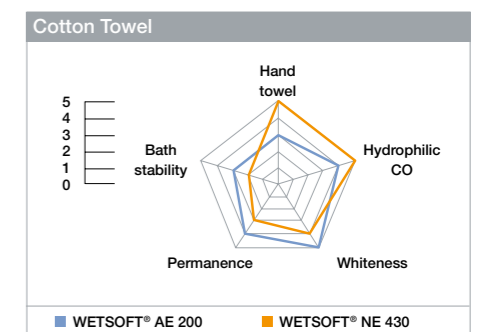
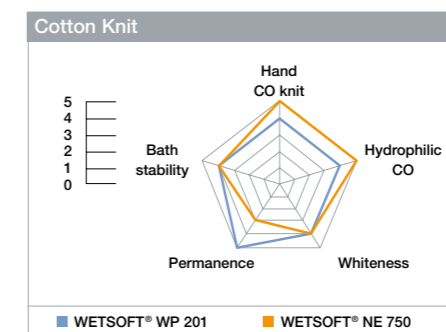


Permanently soft and yet extremely absorbent textiles – our new generation of silicone softeners makes this property combination possible. Take a look for yourself.

Innovative Properties

Functional textiles have to meet ever higher demands. A good towel should be wonderfully soft yet also have hydrophilic properties. The same applies to modern clothing textiles: the wearer expects a soft hand combined with optimal moisture management. Only textiles boasting both properties can satisfy today's increased wearer-comfort demands. Nowadays, no consumer will wear a garment which doesn't feel good because it scratches or rubs, even if it offers perfect moisture control.

WACKER's new generation of silicone softeners, which combine and optimally balance these two finishing properties of softness and hydrophilicity, are impressive.



WETSOFT® products ensure optimum performance on all kinds of fiber-based textiles.

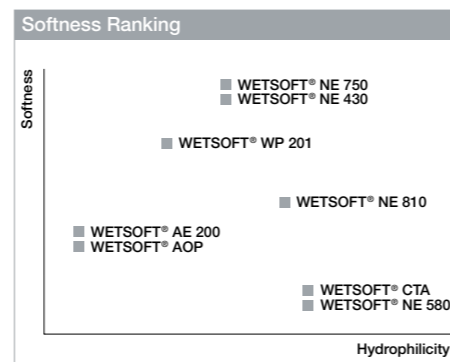
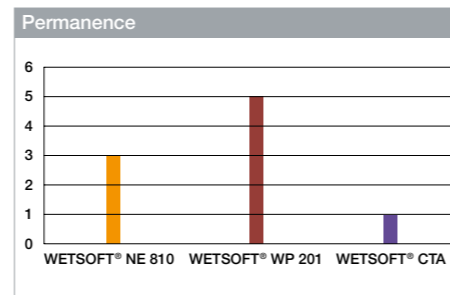


Special Features

The trend in modern textile finishing is definitely toward softness and hydrophilicity – a combination that is anything but obvious for silicone textile softeners. Silicone softeners typically impart an excellent soft hand, but the textiles are very poor absorbers of moisture when used for drying. Similarly, garments made of these textiles absorb only very little of the moisture generated by perspiration, making it difficult for the moisture to evaporate.

WETSOFT® is different: selective control of silicone-fiber interaction makes it possible to combine the contradictory properties of excellent silicone hand and hydrophilicity. The fabric's enhanced moisture transport significantly improves the wearing comfort of textiles. Polyester fabric can be wetted with water, while cotton remains absorbent even after finishing.

For instance, WETSOFT® WP 201 has the added advantage of offering a much more permanent effect than conventional products based on aminoglycol silicones. It is, after all, a very special softener.



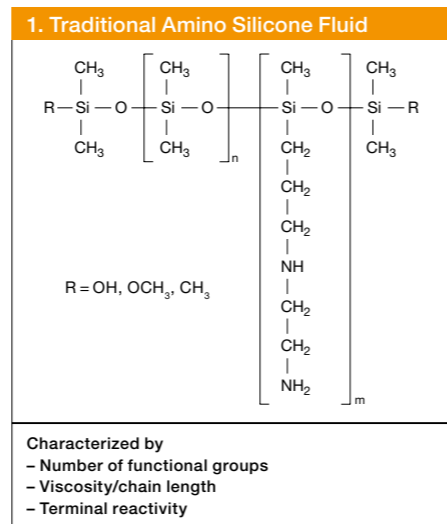
Product solutions are available with softness, hydrophilicity and permanence to meet every conceivable demand profile.



THE RIGHT CHEMISTRY IN OUR SILICONES



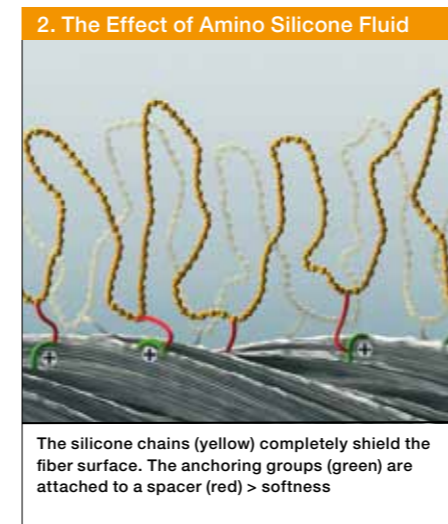
Their chemical structure makes silicones from WACKER ideal for the finishing of textiles with modern functional and fashionable properties.



Chemistry and Application

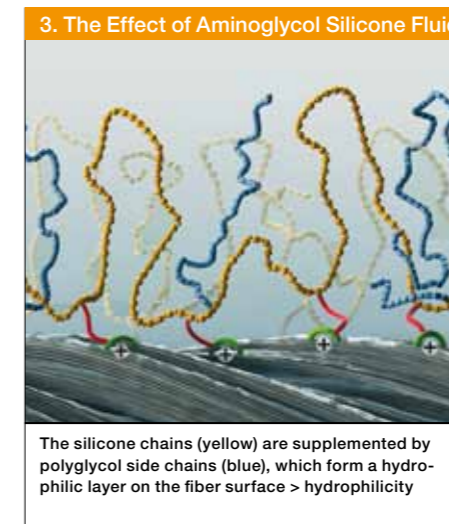
Our silicones imbue textiles with unrivaled effects such as softness, hydrophilicity, body and color retention, to mention just a few. The exact property profile of the textile finish is determined largely by the silicone polymer's structure. And since this can be varied greatly, we offer a customized solution for every textile effect.

Silicone softeners generally consist of linear aminopolydimethylsiloxanes with a viscosity of 100 – 100,000 mPa s (Fig. 1). Their basic units differ, for example, in the chain length, the number of functional side groups and the type of end groups (terminated or reactive). The amino-functional side groups effect optimal distribution of the silicone on the fiber surface and thus ensure maximum softness (Fig. 2).



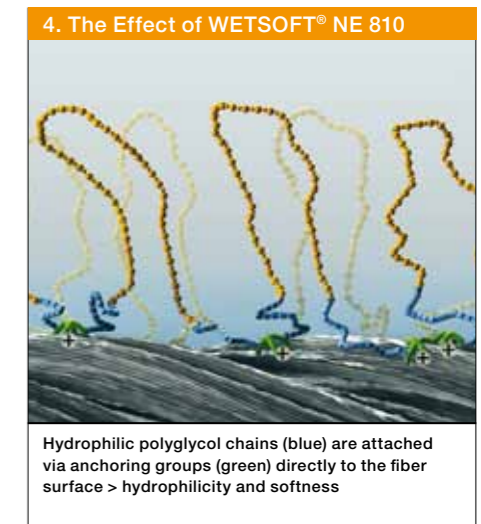
Amino-functional silicone fluids impart a soft hand much more effectively than their methyl counterparts or silicones with carboxyl or epoxy groups. This is because the molecule's partially protonated amino groups are able to interact with the negatively charged cotton fiber, for example. Additionally incorporated polyglycol chains impart hydrophilicity as a further effect (Fig. 3).

Aminosilicones first have to be emulsified before they can be used in water-based textile finishing processes. They are then suitable for use in standard industrial finishing processes such as padding, spraying and minimum-liquor application methods.



Structure and Mode of Action

At WACKER, we use the latest research findings to develop innovative product lines. For example, we base our products on information obtained from the analysis of the silicone polymer's structure-effect relationships. This mode of action can be explained in detail as follows: strong anchoring groups ensure that the silicone chains in the silicone copolymer are firmly anchored and distributed over the entire fabric surface (Fig. 2).



Especially in the case of WETSOFT® NE, our hydrophilic softener, the polymer molecule is built up such that the hydrophilic chains end up on the fiber surface (Fig. 4). Interacting with the anchoring groups, they thus form a hydrophilic layer directly on the fiber surface, without diminishing the mobility of the silicone chains or the resultant soft hand. The only thing that can be felt on the fabric surface is the silicone, while moisture can be transported unhindered along the fiber surface. This superior mode of action makes selective, customized moisture management possible without compromising the fabric's soft hand.

WETSOFT®

PRODUCT OVERVIEW

Product	Application and Specific Application	Grade	Hand, CO Knit	Hand, Towel	Hand, PES	Hand, PA	Hydrophilic CO	Hydrophilic PES	Whiteness	Permanence	Bath Stability	Solids Content (%)	Appearance
WETSOFT® AE 200	Hydrophilic softener	Functional fluid	++	+++	++	++++	++++	++++	+++++	++++	+++	100	Transparent
WETSOFT® AOP	Hydrophilic softener	Functional fluid	+++	+++	++	++++	++++	++++	+++++	++++	+++	100	Transparent
WETSOFT® CTA	Hydrophilic softener, self-dispersing	Functional fluid	+	+	+++	++++	+++++	+++++	+++++	+	+++++	100	Transparent
WETSOFT® NE 230	Hydrophilic softener	Emulsion	+++	++++	+++++	+++++	++++	++++	++++	+++	+++	20	Milky
WETSOFT® NE 430	Hydrophilic softener	Emulsion	++++	+++++	+++++	++++	+++++	++++	++++	+++	++	44	Milky
WETSOFT® NE 580	Hydrophilic softener, extremely alkaline, stable	Emulsion	++	++	+++	++++	+++++	+++++	++++	++	+++++	53	Transparent
WETSOFT® NE 750	Hydrophilic softener	Emulsion	+++++	+++++	+++++	++++(+)	+++++	+++	++++	+++	++++	74	Milky
WETSOFT® NE 810	Hydrophilic softener, self-dispersing	Functional fluid	++++	++++	+++++	+++++	+++++	++++	++++	+++	++	100	Transparent
WETSOFT® NE 820	Hydrophilic softener, self-dispersing	Functional fluid	++	++	+++	++++	+++++	++++	++++	+++	++	100	Transparent
WETSOFT® WP 101	Hydrophilic softener	Emulsion	+++	++++	++	+++	++++	+++	++++	+++++	++++	50	Transparent
WETSOFT® WP 201	Hydrophilic softener	Emulsion	++++	++++	++	+++	++++	+++	++++	+++++	++++	45	Yellowish



OUR SILICONES SERVICE IS ALSO **SOMETHING SPECIAL**

Customized solutions are often all-important in textile finishing. It goes without saying that, at WACKER, this also applies to service.

Customized Service

Expert WACKER teams are always here to help you with high-quality service, from product selection through to technical advice. We seek highly customized, effective solutions geared specifically to your finishing problems, and we continue until the ideal solution has been found. This may entail our advising you as to which of our many textile-finishing products is the most suitable for your particular application. Or we may assist you in developing and matching your products. Just as you wish.

Global Services

WACKER has its own production sites, technical centers and sales offices in many countries. Our textile-finishing products are not only globally available but are also tailored to local needs. You will find our consultants ready to help you in textile centers all over the world. They have detailed knowledge of local conditions and attend in person to your requirements – fast, flexibly and directly. That fosters trust.

Customized Product Solutions

WACKER's portfolio of ready-to-use textile-finishing silicones is extremely diverse. And you can make it even more diverse. After all, we can create special effects by combining our silicone products with other chemicals in new formulations.



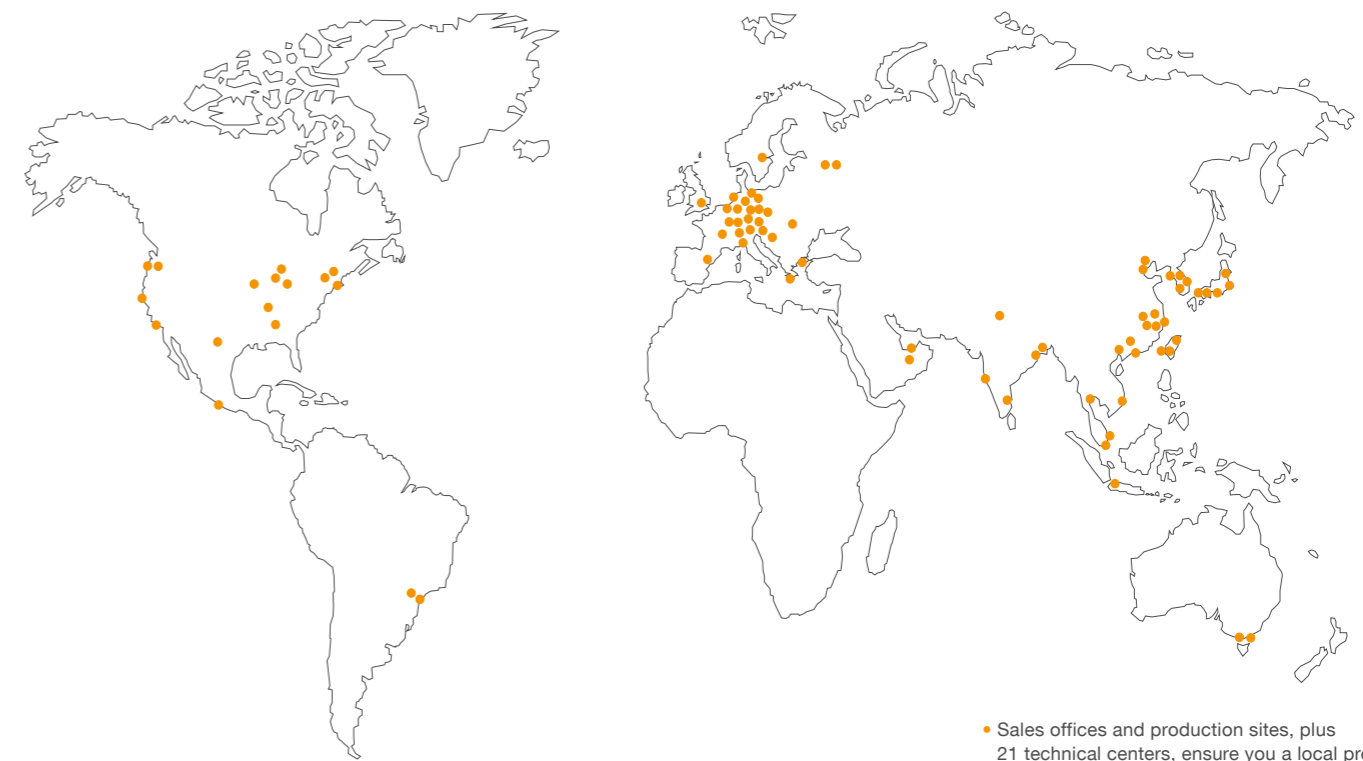
Sustainable Product Solutions

WACKER considers itself part of the textile chain. We therefore attach great importance to sustainability, environmental protection and the optimum ecological compatibility of our product solutions. This naturally includes our assurance that our silicones do their intended job properly. You can rely on that.

Reliable Logistics Solutions

WACKER works exclusively with certified, highly qualified and modern logistics service providers. To underscore our dependability as a supplier, we record and monitor all transport routes within this global logistics network. In addition, we operate local warehouses in many places. For you, this means short delivery times, direct delivery routes and absolute reliability.

EXPERTISE AND SERVICE NETWORK ON FIVE CONTINENTS



• Sales offices and production sites, plus 21 technical centers, ensure you a local presence worldwide.

WACKER is one of the world's leading and most research-intensive chemical companies, with total sales of €4.48 billion. Products range from silicones, binders and polymer additives for diverse industrial sectors to bioengineered pharmaceutical actives and hyperpure silicon for semiconductor and solar applications. As a technology leader focusing on sustainability, WACKER promotes products and ideas that offer a high value-added potential to ensure that current and future generations enjoy a better quality of life based on energy efficiency and protection of the climate and environment.

Spanning the globe with 5 business divisions, we offer our customers highly-specialized products and comprehensive service via 25 production sites, 21 technical competence centers, 14 WACKER ACADEMY training centers and 52 sales offices in Europe, North and South America, as well as in Asia – including a presence in China.

With a workforce of some 16,000, we see ourselves as a reliable innovation partner that develops trailblazing solutions for, and in collaboration with, our customers. We also help them boost their own success. Our technical centers employ local

specialists who assist customers worldwide in the development of products tailored to regional demands, supporting them during every stage of their complex production processes, if required. WACKER e-solutions are online services provided via our customer portal and as integrated process solutions. Our customers and business partners thus benefit from comprehensive information and reliable service to enable projects and orders to be handled fast, reliably and highly efficiently. Visit us anywhere, anytime around the world at: www.wacker.com



WACKER

Wacker Chemie AG
Hanns-Seidel-Platz 4
81737 München, Germany
Tel. +49 89 6279-1484
Fax +49 89 6279-2921
info.silicones@wacker.com

www.wacker.com

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