The way we build defines the way we live – as individuals, families and societies – today as well as tomorrow.

Let’s work together to make the most of that responsibility – for present and future generations.
WACKER – WE’RE HERE FOR YOU

WACKER is a global chemical company with over 100 years of history and a leading portfolio of solutions for the construction, coatings and paint industry. From our beginnings in Burghausen, Germany, we have continuously developed to become an active partner across the EMEA region for decades. Our subsidiary in Dubai was established in 1999; in 2002, the technical center and a WACKER ACADEMY followed. The technical center in Moscow opened its doors in 2003 and was soon accompanied by a WACKER ACADEMY here, too.

Count on Us!

We Give Our Best
Why do something halfheartedly if you can do it right? To us, quality is not about choosing between an expensive or economic solution. VINNAPAS® polymer binders significantly improve the cost-performance ratio of construction materials.

We Act Locally
Topography, climate and culture make architecture local by nature. That is why we are local, too. With sales offices, production sites, technical centers and native experts around the globe, we work globally with customers and authorities to develop local solutions.

We Value Sustainability
In construction, resources are needed for building and maintenance work. Our R&D specialists and application chemists focus on finding answers that conserve resources throughout the entire lifespan of a building.

We Improve Standards
Quality of life should not be a privilege. We strive to develop and enable solutions that are in balance with human, environmental and economic demands.

We Keep Inventing
WACKER is one of the most research-intensive companies in its field. We strongly invite you to challenge us with your questions and ideas.

VINNAPAS® and PRIMIS® are registered trademarks of Wacker Chemie AG.
Polymer binders have revolutionized the construction and paint industry more than once. WACKER has been a key player in this development.

1920s
WACKER begins researching polymer binders.

1938
Poly (vinyl acetate) dispersion production begins on an industrial scale.

1949
VINNAPAS® makes dispersion-based paints possible.

1957
WACKER is the first ever to produce a free-flowing dispersible polymer powder by spray drying.

1960
WACKER develops dispersions based on vinyl acetoate-ethylene (VAE).

1964
WACKER develops the first terpolymer dispersion with vinyl chloride.

1985
The first dispersible powders based on VAE are manufactured.

2008
WACKER takes control of its APP joint venture by acquiring the share previously held by Air Products and Chemicals – and thus strengthens its global position and market leadership in all key markets.

2015
WACKER introduces its high performance dispersion product line PRIMIS®.

2017
WACKER showcases its expansion of the PRIMIS® product line of easy-to-clean, stain-resistant wall and flooring solutions at the European Coatings Show.
Vinyl Acetate-Ethylene (VAE) – Serving the Megatrends of Today and Tomorrow
VINNAPAS® dispersions are co- and terpolymers based on vinyl acetate, ethylene and other monomers. Vinyl acetate-ethylene (VAE), in particular, combines technical performance with environmental benefits at an attractive cost-in-use ratio.

VAE dispersions are produced by the emulsion polymerization of the hard, polar monomer vinyl acetate and the soft, hydrophobic monomer ethylene. Ethylene functions as an optimal flexibilizer for vinyl acetate, incorporating permanent flexibility into VAE polymers. Consequently, the use of plasticizers can be significantly minimized when formulating with VAEs. In addition, all grades are stabilized without the use of APEO-based surfactants, many of them also show low residual monomer content (<500 ppm).

Polymer binders enhance two critical characteristics of all mortars and coatings: adhesion and flexibility. They ensure the quality and prolong the life expectancy of buildings while reducing material consumption and increasing creative freedom by making it possible to combine a wide variety of construction materials.

Compliance with Strict Labels
With our cutting-edge VINNAPAS® VAE binders, the construction and paints industries are equipped to meet stringent governmental regulations, as well as the requirements of internationally recognized ecolabels and certifications, such as Blue Angel, Green Seal GS-11, TÜV Süd, and EMICODE EC1 plus.
WACKER SERVICES – YOUR COMPETITIVE EDGE

In our decades of working with polymer binders, we have learned a lot about their specific chemistry – and even more about markets. We bring that knowledge to you at our technical centers and the WACKER ACADEMY.

Do You Want to Enhance Your Product with a VINNAPAS® Polymer?
At the WACKER ACADEMY, we offer training in polymer chemistry and its application fields such as architectural coatings or mortar formulations.

Do You Want Your Products to Meet New Requirements?
Our technical center helps to optimize your formulation.

Are You Looking for New Business Ideas?
At the WACKER ACADEMY, we organize innovation workshops that are relevant to markets.
WACKER ACADEMY and Technical Centers Worldwide

Adrian  Allentown  Burghausen  Moscow  Seoul  Shanghai  Mumbai  Singapore  Jakarta  Tsukuba
Dalton  Mexico City  São Paulo  Dubai  Ho Chi Minh City
A VARIETY OF CONSTRUCTION APPLICATIONS

- TILE ADHESIVES
  Page 10

- SELF-LEVELING SYSTEMS
  Page 14

- SKIM COATS
  Page 18

- TILE GROUTS
  Page 12

- JOINT COMPOUNDS
  Page 19

- WATERPROOFING MEMBRANES
  Page 16
All Varieties of Tiles

VINNAPAS® modified tile adhesives show strong adhesion properties, e.g. when applied between fully vitrified tiles and difficult substrates.

Large Format Tiles
Thixotropic VINNAPAS® T polymer powders provide excellent non-slump properties for easily fixing large heavy tiles.

VINNAPAS® improves flexibility and thus adds to longevity.
VINNAPAS® polymer binders enhance the performance of cementitious and ready-to-use tile adhesives and optimize their cost-performance ratio. Improved adhesion makes it possible to lay nonporous or large format tiles even on difficult substrates, such as wood or other tiles. Thanks to special grades, they can be adjusted to meet specific challenges such as enhanced hydrophobicity or thixotropy.

Featured Solutions

We offer different products for formulating tile adhesives:

**VINNAPAS® Polymer Powders**
VINNAPAS® polymer powders are used in the formulation of dry-mix mortars. Dry-mix mortars are premixed 1K cementitious tile adhesives that contain cement and need only be mixed with water at the jobsite.

**VINNAPAS® Polymer Dispersions**
VINNAPAS® polymer dispersions are used in two kinds of tile adhesives:

a) In prefabricated 1K ready-to-use pasty adhesives that contain no cement and are usually a blend of aggregates, filler, defoamer, wetting agent, etc. They are used at the jobsite without further preparation, mainly sold in the DIY market.

b) In 2K cementitious tile adhesives and packaged in bags. For this reason, this is also called “bag and bottle technology”. In this case the dispersion is mixed onsite with either a cementitious dry-mix mortar or an ordinary cement.

**GENERAL BENEFITS**

- Excellent adhesion to different substrates in a wide range of conditions
- Longer open and correction times even at high ambient temperatures
- Improved cohesive strength
- Improved flexibility to prevent cracking resulting from stress between the substrate and the tile

**APPLICATION SPECTRUM**

- Natural and artificial stones
- Floor and wall tiles
- Small and large format tiles
- Porous and nonporous tiles
- Mineral and nonmineral substrates
A tiled surface looks as good as its joints. The challenge: traditional tile grouts are often not resistant to modern detergents and quickly become dirty or damaged. They can also crack due to thermal expansions of the tiles or substrate. Some VINNAPAS® grades even offer additional hydrophobicity. The tiles thus maintain appearance and prevent water from seeping in.

Water absorption (g) of a cementitious tile grout mortar according to EN 12808-5 with an 8 x 4 x 4 cm mortar prism (stored for 28 days under standard climatic conditions), immersed in water for 30 min and 240 min.

Abrasion resistance of a cementitious tile grout mortar according to EN 12808-2.
VINNAPAS® polymer powders provide long-lasting hydrophobicity, optimize adhesion to tile edges, increase flexibility, and improve abrasion resistance. This improves the durability and visual appearance of grouts, especially with today’s large-format tiles.

GENERAL BENEFITS

• Higher flexibility and better mechanical properties
• Protection against water penetration thanks to greatly improved adhesion to tile edges and reduced shrinkage
• Increased deformability and improved abrasion resistance
• Higher hydrophobicity and water repellency when using VINNAPAS® H Class polymer powders
• High durability

APPLICATION SPECTRUM

• Natural and artificial stones
• Floor and wall tiles
• Small and large tiles
• Porous and nonporous tiles
• Interior and exterior
Go for Perfect Floors

VINNAPAS® binders are used for self-leveling compounds, adhesives and primers. PRIMIS® SAF 9000 dispersions can be applied on the self-leveling compound as a stain-resistant surface treatment if no top-layer is used.
VINNAPAS® polymer binders ensure perfect surfaces and help installers save time. VINNAPAS® L and F dispersible polymer powders add functionality to self-leveling compounds and can reduce the number of additives needed. The result is void-free, smooth, abrasion-resistant, even surfaces.

Featured Solutions

Perfect Surfaces with Less Ingredients
VINNAPAS® L Class polymer powders improve both mechanical and flow properties. They achieve very smooth, blemish-free surfaces when used in combination with casein and synthetic super-plasticizers. They also reduce surface bleeding and segregation. VINNAPAS® F Class polymer powders act both as a binder and a superplasticizer. This feature is particularly advantageous for mixing pumpable compounds, where machine application minimizes mixing time. The required rheology can be adjusted to the right choice of F Class polymer powder, thereby simplifying handling and logistics.

Meeting the Requirements of Ecolabels
VINNAPAS® L Class powders meet the requirements of European ecolabels such as Blue Angel, Emicode EC1 plus, etc. Compliance with such labels is determined by the dosage level of VINNAPAS® L Class powders and other ingredients.

VINNAPAS® and PRIMIS® primers and adhesion layers are used to prepare underlaying surfaces to ensure optimal performance of self-leveling layers.

PRIMIS® surface finishes protect mineral surfaces such as concrete or self-leveling underlayments against stains or mechanical stress.

VINNAPAS® also improves the workability of the system.

Flow test: The influence of VINNAPAS® L Class powders measured with an ABS ring.

PRIMIS® SAF 9001 renders surfaces stain-resistant: Coffee and blackcurrant juice leave noticeable stains on untreated decorative mineral floors even after they’ve been wiped with a wet sponge (left). On the treated flooring (right), both substances can easily be completely removed by moist wiping.
Good Crack-Bridging Ability

Highly flexible waterproofing membranes modified with VINNAPAS® can accommodate small movements in the substrate. Movements can occur, for example, due to temperature fluctuations, or when small cracks form due to shrinkage or substrate setting. The membranes thus form a reliable barrier against water leakage.

Easy to Apply

The application of waterproofing membranes modified with VINNAPAS® is easy:

- For small-area applications, the waterproofing membrane is applied by brush, trowel or roller
- For larger areas, machine spray application is recommended.
Waterproofing membranes (WPM) with VINNAPAS® polymer binders form a reliable barrier against water. The polymer binder provides a high performing combination of adhesion and flexibility. This means the membrane only needs to be a few millimeters thick to provide optimal protection.

**Featured Solutions**

We offer different solutions for formulating WPMs:

- VINNAPAS® dispersions for 1K ready-to-use (pasty) systems
- VINNAPAS® polymer powders for 1K cementitious WPMs
- VINNAPAS® dispersions for 2K cementitious systems

Flexible waterproofing membranes can bridge cracks caused by movement of the substrate.

Water-bearing pipes and sewers can easily be rendered waterproof to prevent leakage and loss of water during transport.
VINNAPAS® polymer binders improve the adhesion, flexibility and workability of skim coats. Polymer-modified skim coats show excellent adhesion to many substrates and provide a flexible, mechanically stable and smooth surface for paints and wallpaper. The result is increased adhesion of tiles and paints as well as weathering resistance and longevity of building facades.

SKIM COATS

GENERAL BENEFITS
- Enhanced flexibility
- Long lasting hydrophobicity
- Smooth surface for efficient paint coverage
- Durability of facades
- Excellent bonding

APPLICATION SPECTRUM
- Interior and exterior applications
- All types of substrates: concrete, lightweight concrete, block work, bricks, AAC blocks, rendered surfaces and surfaces of thermal insulation systems, cement fiber board, etc.

Skim coats modified with VINNAPAS® hydrophobic polymer binders offer improved weather resistance, and therefore increased life of building facades.
With VINNAPAS® polymer binders, wall and joint fillers adhere reliably to the substrate. Workability is improved and the hardened compound exhibits enhanced flexibility, quality and crack resistance.

**Featured Solutions**

**VINNAPAS® T Polymer Powders**

enable all joint fillers (including gypsum-based grades) to be used on a wide range of substrates, while at the same time maintaining excellent workability and adhesive properties.

**VINNAPAS® H Polymer Powders**

make cement-based products water repellent, thus protecting the substrate and improving durability.

**Serving the Gypsum Trend**

Drywalling with gypsum boards is on the rise. VINNAPAS® polymer powders and dispersions serve as a quality enhancer for gypsum-based joint fillers, putties or troweling compounds. VINNAPAS® grades increase the tensile adhesion strength remarkably. Adhesion is improved to both the gypsum board and paper bands used for stabilization.

**GENERAL BENEFITS**

- Enhanced adhesion
- Increased cohesion
- Flexibility of joint fillers and prevention of cracking
- Suitable for different substrates
- Improved workability

**APPLICATION SPECTRUM**

- Gypsum plasterboards
- Floors, walls, ceilings
Improved Impact Resistance

By improving the cohesion and flexibility of the hardened mortar, VINNAPAS® provides plasters with an improved impact and crack resistance. This can be shown by performing an impact test (see picture on the right).
VINNAPAS® polymer binders improve the quality and increase the life expectancy of renders and plasters. They enhance adhesion as well as flexibility and prevent weathering damage.

Featured Solutions

**Improved Hydrophobicity**
VINNAPAS® H polymer powders and selected dispersions provide water repellency, protecting the substrate and improving durability.

**Flame Retardancy**
Using selected VINNAPAS® powder and dispersion grades makes it possible to achieve high flame-retardancy.

**Improved Esthetics**
VINNAPAS® imparts very good weatherability with low dirt pick-up and high color stability.

**Improved Impact Resistance**
By improving the cohesion and the flexibility of the hardened mortar, VINNAPAS® gives plasters improved resistance to impacts and cracks.

**Long-Lasting Effects**
VINNAPAS® polymer technology ensures long-lasting effects such as water repellency.
Tested for All Climates

Our technical centers in Burghausen (GER) and Moscow (RUS) are equipped with climatic chambers which allow entire wall systems to be tested by simulating weathering cycles with heat, rain, cold and other conditions. These walls tested according to EOTA (European Organisation for Technical Approval) make it possible for us to predict the weatherability and life expectancy of specific ETICS in different climate zones.
VINNAPAS® polymer binders improve the characteristics of mortars applied in ETICS, creating a stable and flexible bond between the various layers. They especially enhance the adhesion of mortar on various types of exterior insulation panels used in ETICS.

**Featured Solutions**

**Energy Efficiency**
Worldwide, buildings consume 40% of primary energy and generate one-third of greenhouse gas (GHG) emissions. At the same time, buildings offer the greatest potential for reducing these emissions at the lowest cost. Still today, energy consumption in buildings can be reduced by 30% to 80% using proven and commercially available technologies.

**Suitable for Old and New Buildings**
ETICS are among the most successful methods for insulating walls from the outside, thus achieving substantial energy savings, among other advantages. Brickwork, concrete, stucco and plaster, wood and just about all other substrates can easily be fitted with ETICS. This means the systems can be used for both for renovation work and in new buildings. In addition, the outer shell can be designed individually, using plasters, paints, skim coats or tiling, for example.

VINNAPAS® polymer powders and selected dispersions with flexible ethylene segments boost the performance of ETICS by offering very good tensile adhesion strength particularly to different insulation materials (organic, mineral, biological-based), very high impact strength, and improving the workability of mortars.

**Improved Indoor Climate for All Climates**
Facade fitted with ETICS act as heat shields: they keep out the cold and keep in the heat or vice versa. Thus insulated walls also improve the indoor climate by reducing the temperature differences between indoor air and wall surfaces.

**Composition of ETICS**
1. Masonry
2. Adhesive – cementitious dry mortar containing VINNAPAS® binders
3. Insulation material
4. Base coat – cementitious dry mortar containing VINNAPAS®
5. Glass-fiber mesh
6. Top coat – plaster and coating modified with VINNAPAS®

1. Data: United Nations Environment Programme
VINNAPAS® dispersions are ideal for modifying all kinds of mortars and grouts, thus improving their properties, especially in critical applications.

Cement admixtures formulated with VINNAPAS® are easy-to-use and provide the basis for a variety of applications.
VINNAPAS® dispersions improve the properties of primers, so providing the basis for optimal performance of subsequent layers. They also act as bonding agents thanks to their excellent adhesion and cohesion properties.

**Featured Solutions**

**Improved Stability**
Primers and bonding agents are essential to ensure long-term stability of layered building systems. VINNAPAS® dispersions provide excellent adhesion to a variety of substrates. VINNAPAS® dispersions with small particle sizes are available for open-pore substrates such as concrete, cement and gypsum plasterboards. They ensure good penetration into the surface, thus consolidating the substrates and controlling their absorbency. In outdoor applications, hydrophobic VINNAPAS® dispersions ensure high water repellency and good barrier properties.

**Surface Finishes**
Thanks to their fine-particle size the hydrophobic-oleophobic PRIMIS® dispersions penetrate deep into the pores of mineral substrates. This makes them ideal for protecting mineral floors and other surfaces against all types of stains while significantly improving their mechanical stability.

**APPLICATION SPECTRUM**
- Adhesion-promoting layer
- Barrier layer for migration protection
- Construction surface consolidation
- Stain and blocking resistance
- Surface finishes of mineral substrates

---

**BONDING AGENTS, PRIMERS AND SURFACE FINISHES**

**GENERAL BENEFITS**
- Good impregnation due to high penetration into pores
- Excellent barrier properties
- Low and uniform absorbency
- Good adhesion even on critical substrates
- Bridging of small cracks
- Long open time
- Good consolidation of construction surfaces
- Excellent stain and abrasion resistance

---

**Abrasion Test on a Concrete Surface**

<table>
<thead>
<tr>
<th>Abrasion [cm³]</th>
<th>Abrasion [g]</th>
</tr>
</thead>
<tbody>
<tr>
<td>untreated</td>
<td>120</td>
</tr>
<tr>
<td>EPOXY 100%</td>
<td>100</td>
</tr>
<tr>
<td>EPOXY Waterborne</td>
<td>80</td>
</tr>
<tr>
<td>PRIMIS® SAF 9000</td>
<td>60</td>
</tr>
</tbody>
</table>

- Volume in cm³
- Abrasion in g
Modification with VINNAPAS® polymer powders improves the technical performance, processability and wetting properties of repair mortars, thereby helping to meet the growing demand for concrete repair in the future.

**Reliable and Easy Processing**

The first step is to re-shape the concrete with a repair mortar. An adhesive, cementitious slurry that has been modified with VINNAPAS® is added to the mortar to ensure it adheres reliably and permanently to the cementitious substrate (concrete). The repaired concrete structures are generally covered with a layer of fine filler one to three millimeters thick. VINNAPAS® dispersible polymer powder ensures good processing, prevents the thin layers from drying too quickly, enhances the impermeability to CO₂ and pollutants such as road salt, and improves resistance to freezing/thawing.
VINNAPAS® polymer powders increase the adhesion of jointing mortars to autoclaved aerated concrete (AAC) thus achieving secure bonding with very thin layers of mortars. This saves material, helps to avoid thermal bridges, and avoids load-bearing problems in high-rise buildings.

Building with AAC blocks: traditional unmodified mortars have no wetting capability and need to be applied in thick layers of 10 – 20 mm. Plus: the bricks must be prewetted.

Traditional unmodified mortars show poor adhesion to AAC blocks. The mortar can be pulled off easily.

Mortars modified with VINNAPAS® have good wetting properties and can be applied in thin layers of 3 – 5 mm. No prewetting is necessary. This saves material and time.

Mortars modified with VINNAPAS® have excellent adhesion: tests show a bond strength of 0.6 N/mm.
SIX GOOD REASONS TO BUY FROM WACKER

At WACKER, we believe in building and maintaining close partnerships with our customers, to achieve success together. Today and tomorrow. Talk to us!

Decades of Experience
- 75 years as market leader in VAE polymer dispersions
- 60 years as a leader in polymer powders

Diversified Portfolio
- Products for different performance profiles and different market segments
- Tailor-made products for local markets
- Innovative products for new applications

Constant High Quality
- Worldwide production according to uniform standards and specifications
Powerful Customer Support

- Testing and technical support at technical centers
- Training and collaboration at WACKER ACADEMIES
- Different solutions for ordering, packaging and transport
- Fast and flexible delivery

Strong R&D

- Over 100 years of R&D
- Over 3% of sales spent in R&D (in 2016)
- 5,300 patents granted
- Collaborations with more than 40 academic institutions
- Global presence

Committed to Values

- Sustainability is our company philosophy
- We live up to our social responsibility as corporate citizens
WACKER is one of the world’s leading and most research-intensive chemical companies, with total sales of €4.6 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 4 business divisions, we offer our customers highly-specialized products and comprehensive service via 23 production sites, 18 technical competence centers, 13 WACKER ACADEMY training centers and 48 sales offices in Europe, North and South America, and Asia – including a presence in China. With a workforce of some 13,450, 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

All figures are based on fiscal 2016.
The data presented in this medium are in accordance with the present state of our knowledge but do not absolve the user from carefully checking all supplies immediately on receipt. We reserve the right to alter product constants within the scope of technical progress or new developments. The recommendations made in this medium should be checked by preliminary trials because of conditions during processing over which we have no control, especially where other companies’ raw materials are also being used. The information provided by us does not absolve the user from the obligation of investigating the possibility of infringement of third parties’ rights and, if necessary, clarifying the position. Recommendations for use do not constitute a warranty, either express or implied, of the fitness or suitability of the product for a particular purpose.