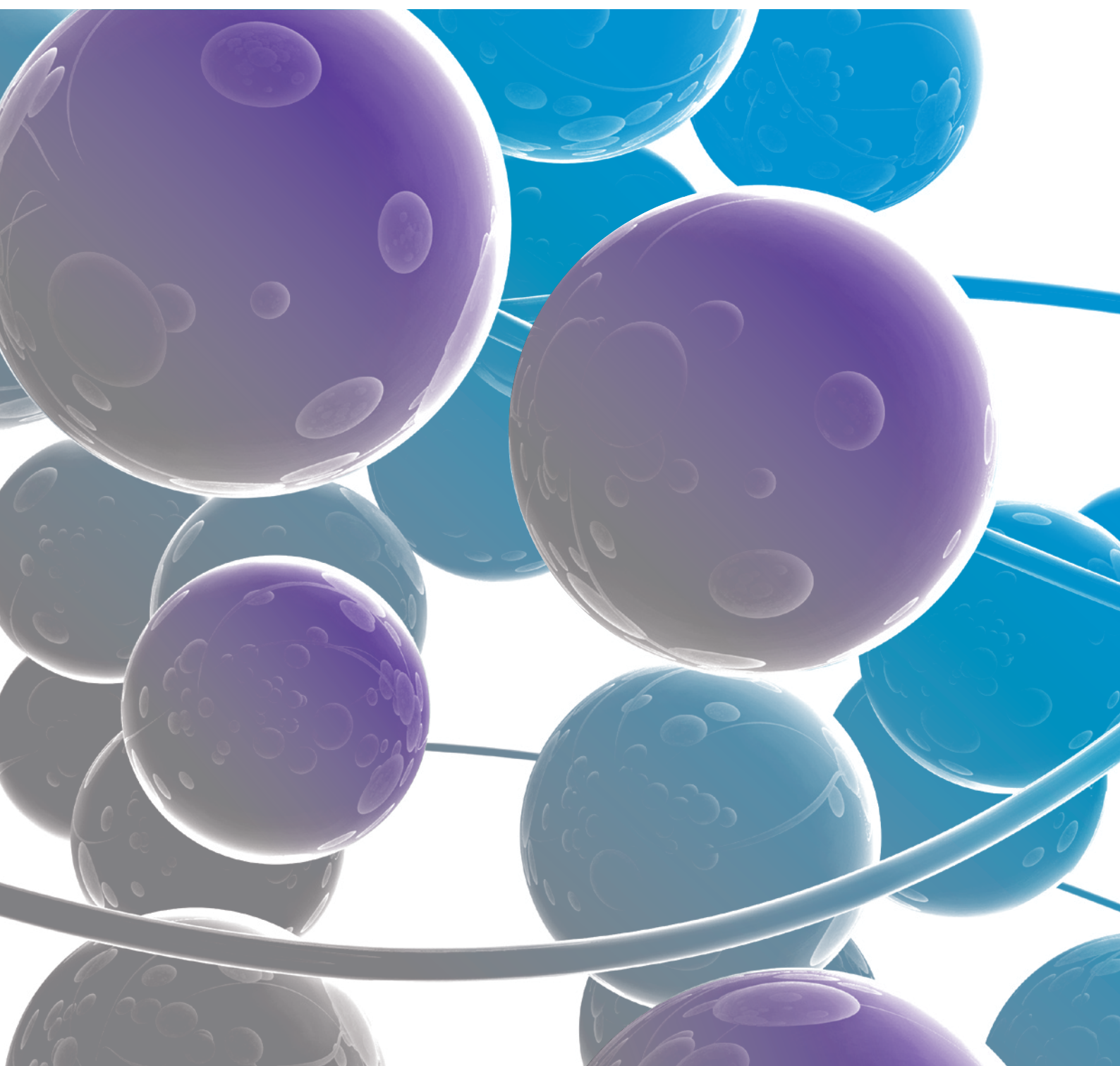


Bindzil and Levasil

colloidal silica

Aqueous dispersions of colloidal silica

AkzoNobel



Innovative development we look beyond horizons

The ultimate solutions

At AkzoNobel we look beyond horizons. We believe what is good for you today is not necessarily good for you tomorrow.

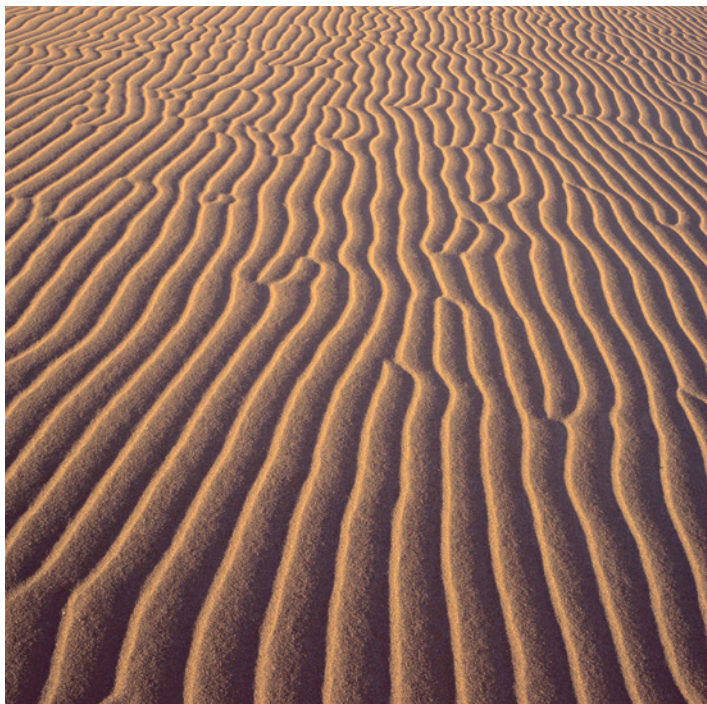
We are committed to full support of our customers and cooperate with them to find the ultimate solutions throughout the entire supply chain – from compulsory eco-efficiency analysis in investment decisions to the use of hydro power and sustainable raw materials in manufacturing.

We are also dedicated to the spreading of innovative ideas and customer insights. Our insights tend to focus on what is going on today, rather than on customers' insights into future markets. There is a clear opportunity for us to improve the way we connect our technology – and especially new technology – with our customers' insights into future markets.



Colloidal silica

from sand to silica



Important to life on our planet

Of all the oxide minerals in the Earth's crust, silicon dioxide, or silica, is the most abundant. It is present not only in combination with other oxide minerals but also in its isolated forms such as sand. The semi-precious mineral opal is a form of amorphous silica that has been prized for centuries.

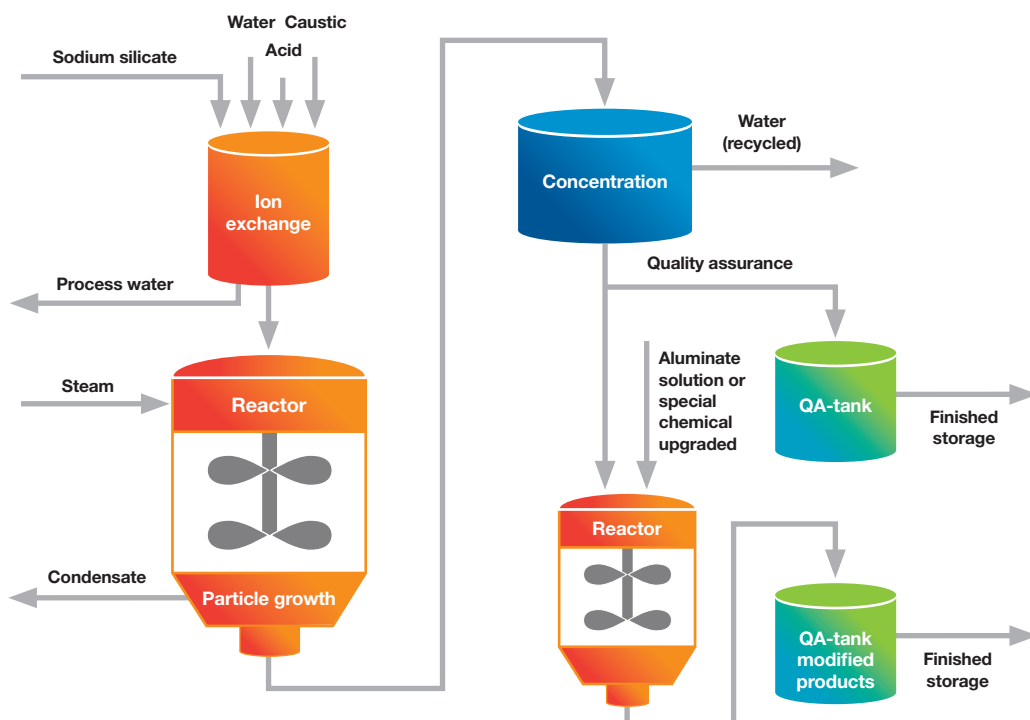
Besides being the most abundant mineral on the Earth, it is also very important to life on our planet. Diatoms, a type of phytoplankton forming the base of the ocean's food chain, have skeletons composed of silica. Many plants use silica to stiffen stems for holding fruit and to form external needles for protection. The role of silica is less obvious in animals, but each one of us contains about half a gram of silica – without which our bones, hair, and teeth could not be formed.

Silica is another name for silicon dioxides – the most prevalent type being SiO_2 , which is the most abundant component of the earth's crust. Synthetic amorphous silica is industrially manufactured in a variety of forms – including silica gels, precipitated silica, fumed silica, and colloidal silica.

A colloid is a stable dispersion of particles – particles that are small enough that gravity doesn't cause them to settle, but large enough not to pass through a membrane and allow other molecules and ions to pass freely. Particle sizes range from about 3 to 100 nm.

Process overview

We use several different methods to produce the aqueous colloidal silica that meets our consistency standards. The general principle is to remove sodium from sodium silicate via cation exchange. Without the sodium, polymerization takes place and particles begin to grow. After growth the final product is stabilized and concentrated to the desired content. For larger particles we start by building on smaller particles like a seed.



Bindzil – Levasil

small particles – large surface area

Our Bindzil and Levasil products are supplied worldwide

With our product portfolio's extensive coverage of particle size, particle size distribution, pH, stabilizing ions and surface modifications, we can help you find the perfect colloidal silica product for use in your application.

High and consistent quality

Our range of Bindzil and Levasil products is produced in our global network of manufacturing units with consistent quality. Our quality assurance program meets our customers' expressed expectations and the conditions upon which we have mutually agreed. AkzoNobel Pulp and Performance Chemicals is certified according to the ISO 9000 and ISO 14000 standards.

Safety, health and environment

Concern for safety, health and the environment is an integral part of our business policy. We are committed to continuous improvement in safety and health worldwide.

Product and application know-how

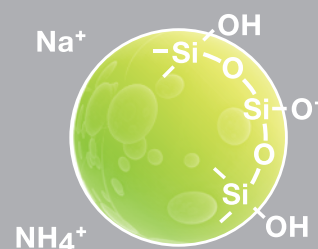
We have extensive experience with colloidal silica. The company has conducted silica research for more than 80 years and has been developing Bindzil and Levasil for 30 years.

Further information

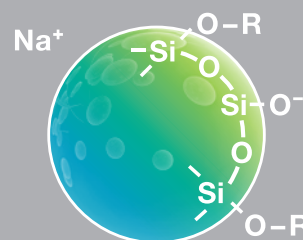
For more detailed product information, please refer to our product guide. For samples, technical service and further information, please contact your nearest office, visit our website at www.colloidalsilica.com, or send an e-mail to colloidal.silica@akzonobel.com.

Colloidal silica – our five different types

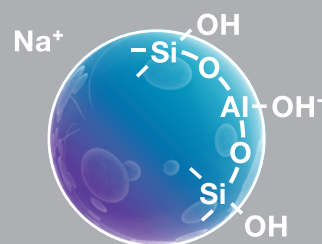
- Anionic particles
- Sodium or ammonia stabilized



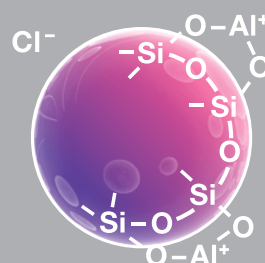
- Anionic particles
- Silane modified



- Anionic particles
- Aluminate modified



- Cationic particles
- Chloride stabilized



- Non-charged particles
- Deionized modified



Reliable supply with consistent quality

We supply a wide range of colloidal silica products through our main branded product lines of Bindzil and Levasil. Two sub-brands of our product lines are Bevasil and Cembinder.



Reactor hall and Control room at manufacturing site



Bindzil and Levasil

our products

Bindzil – our most versatile product range

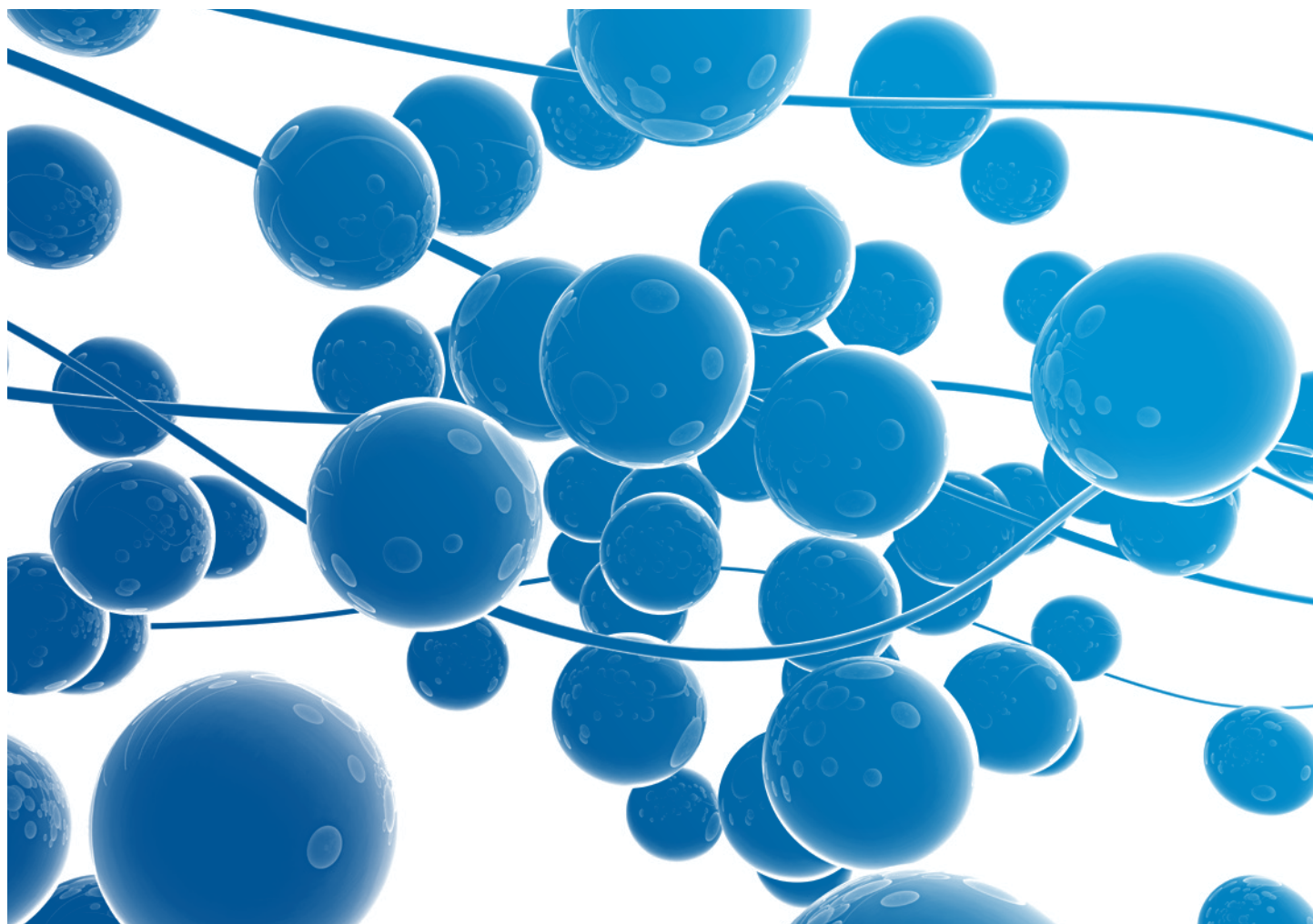
Bindzil grades of colloidal silica are manufactured by our world-wide network of ISO 9000 and ISO 14000 certified plants. The versatile, efficient manufacturing process ensures stellar quality and application performance.

With our global company infrastructure, manufacturing facilities and sales offices worldwide, we are truly well equipped to meet the challenges of today's international marketplace, and we have a professional customer service and shipping organization fully committed to the timely delivery of our products.

Levasil – our most specialized product range

The Levasil grades of colloidal silica are manufactured from high-purity raw materials in a unique procedure intended to generate unsurpassed conformity and stability. The pairing of low impurity and high consistency results in unparalleled quality and performance. Due to this exacting approach, these products exhibit a very long shelf life, which simplifies shipping and other logistics procedures.

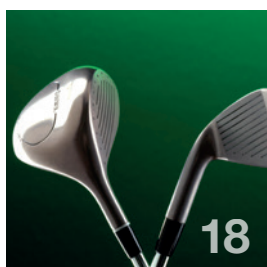
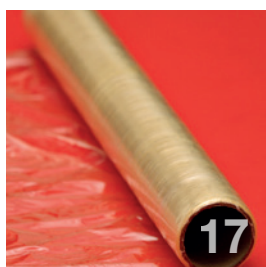
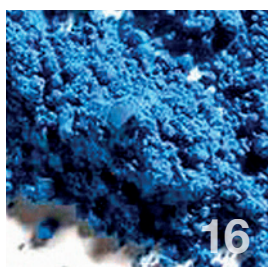
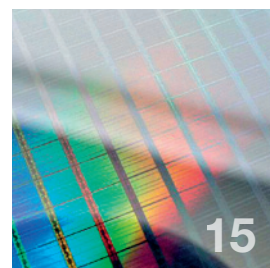
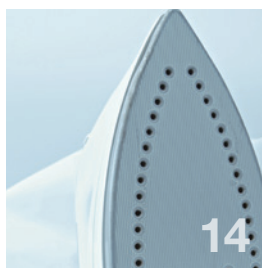
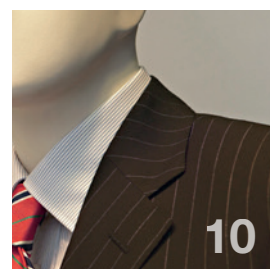
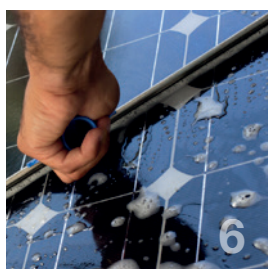
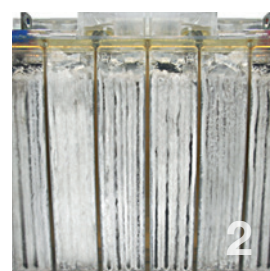
Levasil grades of colloidal silica are available only from our ISO 9000 and ISO 14000 certified manufacturing plant in Leverkusen, Germany. Just as with our other grades, our professional customer service and shipping teams strive to fulfill on-time deliveries.



Versatile functionality

small particles – big advantages

1. Adhesives
2. Batteries
3. Beverage and water treatment
4. Catalyst
5. Ceramics
6. Cleaning
7. Protective coatings
8. Well cementing
9. Deco coatings
10. Fibers and textiles
11. Construction
12. Inkjet and paper friction
13. Inorganic coatings
14. Non-stick coatings
15. Semiconductor and electronics
16. Pigment dispersant
17. Plastic films
18. Precision investment casting
19. Refractory fiber bonding
20. Wood coatings



One company worldwide one global network

AkzoNobel is the only global producer of colloidal silica products

Asia
Guangzhou, China



Asia
Taichung, Taiwan



Europe
Leverkusen, Germany



Europe
Wurzen, Germany



local sales and manufacturing – global availability – universal quality



Europe
Bohus, Sweden



North America
Augusta, Georgia, USA



North America
Howard, Wisconsin, USA



South America
Rio de Janeiro, Brazil

Global customer support

global market leader

AkzoNobel is the global market leader in colloidal silica

We grow the business through our innovative, responsive and committed organization and by working with the right partners. Serving markets with exceptional quality and performance requirements, we constantly develop new products and adapt them to applications both old and new. AkzoNobel maintains a global presence with flexible manufacturing capabilities and a strong ability to build long-term relationships.

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Sustainable solutions

Responsible Care

We are committed to reducing our impact on the planet and delivering more sustainable products and solutions to our customers.

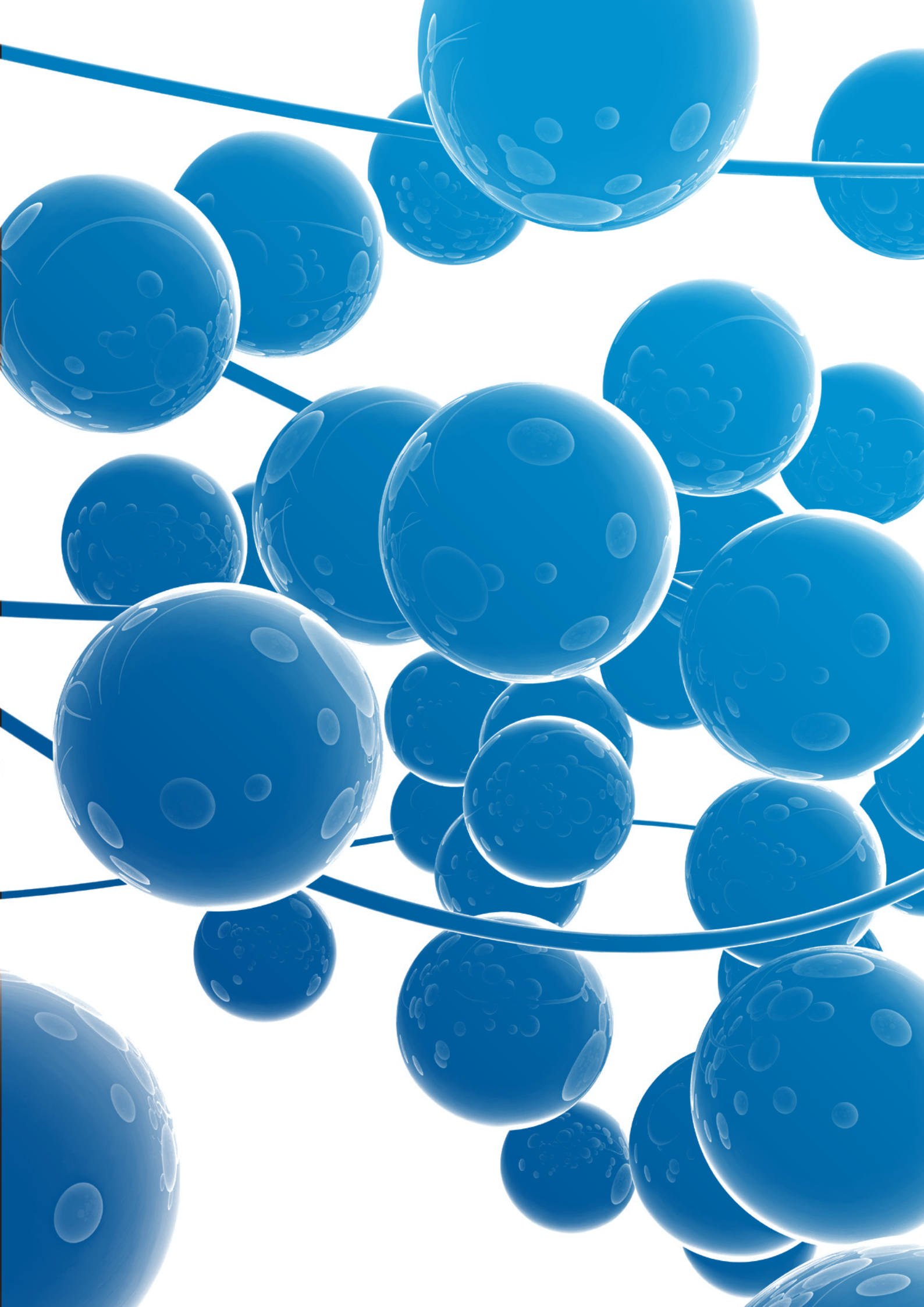
Of course, this will only be possible if sustainability is at the heart of everything we do. That is why we have integrated sustainability into every area of our business – for the benefit of our clients, shareholders, employees and the world around us.

To ensure that our products can be handled and used safely throughout their entire life

cycle, addressing product stewardship is as important as looking after the economic, technical and commercial aspects of product management. We are firmly committed to Responsible Care.

In short, we believe that supplying the right chemistry goes beyond just selling products.





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www.akzonobel.com

AkzoNobel is a leading global paints and coatings company and a major producer of specialty chemicals. We supply industries and consumers worldwide with innovative products and are passionate about developing sustainable answers for our customers. Our portfolio includes well-known brands such as Dulux, Sikkens, International and Eka. Headquartered in Amsterdam, the Netherlands, we are consistently ranked as one of the leaders in the area of sustainability. With operations in more than 80 countries, our 50,000 people around the world are committed to delivering leading products and technologies to meet the growing demands of our fast-changing world.

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