

# Creating Something out of Nothing

For over a century, we have been  
thinking about and developing  
solutions where there were  
previously none.





# Start!

All good ideas start small!  
Because innovation is our tradition,  
Treibacher Industrie AG is skilled at  
taking a new idea from the development  
phase right through to the market.

## We have made innovation our tradition

Admittedly, the word innovation is used frequently by many. At Treibacher Industrie AG, however, it represents not only the company's historical background, it is also the driving momentum for our success, and has been for a long time.

Founded in 1898, Treibacher Industrie AG has been a leading global supplier in the chemicals and metallurgy industry for many decades. With its Austrian headquarters in Althofen and subsidiaries in Germany, Canada, Slovenia, China, and Japan and a worldwide sales network, we supply products to meet the needs of global industry in the five following business areas:

- High performance ceramics
- Hard metals and energy storage
- Rare earths and chemicals
- Environmental catalysts and pharmaceutical chemicals
- Steel and foundry industry

Treibacher Industrie AG develops, produces, and sells powders, solutions, granulates, and alloys. Thanks to excellent relationships with our suppliers, we provide the manufacturing industry with oxides, non-oxides, salts & solutions, ferro alloys, non-ferrous metal alloys, metals, flints, and we offer in-depth expertise in the important field of recycling.

## Good partnerships form the basis of success

Our customers value the high quality of our products and services, but also our absolute reliability when we commit to projects. Because of our excellent global procurement capabilities, Treibacher Industrie AG is a desirable partner for many complex projects.

We handle customer-specific development projects from start to finish, from the lab to the market – and, to get there, employ the most modern technologies for chemical-metallurgical processing.

In addition to our industry partners, we also work closely with renowned universities and research institutions.

→ Learn more about us at  
[www.treibacher.com/en/company](http://www.treibacher.com/en/company)



### Our history parallels the history of industry from the 19th, 20th and 21st centuries.

Treibacher Industrie AG grew out of a pioneering achievement, one that we still feel committed to today and in whose tradition we see ourselves.

In 1885, the well-known scientist Carl Auer von Welsbach made the revolutionary discovery of the gas mantle light. In 1898, he founded the (former) Treibacher Chemische Werke and discovered four rare earth elements that remain the foundation of one of the leading business units of Treibacher Industrie AG.

His work with cerium Mischmetals led to the patenting of the flint in 1903. This is one product that continues to be produced by Treibacher Industrie AG today, even if it is no longer the center of our economic success.

### Developments and milestones

"Tradition is the keeping of the fire, not the praising of the ash," Gustav Mahler, the famous composer, once said.

If you look at the important milestones in our company, you see that we protect what we have achieved by continually moving forward.

1898	Company founded by Carl Auer von Welsbach
1903	Mischmetal and flint production
1916	Ferro alloy production
1949	Production of sodium perborate & rare earth compounds
1959	Production of hard metal powders
1969	Vanadium oxide production
1978	Recycling of metal containing materials
1985	Production of vacuum alloys
1989	Production of storage alloys for batteries
1992	Production of high performance ceramic powders
1995	Initial ISO 9001 certification
1996	Production of materials for catalysts
1996	Founding of Treibacher Auermet d.o.o in Ravne/Slovenia
2002	Acquisition of the rare earth business from Meldform (UK)
2002	Delivery of raw materials for the pharmaceuticals industry
2008	Production of feed additives
2011	Expansion of recycling plant
2012	GMP certification
2013	Acquisition of Leuchtstoffwerk Breitung GmbH

Commitment to our community and social responsibility go hand in hand with company growth. Promoting young artists and our art program „Kunst im Werk“ and other social projects as well as investing in our employees and our community are simply a given for a large company like Treibacher Industrie AG.



### Research and development: From thinking about to thinking ahead

Through our research and development work, we offer our customers a high level of specialization across a broad technical foundation.

In doing so, our main challenge is understanding the structure and morphology of substances and precisely engineering chemical and physical properties.

Our research and development activities are geared toward the market and our customers. Our success is based on understanding our customers' needs and the speed at which we complete projects – that's why we work directly with our customers. We are interested in environmentally sustainable solutions, which makes resource protection a main priority right from the beginning of the development project.

### A look beyond the horizon

Our interdisciplinary research and development teams are made up of chemists, metallurgists, process engineers, and materials scientists. Moreover, collaboration with customers, national and international universities and research institutions represent an important part of our innovation success. During all research activities, the quality tools used in the development process go above and beyond the ISO 9001 standard.

Productivity and sustainability are the determining factors for product and process optimization as well as product and process development.

Research, development, and identifying global market and customer needs all represent the foundation that we have long built on. A foundation that allows Treibacher Industrie AG to look back on successful past – and also remain a reliable partner in the future.

→ More about our research and development activities can be found on [www.treibacher.com/en/research-and-development](http://www.treibacher.com/en/research-and-development)



# Together.

In order to get along well with one another, large industrial companies must guarantee safety inside and outside, environmental protection, and sustainability. Treibacher Industrie AG goes further than that.



## One way to identify the principles of a company is by its attitude toward the environment

Due to the tireless efforts of our employees, we are able to meet stakeholder expectations and achieve outstanding results on a daily basis. We focus not only on the development of new products, but on how to best exploit raw materials, especially secondary raw materials (residues), and how to streamline production costs, all while preserving the environment.

## Environment, recycling, operations streamlining

Precisely because Treibacher Industrie AG is a major industrial operation, we are particularly committed to protecting the environment – and for us that means:

- Incorporating environmental policies into our operations and conforming with international standards.
- Using environmentally sustainable processes, operating equipment, and logistics.
- Sustainably handling resources like water, power, and raw materials
- Avoiding waste and using recycling technologies.
- Constantly performing environmental checks by measuring air, water, and soil.
- Continually improving and maintaining state-of-the-art technology.
- Keeping communication between neighboring landowners and authorities transparent.

Each year, we perform up to 1200 measurements internally and about 120 measurements externally, primarily observing air, water, and noise. Investing in Environmental protection already make up a considerable portion of our overall investments.

## Highest level of standard requirements as a minimum goal!

All products from Treibacher Industrie AG are produced based on the ISO 9001 and ISO 14000 standards. Product requirements that exceed the above standards such as GMP (Good Manufacturing Process) and HACCP (Hazard Analysis and Critical Control Points) are also implemented for selected products. With recycling, an important area of our business operations, we reprocess secondary raw materials in an environmentally sustainable manner. Our modern plant machinery and equipment guarantee high efficient and economic viability when it comes to disposing of waste and further processing of residual materials.

→ For more information on quality and the environment, please take a look at our manual: [www.treibacher.com/en/company/quality-management](http://www.treibacher.com/en/company/quality-management)



# Variety.

Treibacher Industrie AG's activities are broadly diversified while highly specialized in several areas: High performance ceramics, hard metals and energy storage, rare earths and chemicals, environmental catalysts and pharmaceutical chemicals, steel and foundry industry.

## High performance ceramics Quality knows many forms

We develop and produce technically advanced materials and powders for many advanced ceramic applications.

Our customers benefit from our experience and expertise when it comes to ceramic powders used in precision investment casting, thermal spray, bioceramics, electroceramics, and ion conductors. In order to offer as broad a product range as possible, the following technologies are mainly used:

- Single and multi-component precipitations
- Electric Arc Fusion
- Reaction sintering
- Spray drying
- Carbo-thermal reduction/synthesis
- Various milling and screening technologies
- Vacuum induction-melting with degassing and casting
- Vacuum heat treatment
- Gas atomization

## Developments for industry, together with the industry

We mainly concentrate on high-performance ceramic oxide and non-oxide materials. Application fields for these include, precision investment casting, thermal spray, bioceramics, electroceramics, and ion conductors.

Very specific products are often developed in close cooperation with our customers. This is made possible by our scientists and engineers who are experts in their respective fields. Our scalable technology platforms, from the lab and pilot scale up to production enable a reliable and quick time-to-market.

Our customers value our reliability and ability to deliver on time. We offer our customers tailored solutions and scalability throughout the entire development process.

## Important products and projects:

Functional ceramic powders, such as electrolyte materials for SOFC and ion conductors and cathode materials, special yttria compounds. Special additives and ready-to-press powders, for ceramic bio-implants, dental ceramics and ceramic wear parts. Thermal spray powders and raw materials products for thermal barrier coatings, environmental barrier coatings, transparent conducting oxides (TCOs), and the semi-conductor industry. Ultra-pure, sub-micro yttria materials and other SE oxides for electro-ceramics and semiconductor applications. Yttria products for precision investment casting used to manufacture turbine blades and structural components for airplanes and gas turbines.

→ For more information on high performance ceramics, please visit:  
[www.treibacher.com/en/business-units](http://www.treibacher.com/en/business-units)



### Hard metals and energy storage For less wear and consistent performance

There is a decisive demand when it comes to the industrial application of hard metals, energy storage, and thermoelectric generators: Constant high product quality. This is precisely why our products enjoy an outstanding reputation for quality worldwide.

In addition to hard metal raw materials such as carbides, nitrides, and carbonitrides, we also produce tungsten metal powders for the tungsten processing industry. The same high quality standards also apply to our energy storage materials based on lanthanum nickel and titanium manganese and our vanadium electrolyte solutions.

Treibacher Industrie AG has many years of development experience and works closely with its customers to produce customized products. Our broad portfolio covers:

- Hard metals such as carbides, nitrides, carbonitrides, and tungsten metal powders
- Hydrogen getter materials, hydrogen storage and battery alloys
- Electrolyte solutions
- Skutterudite alloys for thermo-electric generators

### Customer satisfaction well earned

We have made a name with our developments in the field of special carbides, carbonitrides, nitrides for applications in hard metals and cements and in the development of special alloys and electrolyte solutions for energy storage.

Thanks to our broad technology range, from research and development to production, we use our innovative solutions to make our customers' ideas a reality.

Our customers appreciate our professional approach, our compliance with agreements, and our reliability. Consistently implementing customer requirements and reliably meeting the agreed specifications are essential strengths of our company.

### Important products and projects:

Thermo-electric materials for converting heat loss from vehicle exhaust systems or from exhaust heat from industrial furnaces. Finest (submicron) carbonitrides for manufacturing cermet tools under extreme conditions.

→ For more information about hard metals and energy storage:  
[www.treibacher.com/en/business-units](http://www.treibacher.com/en/business-units)



### Rare earths and chemicals: Market leader based on tradition – responsible supply line reliability

Treibacher Industrie AG is the market leader for rare earths. We deliver the base material for producing high quality products with very special properties. The more specialized a product, the more important it is to collaborate closely with the customer. Especially when improving processes, we often come up with new solutions when working together.

Our rare earths are used in a multitude of different applications:

- **Catalysts:** Rare earth and vanadium materials are used to manufacture process catalysts.
- **Water purification:** Rare earth compounds are used with high efficiency in water purification.
- **Pigments, frits, and ceramic stains:** Rare earth compounds and vanadium chemicals are important elements of pigments. In addition, they increase the opacity.
- **Glass melting and polishing agents:** Rare earth compounds and vanadium chemicals are added directly to the glass melting process to color and decolor the glass and to achieve UV opaqueness. Our cerium oxides are used as a polishing agent for high quality precision glass.
- **Foundry industry:** Rare earth metals are used as additives when producing steel, cast iron, magnets, and Galfan®.
- **Flints:** Company founder Dr. Carl Auer von Welsbach invented the flint in 1903. Today, our customers include manufacturers of disposable lighters and refillable lighters, gas and welding lighters.

### Innovative high-tech solutions

Since the founding of our company, we have pursued research and development work with rare earths. Today, our scientists and engineers work with the most modern synthesis techniques to create new rare earth and vanadium compounds. During the process, our customers from application areas such as chemistry, catalysts, pharmaceuticals, medicine and other industrial fields count on our innovations to meet their needs.

Our customers value our reliability, high level of flexibility, and our solution-oriented approach to our customer relationships. Regardless of the type of delivery and quantity delivered, we always strive to find a solution.

### Current projects and issues:

Chemicals for water purification, polishing agents for precision optics, and recycling of rare earths.

→ For more information on rare earths and chemicals, please visit  
[www.treibacher.com/en/business-units](http://www.treibacher.com/en/business-units)



**Environmental catalysts and pharmaceutical chemicals:  
Raw material supply security and market knowledge**

As the largest European vanadium producer and globally experienced rare earth specialist, we combine technical expertise with a solid raw material supply optimized over the years. We offer a broad range of materials for environment catalysts and the pharmaceutical industry – mainly based on rare earths and vanadium chemicals. In doing so, we place particular value on market-related special developments.

**Environmental catalysts**

Our materials for mobile and stationary environmental catalysts distinguish themselves due to the high degree of conversion, thermostability, excellent environmental compatibility, robustness, and high selectivity. When developing and manufacturing catalyst materials, economic factors are our top priority.

Our materials are used in the following applications:

- Three-way catalytic converters (TWC)
- Diesel particulate filters (DPF) and diesel oxidations catalysts (DOC)
- Stationary and mobile NOx removal using SCR (Selective Catalytic Reduction)
- Oxidation catalysts for volatile organic compounds (VOC)

**Pharmaceutical industry**

Products from Treibacher Industrie AG are used in the pharmaceutical-chemical industry in a multitude of applications.

Our products meet the highest quality requirements of this industry – including the GMP-compliant manufacture of ingredients (APIs).

The application areas for the pharmaceutical industry include:

- Process catalysts in the chemical pharmaceutical synthesis of ingredients APIs
- Phosphate binders
- Contrast media for magnetic resonance imaging
- Feedstuff additives
- Nutritional supplements

Our customers value our brisk research activities, constant high product quality, and good manufacturing practice that make us stand out as a European supplier.

**Current projects and issues:**

New materials for automotive NOx catalysts (SCR) as well as high temperature-resistant and non-toxic metal vanadates.

→ For more information about environmental catalysts and pharmaceutical chemicals, please visit [www.treibacher.com/en/business-units](http://www.treibacher.com/en/business-units)



**Steel and foundry industry:  
The quality of the leading European producer of ferro alloys**

In the steel and foundry industry, we mainly produce refined steel alloys ferro vanadium (FeV) and ferro molybdenum (FeMo) and sell and distribute it worldwide.

Our long-term business relationships with international suppliers guarantee our customers a strong and reliable supply line for:

- Ferro vanadium
- Ferro molybdenum
- Ferro nickel molybdenum
- Calcium aluminates
- Mischmetals, rare earth metals, and alloys as commercial products

Vanadium, molybdenum, and nickel are effective as alloy elements in high-strength, tough, wear and corrosion-resistant steels. Our ferro alloys are employed both for low-alloy structural steel as well as for the highest-quality stainless steel products.

Our customers include integrated iron and steel works, electrical steel plants, foundries, and manufacturers of special products.

**Recycling**

To supplement our primary production of ferro alloys, we are also involved in recycling secondary raw materials. We mainly process used metal containing catalysts that originate from natural gas refineries. Our processes aim for the complete and transparent reprocessing of material flows. We have received numerous awards in the last few years for our constant commitment to environmental protection and resource conservation. State-of-the-art recycling plants and our commitment to complying with strict environmental standards guarantee that this high level of commitment is maintained.

We focus mainly on the following residual materials:

- Used catalysts from the petrochemical industry
- Boiler and gasification residues from oil combustion or gasification operations

Our customers value our in-depth expertise when it comes to recycling, our independence on the raw materials market, our service, and lastly, the fact that all processes dovetail so perfectly with one another.

We would be happy to answer any questions you may have regarding recycling issues.

**Current projects and issues:**

Chemical-metallurgical process optimizations and process engineering developments for expanding the raw material portfolio.

→ For more information about the steel and foundry industry, please visit: [www.treibacher.com/en/business-units](http://www.treibacher.com/en/business-units)



**Variety from a single source :**  
**Products from Treibacher Industrie AG**

Supply line reliability and tailor-made solutions are important factors in responding to customer needs. The first priority, of course, is the quality of the products.

Throughout its long history and experience, Treibacher Industrie AG has outstanding relationships with its suppliers. This is one of the main factors in the company being able to offer both a broad and specialized high-quality product portfolio.

→ You can find all of our products in the folder on the right side – or under [www.treibacher.com/en/products](http://www.treibacher.com/en/products)



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**Innovation is our tradition.**