

Close to our markets

Innovation, cooperation, portfolio management. In 2017, Heraeus worked diligently on achieving its goals and came a few steps closer to its objective.

Silicon wafer carriers made from Black Quartz provide additional heat insulation in the microchip industry.



By completing the acquisition of Argor-Heraeus, Heraeus' precious metal business significantly expanded its expertise in the area of gold and silver – positioning itself as the world's largest precious metal provider.



Heraeus once again took full advantage of the positive economic trend in the last financial year, and the company increased its total revenue again. The revenue growth excluding precious metals is significant, rising by nine percent during the previous year (11 percent when adjusted for currency effects). Structural changes in the operating business, consistent implementation of excellence initiatives and careful portfolio management have all contributed to this growth. Collaboration with new partners as well as positioning new products in different markets have also played a role in the positive business development.

Strengthening the business through acquisitions

Successful portfolio management by the Board of Management also contributed to the company's performance in the previous financial year. The best example of this is the complete acquisition of Argor-Heraeus, the Swiss precious metal processor. "This makes our precious metal business the world's largest provider of industrial precious metal services," says Jan Rinnert, Chairman of the Heraeus Holding Board of Management. An important step for Heraeus – also with regard to the company's customer centricity. Heraeus is now the top partner when it comes to trading, processing and recycling precious metals. Likewise, another building block in the recycling portfolio was added at the beginning of the financial year: With the acquisition of VINO Plasma GmbH, Heraeus now operates one of the most modern plasma furnaces for the recovery of platinum group metals, mostly from catalytic converters.

»We are the world's largest provider of industrial precious metal services.«

Jan Rinnert
Chairman of the Heraeus Holding Board of Management

Expanding existing expertise was only one part of the successful portfolio management in the previous year. For example, the acquisition of US-based Biotectix opened up a new medical field for Heraeus. Biotectix specializes in producing polymer-based conductive materials for medical devices. The newly acquired expertise in the field of activity Health supplements existing expertise in electrodes, generating the potential for new innovative solutions and the next generation of medical devices. A gain for patients, customers – and for Heraeus. "Progress can also mean acquiring highly developed expert knowledge and bundling it with your own expertise," sums up Dr. André Kobelt, Chief Commercial and Chief Technology Officer at Heraeus.



Amorphous metals are pliable and resistant thanks to a disordered atomic scale structure – perfect for gears or miniaturized implants.

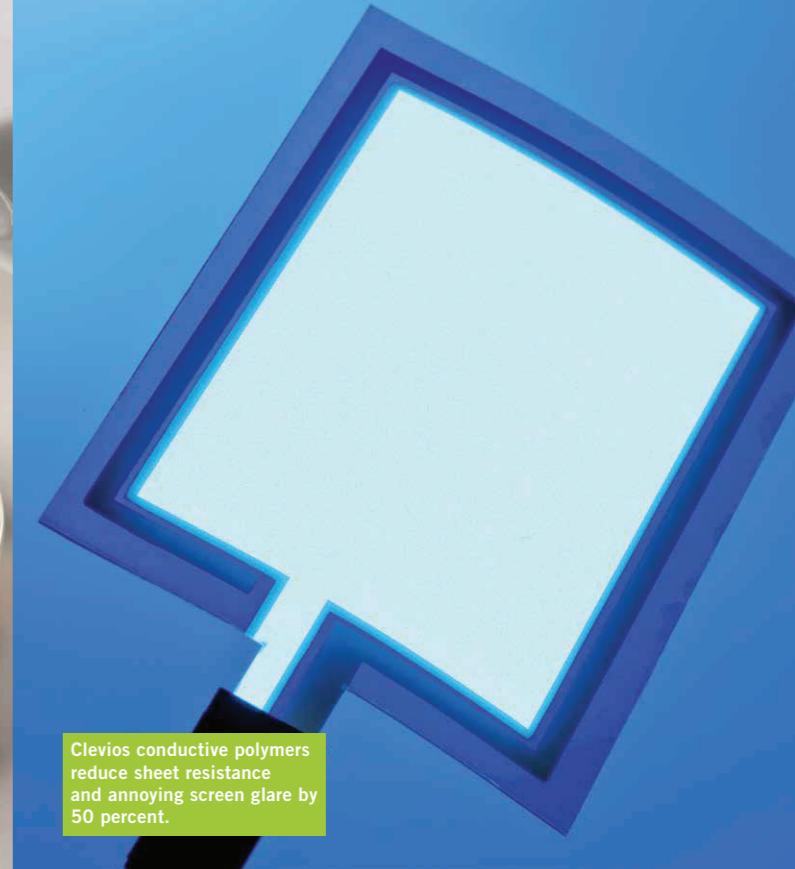
Successful financial year 2017:

13,073 employees worldwide

>100 locations worldwide



HeraGlaze improves the cell efficiency of multi-crystalline wafers, making it an important building block in Heraeus' photovoltaics portfolio.



Clevios conductive polymers reduce sheet resistance and annoying screen glare by 50 percent.

A strong competitive position translates to good opportunities for growth, and these are the markets that Heraeus concentrates on. However, one consequence of this business maxim is consistent divestment where the company no longer sees prospects for its own growth. This includes the sale of the Heraeus sputter target businesses to the US-based Materion Corporation. "We will focus even harder on our businesses where Heraeus holds a strong competitive position and sees excellent opportunities for growth. The Heraeus sputter target businesses have found a very good home for the future with Materion," stated Jan Rinnert upon the successful conclusion of the sale, which took effect on March 1, 2017.

More partners, better collaboration

Strengthening its collaboration with partners is another avenue Heraeus has continued to pursue to drive business growth. For example, the company has a partnership for several years with Northam, a South African mining company, to secure access to precious metal quotas. The new platform for thick film pastes for specific electronics applications offers another example. How customers benefit is always at the heart of these activities. With the global licensing agreement for photoimageable thick film paste technology signed by Heraeus Electronics and Mozaik Technology Ventures last November, for example, one thing is very clear: Heraeus helps make smaller parts with better performance.

With new partnerships, the goal is always to manage the collaboration effectively. The secure transfer of information

as well as securing the rights and patents are at the top of the list of challenges. The partnership with Rietech Solar is also a complete success – and drives Heraeus Photovoltaics' engagement in the value chain. The company's collaboration with the China-based producer of silicon wafers for solar cells led to the development of HeraGlaze, an innovative coating technology. Using the technology in wafer production increases the number of usable silicon blanks, which improves the wafer yield by around three percent and increases cell efficiency by around 0.05 percent. Not only is the improved performance impressive, the partnership is already setting new standards. In less than a year, HeraGlaze went from the research lab into production. Dr. Weiming Zhang, Executive Vice President and Chief Technology Officer of Heraeus Photovoltaics, summarizes: "We are convinced that this success was only possible thanks to the collaborative partnership."

Continue to strengthen innovative power

One constant in the successful history of this family-owned company has always been its innovative strength. The conductive polymers from the Clevios family that Heraeus has been developing for many years are a prime example. New Clevios innovations were presented at the C Touch conference in Shenzhen last November. They will enable stable foldable displays and smartphones in the future as well as scratch-resistant displays with better contrast.

Sometimes the uninterrupted drive for discovery of Heraeus employees also leads to entirely new areas of application. Heraeus Black Quartz – a composite of quartz

glass (silicon dioxide) with high-purity silicon particles – is an excellent example of this innovation. The new material possesses the high chemical purity and thermal resistance of quartz glass coupled with the optical properties of a black body. This enables it to absorb and then evenly dissipate heat emissions. The potential industrial applications are extensive, and it is currently being used to control temperatures in microchip production.

Consumers and industry are not the only ones who benefit from the strong innovative power of Heraeus – the environment does as well. The UV oxidation air purification process developed by Heraeus Noblelight China is improving air quality in China. The process utilizes ultraviolet (UV) light to neutralize volatile organic compounds (VOCs), which are anthropogenic organic compounds and considered one cause of air pollution. The innovative system is already being used by a number of Chinese industrial companies.

The innovation pipeline is also staying full. Heraeus aims to earn a significant percentage of its product revenues with new innovations by the year 2020. Forty-one projects in a variety of fields of activity are slated for rollout in 2018 alone. With new start-ups like Digital Printed Electronics, Heraeus is expanding its expertise in the area of digital printing technology, for example. The goal is to position the company as a provider of customizable flexible electronics. Digital Printed Electronics is part of the Heraeus Incubator New Businesses (INB), as is the Amorphous Metals start-up launched in January 2017. In this start-up, Heraeus is expanding its expertise in the processing of and applications for this fascinating class of materials.

»The market is clamoring for new materials with new material properties.«

Dr. André Kobelt
Chief Commercial and Technology Officer

"The market is clamoring for new materials with new material properties," explains Dr. André Kobelt. For that reason, the start-up will help develop new amorphous alloys. Amorphous metals are appealing for many high-tech applications because they are shock-absorbent, scratch-resistant and they have very good spring characteristics.

These innovations are the basis for successful partnerships and drive the growth of the company. A look back at 2017 clearly shows that Heraeus has set a course for growth.