Press release – Technology (Expertise in niche areas)
2011 press conference on annual results

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Market leadership through expertise in niche areas

- In outer space and here on earth: Heraeus has the expertise to capture intriguing niche markets.

When it comes to manufacturing special quartz glass fibers, just one millimeter in thickness, to carry high-energy laser beams to industrial welding robots, or creating two identical five-centimeter cubes, made of a gold-platinum alloy, that may help to confirm Einstein's theory of relativity, Heraeus has the expertise to capture intriguing niche markets, both in outer space and here on earth. This expertise is based on expert work with complex materials and extremely high temperatures, as well as 160 years of experience in the area of materials technology. "Our expertise allows us to develop high-quality products that can be used for a wide range of applications in highly attractive niche markets," explained Dr. Frank Heinricht, Chairman of the Board of Management of Heraeus Holding GmbH, at the press conference on annual results. "Our niche products play a key role in our customers' products, which could not function without them." "We aim to maximize and strengthen our future growth potential in the 40 business segments where we are already active and through targeted entry into new and very promising niche markets," commented Jan Rinnert, Vice Chairman of the Board of Management and CFO of Heraeus Holding GmbH.

With over 6,000 patents and patent applications, Heraeus is engaged in innovative activities around the globe. Ninety-four new basic patents were issued to Heraeus during fiscal year 2010. Last year the Group invested some €66 million in the development of new products and technologies. It will increase its development budget by another 20% in 2011, bringing it to a level of over €80 million.

Gold-platinum cubes to test Einstein's theory of relativity

Niche products from Heraeus play a key role in cars, mobile phones, computers, optical fiber cables, satellites, industrial lasers, particle accelerators and airbags, and they are essential for high-quality analysis and surface disinfection in the food industry. The company not only produces the precious-metal balls, only a millimeter in diameter, used in the tips of fountain pens, but it also recently created two absolutely identical five-centimeter cubes made of a gold-platinum alloy. These cubes, composed of 73% gold and 27% platinum, are intended to help confirm Albert Einstein's theory of relativity. As part of the joint international LISA (Laser Interferometer Space Antenna) project, the European Space Agency is searching for evidence of gravitational waves, which Einstein posited as part of his general theory of relativity in 1916. The Heraeus cubes will play an important role when the LISA Pathfinder satellite is launched in 2013: These two proof masses will be used to measure minute changes in distance caused by gravitational waves, even on an infinitesimal scale. The precious metals involved must be absolutely pure and free of even the tiniest flaws. Heraeus' expertise, gained over decades in the field of

metallurgical processing, was put to the test as it worked with this challenging alloy.

Special quartz glass fibers for the transmission of energy without energy loss

New niche areas are also emerging for quartz glass. Heraeus is not only producing intermediate products for high-volume applications, such as optical fibers made of quartz glass for the telecommunications industry, but it is also involved in creating unusual high-tech applications. For example, quartz glass fibers are also commonly used in industrial and medical lasers. All of this is possible thanks to Fluosil®, a special fiber material for transmitting high photonic energy over short distances without energy loss. The fiber's real strength comes from its special design: it has a large fused silica core within a thin layer of fluorine doped fused silica cladding that makes it ideal for transmitting high power in a spectral range from UV through to infrared. The automotive industry has completely automated many welding processes. In order to best utilize the solid-state laser units in manufacturing, specialty fibers of up to a millimeter thick carry the laser beams to many welding robots simultaneously. Heraeus is one of the pioneers of quartz glass production and has developed the material over the last 110 years into a high-tech product. Quartz glass is also found in optics for high-performance lasers used to study laser fusion, a new approach for future energy production.

The next step on the evolutionary ladder: From a temperature sensor to a biosensor

Platinum thin-layer temperature sensors, which - among other things – conserve fuel in combustion engines and control the exhaust stream, are now also used in niche applications in the fields of biotechnology, pharmacy, and medical technology. Multifunctional sensors from Heraeus have future potential as biosensors that can simplify research for suitable cancer treatment methods or accelerate the analysis of impurities in water.

These cutting-edge examples demonstrate that Heraeus, as a market leader, has the expertise in high-tech materials to dominate in technological niches where few competitors can keep pace.

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