Press release

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Empa celebrates 125-year anniversary

Insights into the world of research

Founded in 1880 as an institute for testing construction materials, Empa is now – 125 years on – a highly regarded research centre at the heart of the Swiss ETH domain. Its investigations and developments attract widespread attention and respect in the scientific and technological community. In celebration of its 125th birthday, the institute will throw open its doors in June to give the general public a behind-the-scenes look at its research activities.

Building on a long tradition, Empa is virtually a household name in Switzerland. For many Swiss, its connotations are safety, technical perfection and sustainable solutions. That it long ago broke the mould of an ordinary test institute will be amply demonstrated by a packed and intriguing programme during the two-week celebrations in June. Some forty school classes are due to visit the Empa facilities in St. Gallen and Dübendorf on 16, 21 and 23 June. Two open days will be held for the general public on consecutive Saturdays: on 18 June in St. Gallen and on 25 June in Dübendorf. At the official ceremony on 24 June, Swiss Federal Councillor Pascal Couchepin, Swiss National Councillor Barbara Haering, ETH-Council President Alexander Zehnder and the Empa management will map out the institute's future.

Key theme in St. Gallen: human health

Empa's research currently focuses on five areas. At the open day in St. Gallen on 18 June, the spotlight will be on the "Healthy Human" programme. On the associated research trail, visitors will take on the perspective of a cell and experience how its reactions to surfaces resemble those of humans walking barefoot over differently textured materials. This factor plays a pivotal role in the development of so-called biocompatible materials. An understanding of how human cells react to the surface composition of surgical implants is crucial for advances in this field. Empa also cultivates bacteria for use in the production of bioplastics. These biodegradable polymers are ideal for use in medical applications by virtue of their biocompatibility.

Empa also boasts a long track record in the development of protective systems, in particular flame-retardant textiles. Once hourly on Saturday 18 June, test dummy Henry will be engulfed in a sea of flames in a demonstration of the effect of burning clothes on the human body. Other items on display include helmets and hip protectors for shock absorption in the event of a fall, moist bandages for

accelerated healing and luminescent bacteria, which help deep-sea fish in their hunt for food and which, at Empa, are used in chemical toxicity tests.

Variety of attractions in Dübendorf

The various research trails at the open day on the Dübendorf site, on 25 June, feature Empa's other four research programmes. The "Adaptive Materials Systems" trail confronts visitors with the notion of copying nature in the development of "smart" systems capable of reacting to fluctuating environmental conditions. Particularly impressive is the scale 1:1 cable-stayed bridge in the construction hall with integrated sensors to allow permanent wireless monitoring of its condition. The system provides for the transmission of data to a control system that allows the bridge to react to ambient conditions and accommodate vibrations intelligently by means of dampers.

"The very finest in powder" – or, to be more precise, powder with particle diameters of less than 100 nanometres – is used to thicken toothpaste, harden coatings, toughen plastics and strengthen ceramics. As part of its Nanotechnology research programme, Empa investigates the properties of nanopowders and develops production methods that will usher in the widespread application of innovative technologies in the manufacturing sector. As a key 21st-century science, nanotechnology naturally enjoys a high priority at Empa. Featuring among the fascinating exhibits is ultramodern apparatus for the processing of materials at the molecular and atomic level.

The research by scientists engaged in Empa's Technosphere - Atmosphere programme is geared towards reducing the many visible and invisible pollutants that impact on our environment. Among other things, the display features a drill core from the bed of the Greifensee lake near Zurich that shows how brominated flame retardants are deposited as long-term toxins in the environment. Indeed, the associated pollution levels are on the decline since the voluntary phase-out of these flame retardants in 1995. In the meantime, however, Empa has found concentrations of a controversial substitute to be shooting up at a worrying rate.

Car fanss, particularly those with an interest in eco-friendly mobility, are bound to be captivated by the "Vehicle drives of the future" presentation. The items on show include a "clean and efficient" gas-fuelled vehicle, exhaust treatment systems and, as a special treat, Volkswagen's one-litre car. Personally driven from Wolfsburg to Hamburg by the retiring VW Chairman, the pioneering vehicle will receive its first showing outside Germany. A further highlight on this trail is the "particles" competition in which visitors will be challenged to identify candle soot, asbestos fibre and pollen when viewed under an electron microscope.

The 2000 Watt society is a much-touted vision – vision being the operative word given the present annual per capita energy use in Switzerland of 5,000 W and the tricky path to sustainability. As part of its "Materials for Energy Technologies" programme, Empa investigates the key technical prerequisites for cutting energy demand without compromises on consumer comfort. Building insulation systems, insulating glass units, high-temperature ceramic fuel cells with an operating temperature of 1,000°C, innovative cooling devices that dispense both with environmentally damaging coolants and noisy compressors are among the items on view.

Editor

Robert Helmy, Empa Communications, tel. 044 823 45 92, robert.helmy@empa.ch

Officers in charge of research trails

Healthy Human
Markus Rüedi, Departmental Head, tel. 071 274 72 48, markus.rueedi@empa.ch

Adaptive Materials Systems
Dr. Daniel Gsell, Structural Engineering Section, tel. 044 823 44 19, daniel.gsell@empa.ch

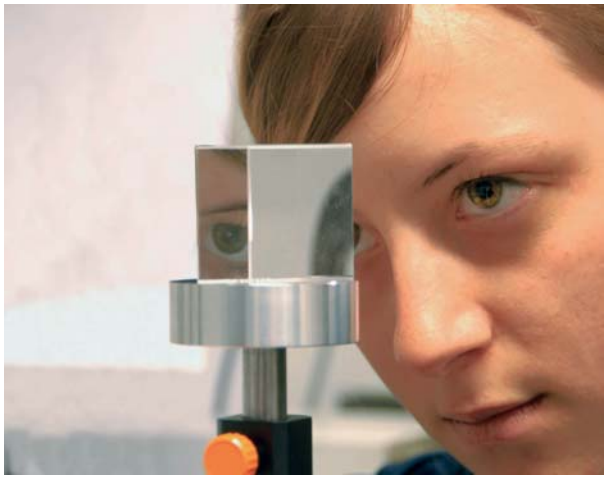
Nanotechnology
Walter Muster, Departmental Head, tel. 044 823 41 20, walter.muster@empa.ch

Technosphere - Atmosphere
Dr. Martin Kohler, Organic Chemistry Section, tel. 044 823 43 34, martin.kohler@empa.ch

Energy
Dr. Sara Romer-Urban, Nanoscale Materials Science Section, tel. 044 823 40 24,
sara.romer@empa.ch

Note for editors

Empa will issue media releases on the school class visits, the official ceremony on 24 June and the open days (18 June in St. Gallen and 25 June in Dübendorf). These along with pictures of the events will be posted at www.empa.ch/mediacorner.



On the occasion of its 125th birthday, Empa will offer fascinating insights into its research activities.

The St. Gallen facility will throw open its doors to the public on Saturday, 18 June 2005.

The open day in Dübendorf will take place on Saturday, 25 June 2005.

The images may be downloaded in printable format from www.empa/bilder.