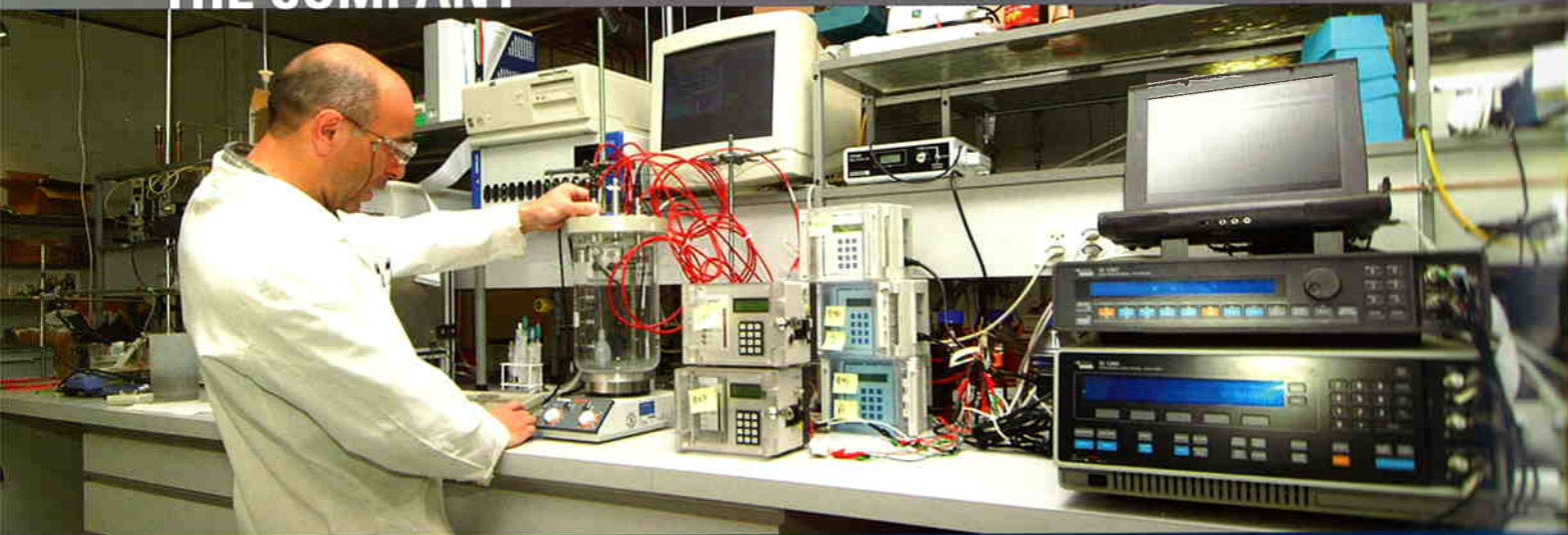


adamant 
technologies



THE COMPANY



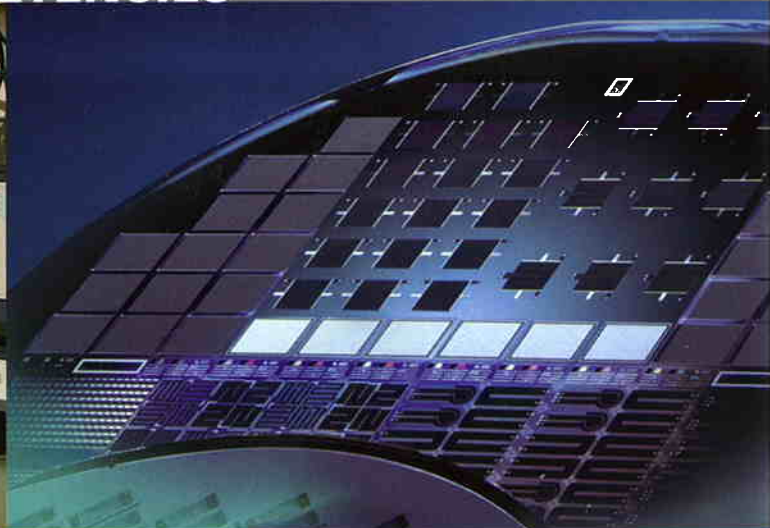
Adamant Technologies has extensive expertise in the field of diamond coating technologies dedicated to markets such as water treatment, water sensing, metrology, etc. This high-tech company which has a symbolic name directly related to its core activity – “*Adamas*” means *diamond in Latin* – develops, produces and markets diamond coatings as well as related products.

Adamant Technologies was created at the beginning of 2005 as a spin-off company of CSEM, Centre Suisse d'Electronique et de Microtechnique SA, in Neuchâtel, Switzerland. Since that date, the entire activities and know-how of CSEM in the fields of diamond coating and water activities have been transferred to the new company. Adamant Technologies has its headquarters in the Science and Technology Park Neode in La Chaux-de-Fonds (NE), Switzerland.





TECHNOLOGIES & COMPETENCIES



DIAMOND

Diamond, an exceptional material which has fascinated human beings since its discovery! From a technical point of view, natural or synthetic diamonds have unique mechanical, chemical, electrical and optical behaviors. For these reasons a great R&D effort has been invested worldwide since the end of the 80's to develop processes for large-scale synthetic polycrystalline diamond coatings on appropriate substrates.

The diamond production technology at Adamant is based on HF-CVD (Hot-Filament Chemical Vapour Deposition), a process in which diamond growth takes place from a gas mixture at high temperature and under vacuum.

Adamant Technologies has focused its research effort on boron-doped thin film coatings to obtain highly conductive material. This newly developed material, called boron-doped diamond, is mainly coated onto doped silicon substrates (BDD/Si). The products are named **Adamant® - Electrodes**.

MICROSYSTEMS

The microstructuring of boron-doped diamond or metallic thin coatings to form microelectrode arrays brings new approaches for sensing applications. Microelectrode arrays packaged in robust sensors offer low background current and enhanced mass transfer representing the ideal combination for an innovative concept of online membraneless sensor for water quality sensing and monitoring.

Diamond has a great potential in the development of new microsystems and in the improvement of existing ones for metrological, mechanical and watch industries. The continued close cooperation between CSEM and Adamant Technologies offers the best combination of competencies for sustained innovation and customized developments.



DIAMOND ELECTROCHEMISTRY

Water treatment without the use of chemicals and with low energy requirements is an essential goal for the sustainable management of vital resources. During the last decades, water treatment has become more and more important, and today only high technology can bring new advances in this field.

Adamant[®]-Electrodes have a huge potential when used as key components with suitable electrochemical methods, either in process or analytical applications. The high overpotentials at which water is oxidized to oxygen and reduced to hydrogen leave room for many interesting electrochemical reactions for water treatment with the **DiaCell[®]-Technology** and water quality sensing applications with the product range **SenSys[™]** (see figure below).

This unique electrochemical property of doped-diamond together with its extremely high stability at extreme pHs, temperatures and chemicals, together with a low fouling behavior make this material of great interest for inorganic and organic chemical synthesis as well.

