



Palacký University Olomouc

Technology Offer

Technology for Preparation of Silver Based Substrates for SERS

Field of Application

- Pharmaceutical industry
- Chemical industry
 Food industry
 - Food industry
 - EnvironmentWarfare agents
 - detection
- Explosives detection
 - Drug detection

Inventors

PRUCEK, Robert SUCHOMEL, Petr KVITEK, Libor PANACEK, Ales ZBORIL, Radek

Technology Status

Patent Application 2014-30235

Contact

Mgr. Petr Suchomel +420 739 329 981 petr.suchomel@vtpup.cz

Science and Technology Park at Palacky University Slechtitelu 21, 783 71 Olomouc, Czech Republic

vtpup@vtpup.cz | +420 585 631 420 www.vtpup.cz

Summary

Surface Enhanced Raman Spectroscopy (SERS) represents promising and extremely sensitive analytical technique for detection of molecules of picomoles and even femtomoles. Presented technology developed by researchers from Palacký University in Olomouc enables sonochemical preparation of glass slides with thin layer of silver colloid particles for SERS applications. Sonochemical method enables formation of silver particles and their simultaneous deposition on glass surface. Due to its simplicity, it is possible to prepare in only 5 minutes stable and homogeneous silver colloidal particle layers, which are highly applicable in various branches.

Technology Advantages / Potential Applications

Presented technology enables fast, simple and reproducible preparation of layers of silver nanoparticles deposited on glass substrate. Thus prepared layers of nanoparticles exhibit long-term stability and high efficiency in Surface Enhanced Raman Spectroscopy. Utilization of this layers allows detection of extremely low concentrations of analyte in a very small amount of sample (in only single one drop).

Market Analysis

Currently offered SERS substrates costs on average about 35 USD/piece (active area approx. 5x5 mm). By using of presented technology, it is possible to manufacture and sell substrates for SERS with active area approx. 15x15 mm at much lower price.

