

## Carbon nitride coating manufactured with Coldab®

### Challenge

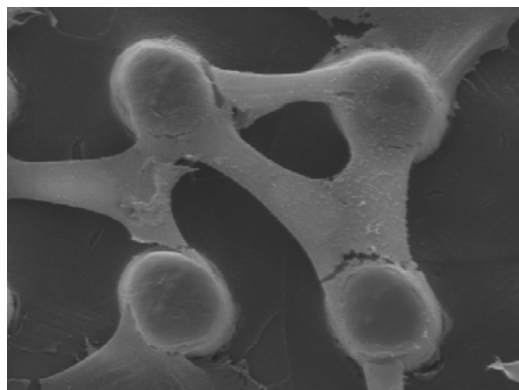
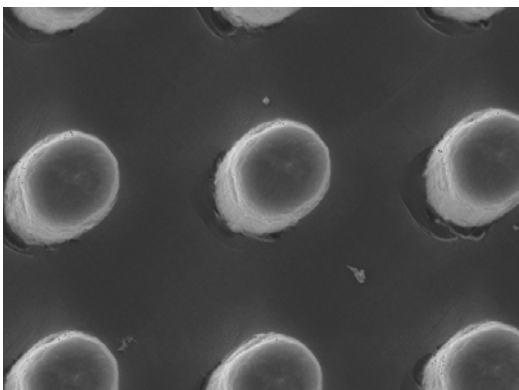
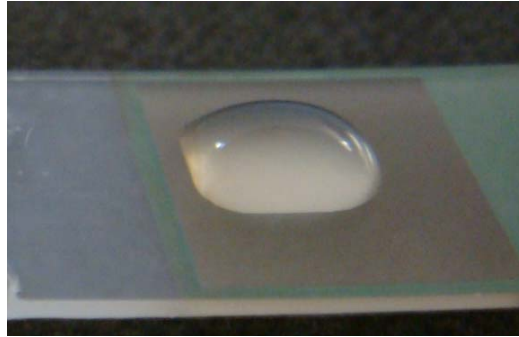
To deposit the novel material Carbon Nitride ( $C_3N_4$ ) on a plastic substrate.

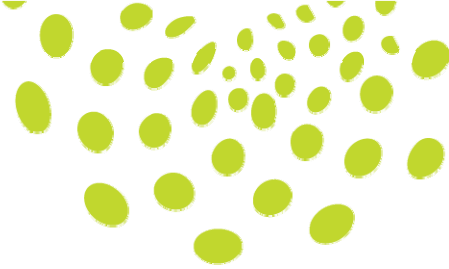
### Background

Graphitic carbon nitride (available under the brand name Nicanite® from [www.carbodeon.com](http://www.carbodeon.com)) can, in its micron-sized graphitic form, be used for tribological coatings, biocompatible medical coatings, chemically inert coatings, insulators and for energy-storage solutions. This material is globally available only in small quantities, so information on deposition and properties of thin films is very scarce.

### Results

Water-repellant micro- and nanotextured PP surface is on the left and water-adherent modification with Nicanite® coating is on the right. The coating significantly improved cell attachment (below). The roughness of the coating on polypropylene is  $(7.1 \pm 5.1)$  nm. The contact angle for uncoated, textured surface is  $146.2 \pm 1.6^\circ$  and  $53.5 \pm 1.4^\circ$  for coated surface.





### Coldab® advantages

1. Deposition on heat-sensitive materials
2. Control of crystallinity of the deposited material
3. Control of elasticity of coating
4. Control of stoichiometry
5. Extremely high deposition rate
6. Superior adhesion

**Fields of use**            Medical, life-science and tribological applications, energy storage.

Picodeon's patented Coldab® laser deposition technology offers the unique benefit of being able to deposit virtually any type of layer on any type of material. We can now do what was impossible before. Layers include diverse functional thin films and coatings with strong adhesion to heat-sensitive materials like plastic and paper. In addition, Coldab® promotes cost-effective and environmentally friendly production through shorter cycle time, energy-saving, low vacuum and expanding surface production from pinhead size to large sheets.

*When it comes to surfaces, you now have the freedom to do what you want. Contact us to see how we can help you with your particular coating application.*