

THE RESEARCH

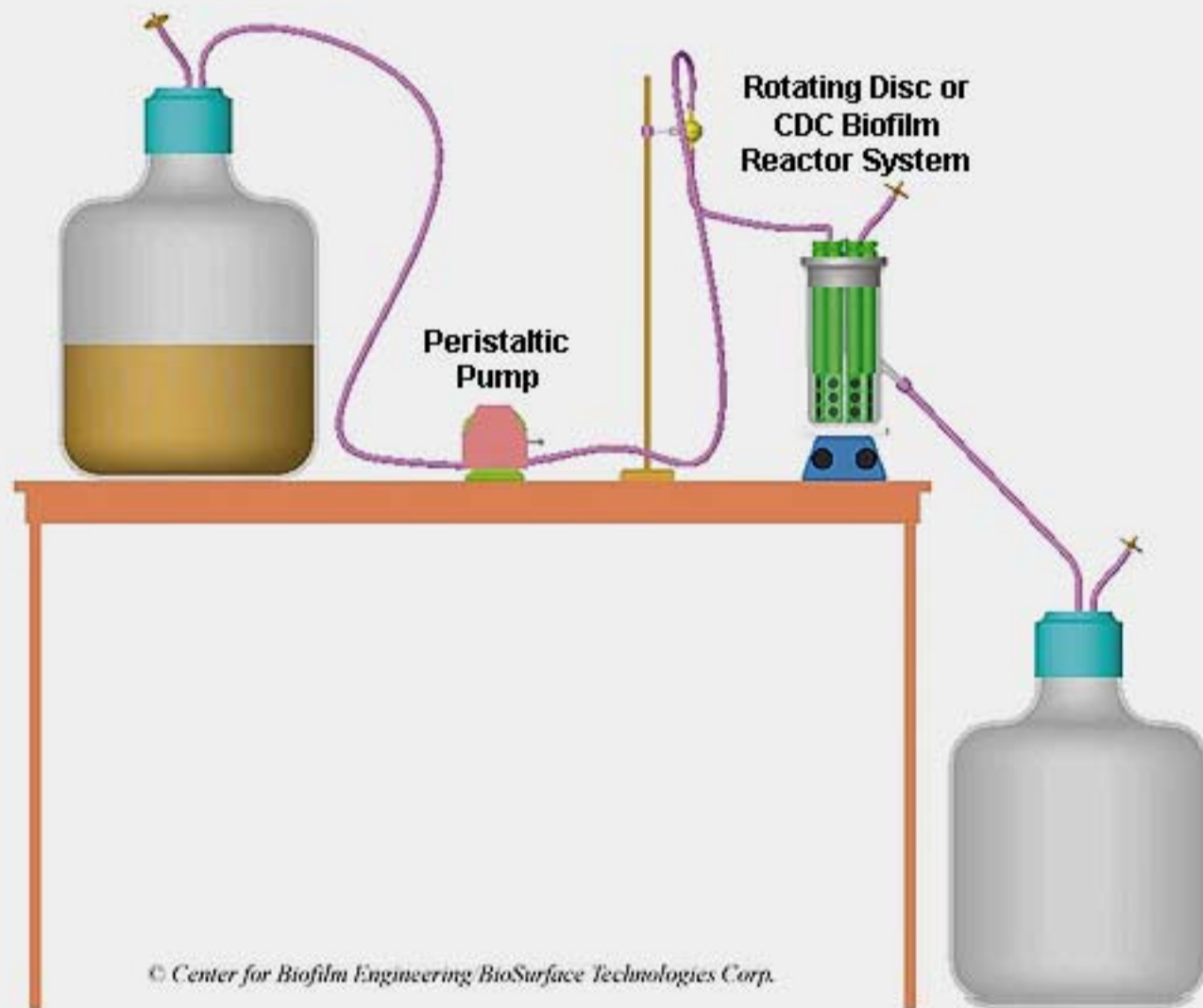
How can we measure the hygienic quality of a surface?

Actually, there is no standard methodology. It has been necessary to define what hygienic quality is and to create a test method for it. This goal was achieved thanks to the involvement in the project of scientists of the University of Modena and Reggio Emilia experts in the fields of material engineering, biology and surgery.

METHODOLOGY

We have compared samples of carbon steel (ASTM A366) plated with the standard treatments of nickel plating, chromium plating, ruthenium ® plating, threechromium ® plating and samples of stainless steel, glass, polycarbonate.

Sets of strictly sterilized coupons are put in a CDC Biofilm Reactor and immersed in physiological solution and nutrient broth inoculated with *Pseudomonas aeruginosa* ATCC 27853. The CDC Biofilm Reactor is a specially designed tool for growing thin layers of bacterial colonies (biofilm) in the laboratory.



After 24 hours inside the reactor, the first set of coupons is taken out. The biofilm grown on the samples surface is removed (according to scientific literature and standard ASTM E2196-02) and after appropriate process is valued in terms of number of colony-forming units (CFU).

The smaller the number of colonies is, the stronger is the **resistance to the bacterial taking root on surface**.

A second and a third set of coupons are taken out from the reactor after 48 and 72 hours respectively and are processed as well as the first set. The smaller is the number of colonies calculated after 72 hours and the stronger is the **resistance opposed to the bacterial growth on surface**.

