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Adhesiveness of nanoYo Japan TiO_2 nanoparticles on glass

Adhesive properties of nanoYo TiO_2 Japan nanoparticles on a glass were examined to observe the particles using an atomic force microscope (another name: a scanning tunneling microscope; Shimadzu SPM-9500). The microscope will be abbreviated AFM.

Figure 1 shows the AFM image of the surface of a cover glass, which had been cleaned with ethanol. The surface was flat and no particles existed although small pores could be observed. The length of a side is 10 μm.

The nanoYo Japan TiO_2 suspension was sprayed on the cover glass, and was then dried in clean air. The surface was observed using the AFM immediately after drying (Fig. 2). Small particles attached on the surface.

The cover glass hung upside down for one

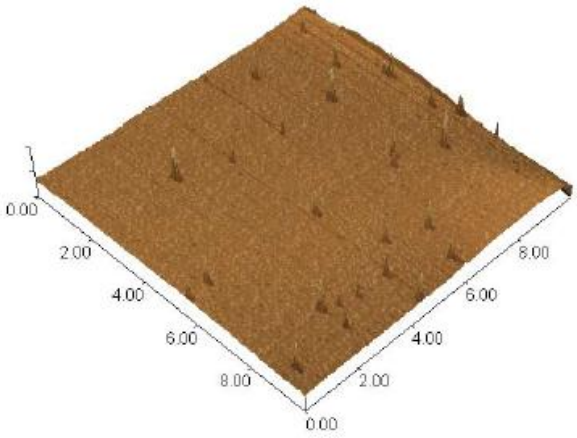

Fig. 1. Image of the fresh surface of a cover glass. The length of a slide is 10 μm.

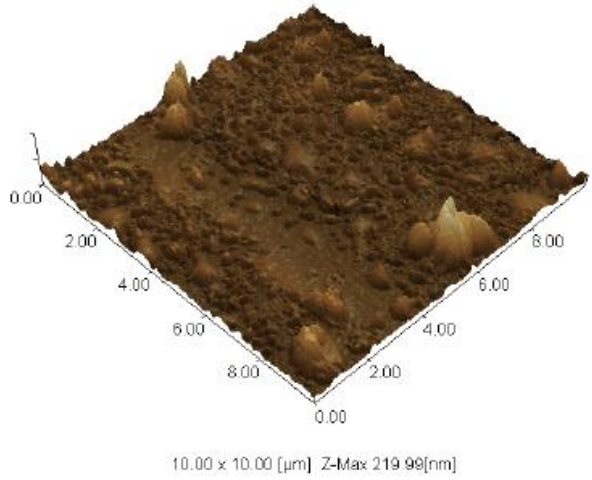

Fig. 2. Image of the surface of the cover glass on which the nanoYo Japan TiO_2 suspension had been sprayed and then dried. The length of a slide is 10 μm.

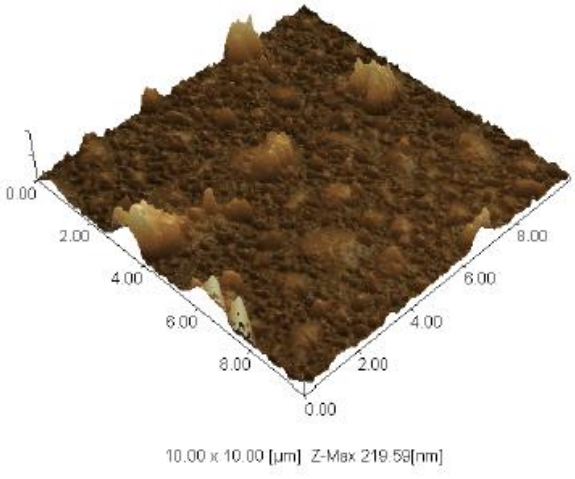

Fig. 3. Image of the surface of the cover glass which had been hung uptide down for one day. The length of a slide is 10 μm.

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day under ambient conditions. After that, the surface was observed using the AFM again. Figure 3 shows the AFM image of the surface. It can be seen that no detachment of the particles from the surface occurred..

These images indicate that the nanoYo Japan TiO_2 particles can adhere even on a very flat glass and hardly-removable from the glass. It can be easily suspected that it is much more difficult for the particle to be detached from a rough surface such as cloth, wood, wall material and so on.

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