

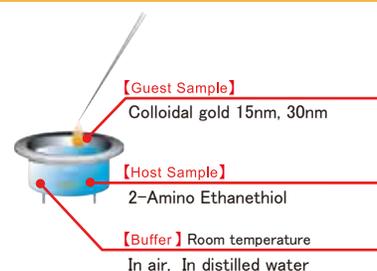
# Application Note

## B-08

### Evaluation of mass changes of QCM by using Colloidal gold

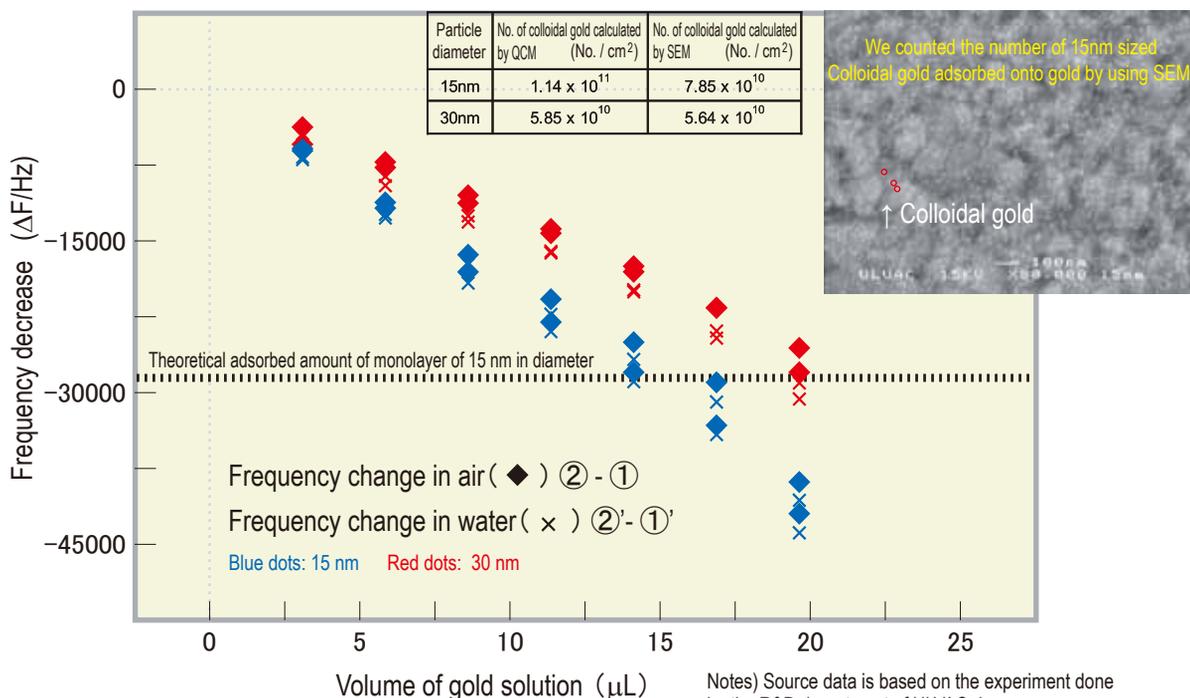
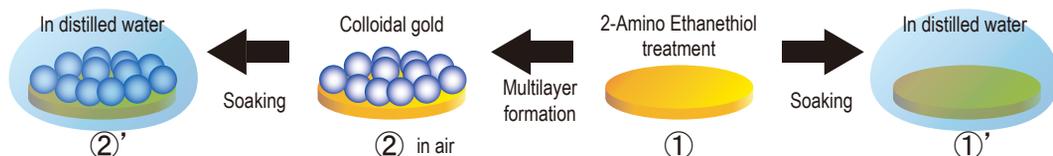
#### Materials

- Colloidal gold (Tanaka Kikinzoku)
  - \*Particle's diameter: 15nm, 30nm
  - \*Density: 19.3g/cm<sup>3</sup>
  - \*Single layered theoretical adsorption amount (15 nm; 28,000 Hz, 30nm; 56,000 Hz)
- 5 mM 2-Amino Ethanethiol



#### Results

- Frequency decreased by adding colloidal gold.
- Multi-layer adsorption occurred, because adsorption amount exceeds the theoretical monolayer adsorption amount.
- Both measurements in the air and water were available for the adsorption of colloidal gold.
- Frequency changes are almost equivalent between measurements in air and water.
- Colloidal gold is hard to detach from surface.
- Calculated amount of adsorbed colloidal gold is almost the same between QCM and SEM (Scanning electron microscope).



#### Applications

- Adsorption measurements of colloidal gold, beads and particles.
- Binding evaluation of between biomolecules and immobilized beads.
- Quantitative evaluation with QCM instrument instead of qualitative evaluation with microscope.