Abstract Submitted
for the DFD13 Meeting of
The American Physical Society

Effective Collecting Method of Volatile Organic Compounds in Water by Bubbling HITOSHI KIDA, HAYATO HORI, YUZO NONOGUCHI, MASAHARU KAMEDA, RYOICHI SATO, Tokyo University of Agriculture and Technology — A technique is proposed to improve the collection efficiency of a small amount of volatile organic compounds in the gas by impinger, which is generally used as gas collection device for analysis. Eugenol was used as a simulated substance of explosives. The sample gas containing specific amount of eugenol was collected in pure water by the impinger. The concentration of eugenol in water was measured by gas chromatography. The experimental results shows that the collection efficiency of eugenol by the impinger increased as the water level (volume) increased. The bubble motion in the impinger observed by high-speed photography indicates that the averaged values of equivalent diameter and rising velocity of bubbles were reduced as the water level increased. This reduction yields the increase of the resident time of bubble per unit volume of water, which enhances the dissolution of eugenol. On the basis of these characteristics, small glass beads were stuffed into the impimger to increase the resident time per unit volume. The collection efficiency was improved by stuffing the glass beads. Now we test the odorant binding protein as additive for further improvement of collection efficiency.

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Date submitted: 31 Jul 2013 Electronic form version 1.4