

## **Forming conditions and sensor activity of doped polyaniline films**

**Условия формирования и сенсорная активность активированных пленок полианилина**

S. A. Krutovertsev\*, O. M. Ivanova, L. S. Krutovertseva, A. E. Tarasova

JSC “Ecological sensors and systems”, Zelenograd, Moscow, Russia

\* +74997311000, boss@pnc.ru

Influence of different forming conditions on stability and sensor behavior to ammonia in air has been investigated in present work. Change of forming conditions has significant influence on sensor characteristics of resulting layers. Films were deposited by electrochemical synthesis from solutions of aniline in different acids at potentials from  $-0.2$  to  $+0.7$  V in reference to Ag/AgCl and were modified during the synthesis. Additives into films were tungsten containing polyoxometalates of the eighteen series. Particular properties make polyoxometalates attractive as active additives for forming of gas-sensitive films. Polyoxometalates with different composition were incorporated into the initial solution. The sensor had a dielectric substrate with system of metallic interdigitated electrodes on its surface. The active area of the sensor was  $4 \times 4$  mm where sensitive film was deposited. Electrical parameters of the sensors were measured electronically in real-time mode. It was noted that concentration of acid in solution influence strongly stability of deposited films. Moreover there is dependence of sensitivity to ammonia on quantity of electrochemical synthesis cycles. The sensitivity threshold after 10 cycles was 0,01 ppm. Optimal ratio between the monomer and the doping additive was determined for saving high sensitivity to ammonia.