

Fig. 1 shows the time dependence of C_{15} -in hydrogenation rates over obtained catalytic systems. The least active catalyst is 1%Pd/ZnO (Fig.1, curve 1). The rates over supported polymer-metal catalysts increase in the first 3 minutes of reaction and reach maximal value, after which rapidly decrease (Fig.1, curves 2 and 3). In 100-140 minutes from the beginning of reaction hydrogen consumption stops.

The best results are received in ethanol-based hydrogenation of 3,7,11-trimethyldodec-1-yn-3-ol over 1%Pd-PVPD/ZnO prepared from water solutions of PVPD and $PdCl_2$. This process is characterized by highest reaction rate $W = 27.9 \cdot 10^{-4}$ mole/l · sec.

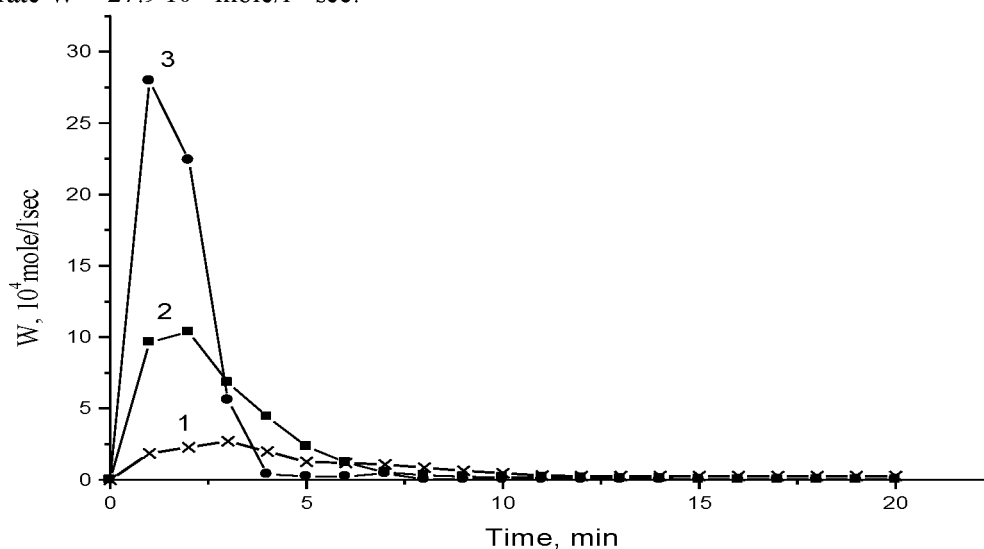


Figure 1. Time dependence of ethanol-based 3,7,11-trimethyldodec-1-yn-3-ol hydrogenation rates over 1 – 1%wt. Pd/ZnO; 2 – 1%wt. Pd-PEG/ZnO; 3 – 1%wt. Pd-PVPD/ZnO catalysts prepared from water solutions.

According to the chromatographic analysis of products obtained in the reaction over 1%Pd-PVPD/ZnO in first 3 minutes 3,7,11-trimethyldodec-1-yn-3-ol is almost entirely reduced to 3,7,11-trimethyldodec-1-en-3-ol (Fig. 2), which is then slowly hydrogenated to 3,7,11-trimethyldodecane-1-ol-3. The catalyst performs high activity and selectivity. A similar dependence was obtained for 1% Pd-PEG/ZnO. The least active and selective is 1% Pd/ZnO catalyst.

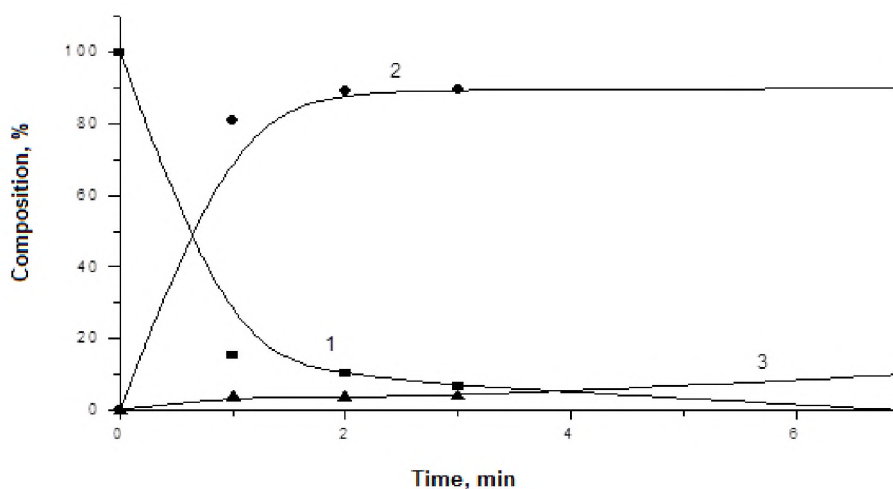


Figure 2. Chromatographic analysis of 3,7,11-trimethyldodec-1-yn-3-ol hydrogenation products. 1) 3,7,11-trimethyldodec-1-yn-3-ol; 2) 3,7,11-trimethyldodec-1-en-3-ol; 3) 3,7,11-trimethyldodecane-1-ol-3.