

Thematic course: Physical effects on chemical processes. Part II.

## **Investigation of antioxidant activity of water treated by microwave and used to produce styrene by dehydrogenation of ethylbenzene**

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### **Abstract**

The total antioxidant activity of water involved in the styrene production cycle by dehydrogenation of ethylbenzene in the presence of iron oxide catalyst has been investigated. It is established that the antioxidant activity of water supplied to the reactor depends on the mode of pretreatment by microwave radiation. However, the contact of the water with iron oxide catalyst in the absence of organic matter leads to the fact that the antioxidant activity of water (CAOA<sub>Fe</sub>) becomes almost constant low value. Antioxidant activity of the aqueous phase extracted from catalysate also has practically constant value, which surpasses the magnitude level of CAOAF<sub>e</sub> by 1.5 orders.