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Plasma-stimulated destruction of phenol in water solutions VALERIY CHERNYAK, SERGIJ OLSZEWSKI, VITALIY YUKHYMENKO, SERGIJ SIDORUK, OLENA SOLOMENKO, KYIV NATIONAL TARAS SHEVCHENKO UNIVERSITY, PR-T ACAD. GLUSHKOVA 2/5, KYIV 01033, UKRAINE TEAM
— The process of phenol destruction in water solutions, which occurs under the influence of plasma, was investigated to different plasma-liquid systems. The basic factor for the proper comparison of the efficiency of all presented plasma-stimulated phenol destruction systems was used. The value of this factor was obtained from spectrophotometric measurements data for initial and treatment phenol solutions. There's a two mechanisms of the plasmolytic destruction of organic molecules in the water solutions. One of this is based on direct chemical reactions, other – based on cascade chemical reactions. The mechanism of the plasmolytic organic molecules' destruction, based on direct reactions, uses the energy, spent on plasma support, and it's in order of magnitude more effective then the mechanism based on cascade reactions. The most effective system for phenol plasmolytic destruction in water solutions is plasma-liquid system, based on the impulse discharge in the gas channel with liquid wall.

Valeriy Chernyak

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