

NEWS

OF THE NATIONAL ACADEMY OF SCIENCES OF THE REPUBLIC OF KAZAKHSTAN

SERIES CHEMISTRY AND TECHNOLOGY

ISSN 2224-5286

Volume 4, Number 412 (2015), 12 – 17

**CATALYTIC SYSTEM ON THE BASIS OF POLYACRYLIC ACID
AND COPPER (II) CHLORIDE IN REACTION
OF YELLOW PHOSPHORUS OXIDATION**

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Key words: catalysis, phosphorus, copper, polyelectrolyte, water.

Abstract. The synthesis of complexes on the basis of copper (II) chloride and polyacrylic acid (PAA) was carried out. The structure and durability of these complexes was established. Testing of the obtained complexes as catalysts was carried out in reaction of yellow phosphorus (P₄) liquid-phase oxidation to yield phosphoric acid by oxygen in soft conditions in a water-toluene solutions (50-70 °C, P_{O₂} = 1 atm). Catalytic activity of the obtained copper complexes on the oxidation rate of P₄ by oxygen in water solutions has been established. Yellow phosphorus effectively was oxidized by oxygen in water-toluene solutions of the complexes Cu (II)-PAA with formation of phosphorous and phosphoric acids. Using the potentiometry, conductometry, volumetry, redox-potentiometry, photocolourimetry the composition, structure CuCl₂-PAA system, and also the kinetics, the intermediate and final products were investigated. The optimum conditions of reaction were defined. It was established that oxidizing hydrolysis of yellow phosphorus proceeded on the oxidation-reduction mechanism and consisted of two key stages: Cu (II) reduction by yellow phosphorus and oxidation of reduced forms of copper. High P₄ conversion was observed at 50 °C, P_{O₂} = 1 atm and a molar ratio [[Cu(PAA)₂Cl₂]: [P₄] = (1:8,8). Results of research can be as a basis for development of effective catalytic systems for the «chlorine-free» ecologically safe catalytic ways of valuable inorganic phosphorus-containing compounds obtaining.

УДК 541.128.12:547.241

**КАТАЛИТИЧЕСКАЯ СИСТЕМА НА ОСНОВЕ
ПОЛИАКРИЛОВОЙ КИСЛОТЫ И ХЛОРИДА МЕДИ (II)
В РЕАКЦИИ ОКИСЛЕНИЯ ЖЕЛТОГО ФОСФОРА**

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Ключевые слова: катализ, фосфор, медь, полиэлектrolит, вода.

Аннотация. Проведён синтез комплексов на основе хлорида меди(II) и полиакриловой кислоты (ПАК), установлены их состав и прочность. Тестирование полученных комплексов в качестве катализаторов осуществляли в реакции жидкофазного окисления жёлтого фосфора (P₄) до фосфорной кислоты кислородом в мягких условиях в водно-толуольных средах (50–70 °C, P_{O₂} = 1 атм). Обнаружена каталитическая активность