

Synthesis N,S-Contains Polymer Materials on Basis of Wood

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We working new mechanochemical method oxidizing ammonolyse and xanthogenation of plant raw materials for production water solubility surface-active reagents and sulfur contain fertilizers [1, 2]. Purpose present work appears study of processes oxidation and xanthogenation pines wood by mechanochemical method for receives N,S- contains organic fertilizers and surface-active substances on its base.

Essence offer we way consist in mechanochemical processing of wood by mixture hydrogen peroxide – ammonia at 25 °C in mill vibration. Show, than by increase duration mechanochemical synthesis, is the result of regularity increase contents organic connected nitrogen and carboxyl groups in composition receives products. By oxidation of wood in ammonia medium in solid phase precede reaction its demethylation with loss about 25 – 55 % methoxyl groups from its initial content. In 90 min from begin reaction in composition of wood introduce to 3.7 % organic connected nitrogen.

In table bring properties of products xanthogenation of pine wood in depend on time process. Increase duration mechanochemical synthesis from 10 to 50 min by molar correlation OH:NaOH:CS₂ = 1:1:1 lead to increasing conversion hydroxyl groups of wood in process its xanthogenation.

Table. Properties xanthogenates of pines wood (duration of alkaline activation - 10 min)

duration xanthogenation, min	maintenance of sulfur, %	conversion OH groups (α), %	solubility in 6 % NaOH, %
10	1.1	0.05	32
20	2.1	0.11	34
30	3.5	0.18	40
40	3.5	0.18	40
50	3.0	0.15	39

With increase of duration alkaline activation from 5 to 30 min increase degree transformation (conversion) of pine wood and its solubility in water alkaline solution (34 - 41 %) and viscosity its solutions. Products xanthogenation of pine wood solubility in water alkaline solutions and may be utilized as quality surface-active reagents and sulfur contain fertilizers. Thus, products oxidizing ammonolyse and xanthogenation of wood by mechanochemical method may be use as quality nitrogen organic fertilizers and surface-active substances.

1. Efanov M.V., Klepikov A.G. Production nitrogen contains derivatives of lingo-carbohydrate materials. // Chemistry of Natural Compounds. 2001. № 1. p. 71-72.
2. Efanov M.V. Xanthogenation of lingo-hydrocarbon materials by mechanochemical method. // Plasticheskiye massy. 2002. № 10. p. 40-41.