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PREPARATION OF SORBENTS MODIFIED WITH MELAMINE-FORMALDEHYDE

Ismoilova D.
Termez state university

Geldiyev Y.A.
Termez state university

Turaev X.X.
Termez state university

Annotation.
Current in the day carbonate anhydride in sorption apply for research being done hard sorbents three big to the group to be possible: inorganic compounds and minerals, polymers and organic compounds, hybrid materials. Inorganic from compounds alkaline and alkaline land of meta oxides, hydroxides, peroxides is studied.

Key words: melamine-formaldehyde, sorbent, coal, zeolites, hydrotalcites, zirconates, polymer, formalin

From minerals coal, zeolites, hydrotalcites, zirconates [1-3] such as minerals wide research done Organic from polymer polyamines [4-5] , polyethyleneimine [6] such as nitrogen kept polymer compounds applied if , hybrid to materials organic nitrogen keeper substances with modified inorganic sorbents - silica gel [7-8] and activated coal is entered .

Thermal analyzes in the range 40–600°C on a Shimadzu TG-600 done Sorption and desorption kinetics learning for First of all, nitrogen heating at 110°C for 30 min through sorbents swallowed gases and from moisture is cleaned. Then 30°C, 50°C, 80° C CO_2 in the environment in the environment mass increase until it stops until holding stood up The process repetition through of sorbents work cycles learning enable gave

Experimental part Heat in 160 ml of formalin (37% formaldehyde) at 80°C mixed up stood up without 15 g of melamine slowly slowly is added. Clear solution harvest until mixed . around pH=8 to be need Solution harvest after 10 g of silica gel powder is added. Then 48% sulfate acid solution with up to pH=5 will be pickled . A mixture temperature to 95°C rises . for 30 min condensation reaction goes Received sedimentation excess from formalin ammonia solution with neutral is cleaned. Then sediment filtered it is taken and crushed and distilled water with is washed. Then constant at 150°C to the mass until it arrives is dried .

Received results analysis . Melamine - formaldehyde tar with modified The IR spectrum of silica gel is shown in Fig. 1. In the picture melamine, melamine-formaldehyde tar and received of the IR spectra of the sorbent to compare can In this it seems that 3470 cm^{-1} of melamine and 3419 cm^{-1} in the field primary sure valence vibrations of groups methylation due to disappears. 1655, 1555, 1469 and 1439 cm^{-1} 1,3,5 triazine in the field of the people vibrations observed . A little shifted though this vibrations all in compounds there is Melamine formaldehyde with in the merger usually monomers harvest it won't be . Immediately meshing process happen will be , therefore for sure groups disappeared , hydroxyl 3000-3600 of the group wide striped vibrations appear will be Also in melamine Valence vibrations of non- CH bonds are 2965 cm^{-}

[1] in the field appear will be These vibrations are preserved in the composition of the sorbent remains . Also 1111 and 786 cm [-1 of] Si-O-Si bonds in the fields asymmetric and 471 cm [-1] in the field while symmetrical vibrations observed .

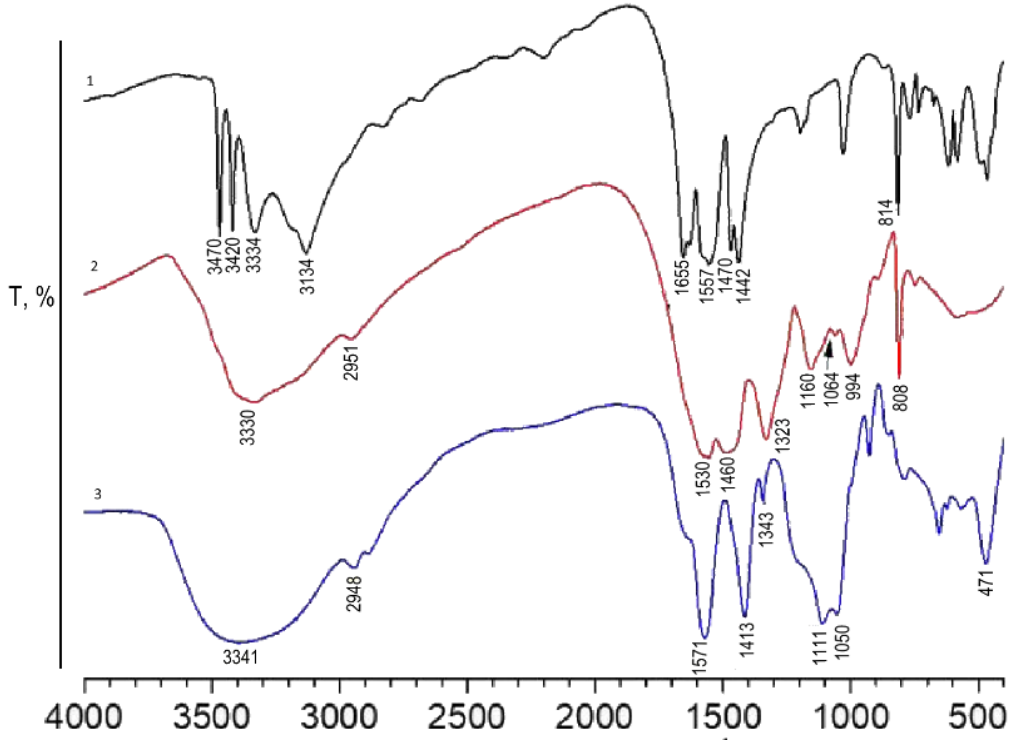

Figure 1. Melamine (1), melamine-formaldehyde IR spectra of resin (2) and SMF (3) .

Sorption-desorption optimal conditions of processes to determine of sorbents desorption learning for, thermogravimetric method studied is different at temperatures sorption of capacity to change is based on Done normal atmosphere pressure sorption for the most optimal temperatures determination for measured temperatures in the range of 15C eng high - 2.1 mmol/ kg showed and 0.15 mmol/kg at 80C will be Desorption the process is carried out at 110C more complete although , from 5 cycles after sorption capacity up to 10% decrease was determined . From the 6th cycle and is not modified silica gel with almost one different results to give was determined . Therefore, the optimal condition of desorption 80°C was chosen as.

Conclusions. Melamine-formaldehyde polymer with modified silica gel synthesis done increased His structure IR- spectroscopic method was studied. Various at temperatures studied sorption capacity is 2.1 mmol/g at 1 atm pressure at 15°C , from which high in pressures while less will change . High at temperatures while decreases . 1 atmosphere in pressure desorption process that the optimum temperature is 80°C was determined . High at temperatures desorption with together of sorbents composition change as a result efficient work cycles fast decreased goes 10% reduction in 5 cycles after desorption at 110°C was determined.

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