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Research of ozone-suspended soot interaction

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The aim of current research work was to investigate adsorption constant of ozone on soot surface. For this investigation quartz reactor in the form of a tube (0.12x2.3 m) was made. Wooden billet place to hermetic camera (soot generator) Soot particles was manufactured by infrared laser radiation influence on wooden billet in nitrogen environment. A nitrogen insert to generator to hinder burning process. Received small part was put to reactor and interacted with O₃. After-reaction ozone concentration was measured by ultraviolet emanation attenuation in dish. This all promote to soot concentration stability. Ozone trapping rate on soot surface ($\gamma_1=2.23E-4$, $\gamma_2=1.63E-4$) is smaller then value for water drops ($>2E-3$) and surpass black carbon adsorption coefficient ($\sim 1E-6$) The difference clarified by unburnt organic group on aerosol surface which present an active centers of O₃ accommodation. An increment of time reaction involve a decrement of adsorption coefficient. By our opinion, it is the result of deactivation of chemical active center on soot surface This work was supported by the Russian Foundation for Basic Research under grant 05-03-33063.