



## Hydrocarbonates in precipitation of Moscow

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According to monitoring of the atmospheric precipitation of Moscow a number of episodes is revealed, the content of hydrocarbonates in which repeatedly surpasses equilibrium level. Facts of their registration are linked to complex structure of precipitation which is caused by a different chemical composition of condensation nucleus. As a result on the underlying surface two groups of drops with acidity of the different nature are transferred. The acidity of the first, "metal" group of droplets, is determined by a carbonate equilibrium with atmospheric  $\text{CO}_2$  and with dissolved carbonates of alkali and alkaline earth metals. The acidity of the second, "ammonium" group droplets, is characterized by the balance between an ammonia absorbed from the air and atmospheric acids. Regulation of acidity of the deposits measured in a course of monitoring, occurs for this reason not only in the air, but also in the condensate receiver. A mixing "metal" and "ammonium" groups precipitation accompanied by only a partial transfer of hydrocarbonates in the dissolved  $\text{CO}_2$ . The process is braked as a result of a practical stop of exit of 2 into the atmosphere because of a mass transfer deceleration. In turn it leads to excess of equilibrium level of hydrocarbonates in the receiver. Estimates show that the acidity of "ammonia" component of precipitation should be much higher than the reported monitoring data. In other words, real acidity of rain drops can essentially exceed that is measured by standard procedures of monitoring of deposits, that it is necessary to take into consideration at calculations of so-called critical levels of acid loading on people and environment. In other words, the actual acidity of raindrops could greatly exceed that is measured by the standard procedures for monitoring rainfall, which should be taken into account when calculating the so-called critical levels of acid loads on people and the environment. It follows that the true level of hazard of acid rain should be set only by the measurement of the acidity of the individual droplets, whereas the results obtained with modern means of monitoring can significantly underestimate the danger.