

Interactive comment on “Effect of humidity on nitric acid uptake to mineral dust aerosol particles” by A. Vlasenko et al.

Anonymous Referee #4

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This paper reports on results of detailed, elegant experimental study that investigates the kinetics of mineral dust/nitric acid heterogeneous chemistry using the aerosol flow tube technique. As already mentioned by all the reviewers this is indeed the first time when heterogeneous chemistry of mineral dust was investigated for airborne particles that minimize uncertainties in calculating the collision rate of gas phase reactant with particle surface. In addition, the kinetic data have been measured as a function of relative humidity. The obtained data are novel and of good relevance to atmospheric chemistry, climate and air quality modeling efforts aiming to understand the link between atmospheric aerosol heterogeneous chemistry and its regional and global environmental effects. The manuscript is well written, well organized, fits the scope of ACP

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and appropriate for publication after addressing revisions and comments requested by referees. In addition to the issues stressed by first three referees, I only would like to bring to the authors' attention a number of very recently published manuscripts that most likely were "too recent" and escaped authors' attention at the time of the manuscript preparation. Appropriate discussions and references will be very essential in the context of the presented material and the relevant atmospheric implications: Alastuey et al, *Atm. Env*, 39 (26): 4715-4728, 2005; Matsuki et al., *GRL* 32 (22): Art. No. L22806, 2005; Hwang and Ro, *JGR* 110 (D23): Art. No. D23201, 2005; Laskin et al. *Faraday Discussions* 130: 453-468, 2005; Umann et al., *JGR Vol.* 110, No. D22, D22306, 2005

Interactive comment on *Atmos. Chem. Phys. Discuss.*, 5, 11821, 2005.

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