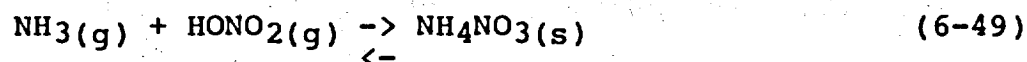


not well known, although the forward reaction is probably rapid and, in fact, can be presumed to be in equilibrium with the dissociation of solid ammonium nitrate.⁴⁸⁻⁵⁰



Second, the rate of absorption of NO and NO₂ into existing particles depends on the composition and size of each particle and cannot generally be predicted a priori. In either case it is apparent that the presence of NH₃ is required, either to form NH₄NO₃ or to neutralize the acidity of a liquid droplet in which NO and NO₂ dissolve.

The current state of understanding of atmospheric inorganic nitrate formation can be summarized as follows. The principal gas-phase nitrate forming reaction is reaction 6-19. The nitric acid vapor formed in reaction 6-19 probably reacts rapidly with ammonia to form small particles of solid ammonium nitrate such that the equilibrium of reaction 6-49 is established. In competition with the nitric acid/ammonium nitrate path is the path consisting of direct absorption of NO and NO₂ into aqueous droplets. The relative rates of these two paths cannot be determined in general. Although measurements of particulate organic nitrate levels have been reported,⁵³ the mechanisms of formation of organic aerosol nitrates have not been fully identified.