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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Composition analysis of liquid particles in the Arctic stratosphere" *by* C. Weisser et al.

C. Weisser et al.

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The comments by the two referees whom we like to thank for their professional effort concentrate on two main issues in addition to some small comments and suggestions.

The main issues are the high molar ratios of H2O/HNO3 and the mixing ratios of HCl in liquid STS particles. Here we disagree with referee 1, the HNO3 content in the particles cannot be increase because models say so. We have tried to explain that to the best of our knowledge the data obtained during the balloon flight are reliable and based on laboratory calibrations before and after the flight. We are also surprised if not disturbed about the molar ratios, as we point out now, and unless we disregard the data that's what we have to accept. In the revised version of the manuscript this is now better explained. The same argument applies to the HCl measurements. Laboratory calibrations also exist and the isotope ratio is a powerful tool to identify the HCl molecule.

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The minor comments of referee 1 were gratefully accepted and the manuscript was changed.

Referee 2 has listed about 20 small comments and suggestions and again they are very helpful and almost all have let to changes in the text with the exception of the following remarks: We did not changes figure 1 (since referee 1 agreed with this figure), and we did not elaborate more on depolarization since the measurements are not shown. Finally, we continued with 11 ppbv HNO3 since this was suggested to us by results form the MIPAS instrument.

Interactive comment on Atmos. Chem. Phys. Discuss., 4, 2513, 2004.