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## ***Interactive comment on “A new modeling tool for the diffusion of gases in ice or amorphous binary mixture in the polar stratosphere and the upper troposphere” by C. A. Varotsos and R. Zellner***

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While the paper presents an interesting approach, I fully agree with referee 2 that the paper does not include all experimental data available. For HCl I like to point the authors to Fig. 20 of the review by Huthwelker et al. [2006] which shows a quite significant spread in diffusion coefficients. The author's statement "By contrast, the absolute values of the diffusion coefficients do not differ significantly." does not hold true if taking all experimental data for HCl into account.

Referee 2 asks for a discussion of the potential effects of the samples being highly polycrystalline. In addition there is the issue of the experiments being performed at

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pressures and temperatures where hydrates are the stable phase, which also should be addressed.

Huthwelker, T., Ammann, M. and Peter, T., "The Uptake of Acidic Gases on Ice", *Chem. Rev.* 2006, 106, 1375-1444.

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Interactive comment on *Atmos. Chem. Phys. Discuss.*, 9, 25723, 2009.

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