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5, S604–S605, 2008

Interactive Comment

Interactive comment on "Heterogeneous ice nucleation activity of bacteria: new laboratory experiments at simulated cloud conditions" *by* O. Möhler et al.

Anonymous Referee #2

Received and published: 19 May 2008

General comments

The paper describes experiments performed at the AIDA cloud chamber about the ice nucleation of bacteria. This is an important issue as biological particles in general may act as ice nuclei at warmer temperatures than, e.g., soot particles or mineral dust. The paper is well-written and presents adequate details, however, a better arrangement could help the reader to understand, especially if the reader is not so familiar with the AIDA chamber. I think the manuscript is appropriate after some minor revisions.

Specific comments



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1. Title: Maybe it could be mentioned already in the title which freezing modes are addressed.

2. Section 2, second paragraph: It is mentioned here that after storage of the cells at temperatures around 4°C their nucleation efficiency was enhanced. Do the authors have any suggestions for the reason? It is possible that the bacteria population increased at the lower temperature? See Schnell and Vali (1976, J, Atmos. Sci., 33) and Yankofsky et al. (1981, J. Appl. Meteorol., 20).

3. Section 4, first line: It is mentioned that immersion and condensation freezing were investigated. This should be mentioned earlier in the paper or even in the title. Why are you sure that it was not deposition freezing?

In the 4th line there is a typo: ADIA instead of AIDA.

Section 4, 6th paragraph: Here it should be clearly explained how immersion and condensation freezing are distinguished during the experiments.

4. Section 6: To the conclusions some statements should be added about the implications for the atmosphere. Are the bacteria concentrations used during the experiments typical for the atmosphere? Is is likely that ice formation in atmospheric clouds is significantly affected by bacteria?

5. Figures 4 and 5: These figures should be enlarged as details are hardly to see.

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