

Interactive comment on “Chemical composition and mixing-state of ice residuals sampled within mixed phase clouds” by M. Ebert et al.

Anonymous Referee #1

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Please use a more recent reference than Penner '01; this specific reference has been superseded by IPCC, 2007 although there are many excellent examples that express the current state of knowledge. Intro (11) – ‘dominates’ not ‘is dominating’ 23868 line 6– recent references (those in this paper) state ~6 orders lower. I have not seen 9. Please reference or remove. 23868 line 19– Soot was not found to be a good IN in DeMott 1997. Gourbonov’s result is considered an outlier to current data (see also e.g. Dymarska 2006). There is no real evidence that soot is a good IN. This should be stated even though it might conflict with results. Indeed it may tend to support a scavenging mechanism and it is important the authors note this. Please expand discussion of Ice-CVI. Are artifacts possible due to surface impacts? I know there is a reference given but more information is required here. This really needs to be expanded before final publication. A serious limitation of this work is the C-O-S category that incorporates

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many different particle types. Please expand this into multiple categories. If not please state explicitly why this can not be separated. I stress the later is NOT preferred and if this course is chosen a VERY explicit argument must be made (i.e., this is a serious limitation of this technique to characterize IN and would limit its use in the future!) Need to discuss scavenging as a possible source of material in IR – as opposed to IN. For example soot may be present due to scavenging, not as the IN.

Interactive comment on Atmos. Chem. Phys. Discuss., 10, 23865, 2010.

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