Summary of Evaluated Data for Atmospheric Heterogeneous Processes

IUPAC Subcommittee on Gas Kinetic Data Evaluation for Atmospheric Chemistry

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Introduction

The IUPAC Subcommittee for Data Evaluation for Atmospheric Chemistry have extended the scope of the treatment of heterogenous reactions on this website. We are now in the process of replacing the *data tables* containing a compilation of uptake coefficient data for heterogeneous reactions of selected species with *data sheets* in which the relevant data for heterogeneous processes are evaluated and, where possible, recommendations are made for parameters describing the kinetics of these processes under atmospheric conditions. We also present *summary sheets* containing the recommended parameters. A detailed introduction to heterogeneous reactions is available on the website, prepared by the IUPAC Subcommittee, that provides background information on the models and parameters used in these evaluations, and the rational for the organisation of the material presented.

Reference numbers

The reference numbers listed in the table below refer to the numbering used in the subcommittee publications in the journal Atmospheric Chemistry and Physics (ACP). The numbering scheme used is: "Volume". "Appendix". "Reaction" (e.g. V.A1.1).

Summary of preferred values of uptake coefficients on mineral dust surfaces

Ref.No.	Species	α/γ	$\pm\Delta\alpha_s$	K_{linC} cm	N_{max} molecule cm^{-2}	$\Delta(E_{ads}/R)$ $\Delta\ln N_{max}$	Temp. K
V.A2.1	O_3						
V.A2.2	HO_2						
V.A2.3	H_2O_2						
V.A2.4	NO_2						
V.A2.5	NO_3	No recommendation					
V.A2.6	NH_3						
V.A2.7	HNO_3	0.1					298
V.A2.8	N_2O_5	2×10^{-2}	0.4 ($\Delta\log\gamma$)				298
V.A2.9	SO_2	4×10^{-5}		No recommendation			298
V.A2.10	HC(O)OH			No recommendation			
V.A2.11	$CH_3C(O)CH_3$			No recommendation			