

IUPAC Task Group on Atmospheric chemical kinetic Data Evaluation – Data Sheet V.A1.52 HI52

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Experimental data

Parameter	Temp./K	Reference	Technique/ Comments
<i>Experimental uptake coefficients: γ</i>			
$6.6 \times 10^{-3} \exp[(700 \pm 180)/T]$ (ice type 1,2)	180-210	Aguzzi and Rossi, 2002	Knudsen-MS (a)

Comments

- (a) Ice surfaces formed by vapour deposition (type 1) freezing bulk solutions of distilled water either rapidly (type 2) or slowly (type 3), the latter with the intention of forming single-crystalline ice. The temperature dependence of γ listed in the table was obtained by weighted, least squares fitting to tabulated data of Aguzzi and Rossi, 2002.

Preferred Values

Parameter	Value	T/K
γ	$6.6 \times 10^{-3} \exp(700/T)$	180 - 210
<i>Reliability</i> $\Delta(E/R) / \text{K}$	± 250	180 - 210

Comments on Preferred Values

There is only one study of the uptake of BrONO_2 to ice in the presence of HBr. At the high initial levels of HBr on the surface used in this study ($> 10^{16} \text{ cm}^{-2}$), the major product was Br_2 . As surface HBr was depleted, HOBr was also observed in the gas-phase. Note that the uptake coefficients in the presence of HBr are essentially the same as on pure ice so that no dependence of the overall uptake coefficient on HBr concentrations is anticipated.

References

Aguzzi, A. and Rossi, M. J.: J. Phys. Chem. A 106, 5891-5901, 2002.