

Task Group on Atmospheric Chemical Kinetic Data Evaluation – Data Sheet V.A4.10 HNDR10

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HBr + NAT

Experimental data

Parameter	Temp./K	Reference	Technique/ Comments
<i>Experimental uptake coefficients:</i>			
γ, γ_0			
$\gamma_{ss} > 0.3$	201	Hanson and Ravishankara, 1992	CWFT-CIMS (a)
<i>Partition coefficients: $K(cm)$</i>			
No reversible adsorption			

Comments

- (a) HNO_3 deposited on ice condensed from the vapor phase onto the cold flow tube. γ corrected for gas diffusion using estimated diffusion coefficients. Pressure = 0.6 mbar He. Rapid uptake observed with no signs of saturation. Suggest formation of new fluid binary phase HBr- H_2O

Preferred Values

Parameter	Value	T/K
α_s	>0.3	190 - 200
<i>Reliability</i>		
$\Delta \log (\alpha_s)$	± 0.3	190 - 200

Comments on Preferred Values

There appears to be only one experimental study of HBr interaction with specifically prepared HNO_3 -hydrate surfaces at temperatures and concentrations corresponding to hydrate thermodynamically stability regions. Under these conditions uptake is rapid, continuous and irreversible.

References

Hanson, D. R. and Ravishankara, A.R.: J. Phys. Chem. 96, 9441 (1992).