Corrigendum to "Heterogeneous reaction of N_2O_5 with airborne TiO_2 particles and its implication for stratospheric particle injection" published in Atmos. Chem. Phys., 14, 6035–6048, 2014

Tang, M. J.; Telford, P. J.; Pope, F. D.; Rkiouak, L.; Abraham, N. L.; Archibald, A. T.; Braesicke, P.; Pyle, J. A.; McGregor, J.; Watson, I. M.; Cox, R. A.; Kalberer, M.

DOI:
10.5194/acp-14-8233-2014

Document Version
Publisher's PDF, also known as Version of record

Citation for published version (Harvard):
Tang, MJ, Telford, PJ, Pope, FD, Rkiouak, L, Abraham, NL, Archibald, AT, Braesicke, P, Pyle, JA, McGregor, J, Watson, IM, Cox, RA & Kalberer, M 2014, 'Corrigendum to "Heterogeneous reaction of N_2O_5 with airborne TiO_2 particles and its implication for stratospheric particle injection" published in Atmos. Chem. Phys., 14, 6035–6048, 2014', *Atmospheric Chemistry and Physics*, vol. 14, no. 16, pp. 8233-8234. https://doi.org/10.5194/acp-14-8233-2014

Atmos. Chem. Phys., 14, 8233–8234, 2014
www.atmos-chem-phys.net/14/8233/2014/
doi:10.5194/acp-14-8233-2014

Atmospheric Chemistry and Physics
Open Access

Corrigendum to

"Heterogeneous reaction of N_2O_5 with airborne TiO_2 particles and its implication for stratospheric particle injection" published in Atmos. Chem. Phys., 14, 6035–6048, 2014

M. J. Tang[1,2], P. J. Telford[1,4], F. D. Pope[3], L. Rkiouak[1,5], N. L. Abraham[1,4], A. T. Archibald[1,4], P. Braesicke[1,4,*], J. A. Pyle[1,4], J. McGregor[6], I. M. Watson[2], R. A. Cox[1], and M. Kalberer[1]

[1]Department of Chemistry, University of Cambridge, Cambridge CB2 1EW, UK
[2]School of Earth Sciences, University of Bristol, Bristol BS8 1RJ, UK
[3]School of Geography, Earth and Environmental Sciences, University of Birmingham, Birmingham B15 2TT, UK
[4]National Centre for Atmospheric Science, NCAS, UK
[5]Department of Chemical Engineering and Biotechnology, University of Cambridge, Cambridge CB2 3RA, UK
[6]Department of Chemical and Biological Engineering, University of Sheffield, Sheffield S1 3JD, UK
[*]now at: IMK-ASF, Karlsruhe Institute of Technology, Karlsruhe, Germany

Correspondence to: M. Kalberer (markus.kalberer@atm.ch.cam.ac.uk)

In the original paper "Heterogeneous reaction of N_2O_5 with airborne TiO_2 particles and its implication for stratospheric particle injection" (published in Atmos. Chem. Phys., 14, 6035–6048, 2014), an error was made in calculating the heterogeneous loss rates of N_2O_5 on TiO_2 aerosol particles and therefore the uptake coefficients of N_2O_5 onto TiO_2 particles. This error was due to a mistake when we calculated the reaction times in the flow tube. The correct reaction times are all a factor of 1.5 smaller than those used in the original paper, and thus the correct heterogeneous loss rates and uptake coefficients of N_2O_5 are a factor of 1.5 larger than those reported in the original paper.

The fourth sentence in the abstract should be changed to "The uptake coefficient of N_2O_5 onto TiO_2, $\gamma(N_2O_5)$, was determined to be $\sim 1.5 \times 10^{-3}$ at low RH, increasing to $\sim 4.5 \times 10^{-3}$ at 60 % RH." The updated Table 1 with corrected values is provided in this corrigendum.

This error does not influence the main discussion and conclusions in the original paper, especially also not the modelling part of the paper where we consider two scenarios with two different $\gamma(N_2O_5)$ (i.e., 1.0×10^{-3} and 5.0×10^{-3}), which cover all values reported in Table 1.

Published by Copernicus Publications on behalf of the European Geosciences Union.

Table 1. Loss rate of N_2O_5 on TiO_2 (k_a), total surface area of TiO_2 particles in the flow tube (S_a) and uptake coefficients of N_2O_5 onto TiO_2 aerosols, $\gamma(N_2O_5)$ at different relative humidities. All the errors shown here are 1σ statistically.

RH (%)	k_a ($\times 10^{-2}$ s^{-1})	S_a ($\times 10^{-3}$ cm^2 cm^{-3})	$\gamma(N_2O_5)$ ($\times 10^{-3}$)	Average $\gamma(N_2O_5)$ ($\times 10^{-3}$)
5 ± 1	4.53 ± 2.43	4.39 ± 0.26	1.73 ± 0.93	1.83 ± 0.32
	3.96 ± 0.87	3.79 ± 0.06	1.74 ± 0.39	
	3.66 ± 1.67	3.02 ± 0.10	2.03 ± 0.92	
12 ± 2	3.59 ± 0.60	2.75 ± 0.16	2.18 ± 0.36	2.01 ± 0.27
	4.29 ± 0.54	3.80 ± 0.52	1.89 ± 0.24	
	3.98 ± 0.33	2.89 ± 0.33	2.30 ± 0.20	
	2.76 ± 0.36	2.70 ± 0.14	1.71 ± 0.23	
23 ± 2	9.39 ± 0.30	1.75 ± 0.17	0.90 ± 0.29	1.02 ± 0.20
	3.41 ± 0.42	4.89 ± 0.21	1.16 ± 0.02	
33 ± 2	1.50 ± 0.56	2.27 ± 0.16	1.10 ± 0.41	1.29 ± 0.26
	1.91 ± 0.45	2.01 ± 0.12	1.59 ± 0.38	
	1.61 ± 0.39	2.23 ± 0.09	1.20 ± 0.30	
45 ± 3	1.94 ± 0.39	1.59 ± 0.33	2.04 ± 0.41	2.28 ± 0.51
	3.80 ± 0.90	3.00 ± 0.05	2.12 ± 0.47	
	4.37 ± 0.84	2.86 ± 0.05	2.55 ± 0.50	
	3.99 ± 0.87	2.75 ± 0.02	2.43 ± 0.53	
60 ± 3	7.83 ± 2.10	2.86 ± 0.06	4.62 ± 1.23	4.47 ± 2.04
	5.76 ± 1.56	2.24 ± 0.09	4.34 ± 1.17	