

CORRECTION

View Article Online
View Journal | View Issue



Cite this: *Energy Environ. Sci.*, 2022, 15, 866

Correction: CO₂ conversion in a dielectric barrier discharge plasma: N₂ in the mix as a helping hand or problematic impurity?

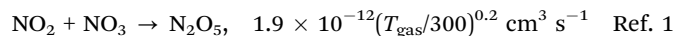
R. Snoeckx,^a S. Heijkers,^a K. Van Wesenbeeck,^b S. Lenaerts^b and A. Bogaerts^a

DOI: 10.1039/d2ee90005j

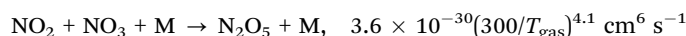
rsc.li/ees

Correction for 'CO₂ conversion in a dielectric barrier discharge plasma: N₂ in the mix as a helping hand or problematic impurity?' by R. Snoeckx *et al.*, *Energy Environ. Sci.*, 2016, 9, 999–1011, DOI: 10.1039/C5EE03304G.

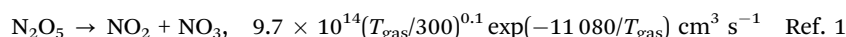
The use of the reported low-pressure limit rate constants for the reactions NO₂ + NO₃ + M → N₂O₅ + M and N₂O₅ + M → NO₂ + NO₃ + M (see Section 2.2 of the Supplementary Information) results in a significant overestimation of the rate constants at 1 atm. Therefore, we advise to use the high-pressure limit rate expressions:



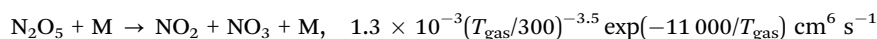
instead of:



and



instead of:



Note that these revised reactions are written as: A + B → AB, but in reality, these are also three-body reactions, hence: A + B (+M) → AB (+M). However, the unit for the high-pressure limit corresponds to that of a two-body reaction (cm³ s^{−1}). M is therefore left out of the reaction, to avoid confusion with the unit of the rate constant.

However, the third body is needed, also at high pressure, for conservation of energy and momentum, but the number density of M is no limiting factor, because at high pressure there are sufficient collisions with M. At low pressure, on the other hand, the number density of M will be a limiting factor, and must therefore be accounted for in the reaction rate; hence the need to write it as a three-body reaction.

The Royal Society of Chemistry apologises for these errors and any consequent inconvenience to authors and readers.

References

- 1 R. Atkinson, D. L. Baulch, R. A. Cox, J. N. Crowley, R. F. Hampson, R. G. Hynes, M. E. Jenkin, M. J. Rossi and J. Troe, *Atmos. Chem. Phys.*, 2004, 4, 1461–1738.

^a Research Group PLASMANT, Department of Chemistry, University of Antwerp, Universiteitsplein 1, BE-2610 Antwerp, Belgium. E-mail: ramses.snoeckx@uantwerpen.be

^b Research Group DuEL, Department of Bioscience Engineering, University of Antwerp, Antwerp, Belgium

