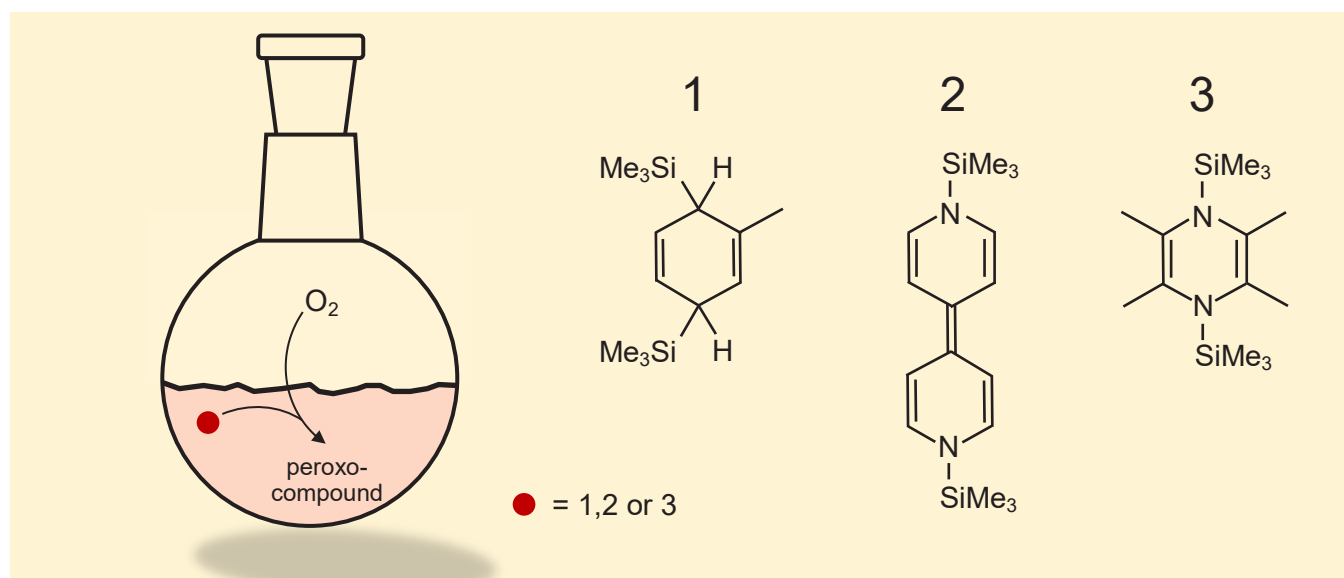


Licensing Opportunity

Rapid and on-demand synthesis of O-17 and O-18 compounds for O-tracing



Summary

Oxygen-labelled peroxo-compounds are easily accessible using organosilicon reagents and only stoichiometric amounts of O₂.

Background

Oxygen isotopes - ¹⁷O and ¹⁸O - are expensive. Yet their compounds are needed to trace processes in chemical experiments or in nature for a better understanding. In order to have a low cost production of oxygen-labelled peroxo-compounds (e.g. H₂O₂, (Me₃Si)₂O₂, D₂O₂), the conversion rate of O₂ to the desired compound has to be highly efficient.

Invention

H₂O₂ or (R₃Si)₂O₂ are commonly used and very effective O-transfer reagents. These reagents can be produced from O₂ and **1** or **2** and **3**, respectively. The reactions run at ambient temperature and pressure and use only stoichiometric equivalents (1.0-1.3) of O₂.

Features & Benefits

- High yield of (R₃Si)₂O₂ or H₂O₂ per O₂ input
- Easy handling in the laboratory scale
- Easily accessible and stable organosilicon reductant

Fields of Application

- Laboratory research
- O-isotope tracing of compounds in nature, agrochemistry and life sciences

Patent Status

- Patent pending

Publication

- "Activation of O₂ by organosilicon reagents yields quantitative amounts of H₂O₂ or (Me₃Si)₂O₂ for efficient O-transfer reactions". K. Yamamoto et al., *Helvetica Chim. Acta* 2018, 101, e1800156. DOI: 10.1002/hlca.201800156

Technology Readiness Level



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