

Aluminium Multiple Bonds – O

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Aluminium is the most abundant metal found within the Earth's crust and as such, it is a prime candidate for use in catalytic processes typically dominated by non-sustainable, expensive transition metals. In order to fully exploit the chemistry available to aluminium, a fundamental understanding of its chemical bonding properties is required. Interest in main group multiple bonds has risen over the last decades, but despite this it was only recently that the first neutral compound containing a formal aluminium-aluminium double bond, namely dialumene (**1**) was isolated.^{1,2} This NHC-stabilised silyl-supported double bond was found to react with a series of small molecules such as ethylene and CO₂.³ In the latter case, **1** was found to catalyse the reduction of CO₂, representing one of the first examples of main group multiple bonds in catalysis.

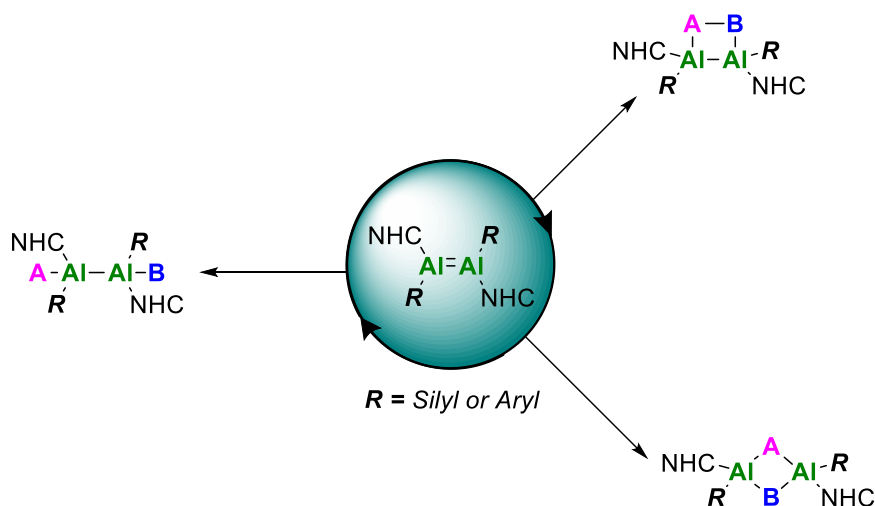


Figure 1. Reactivity of neutral aluminium-aluminium double bonds

Extension of this work has focused on the isolation of a novel aryl substituted dialumene (**2**) and examination of the differences between the two homonuclear double bonded systems.⁴

References

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