

Vanadium Alkylidenes for Olefin Metathesis

Abstract

Olefin metathesis is a widely used synthetic method for the synthesis of chemicals employed in daily life, including plastics, household chemicals, agrochemicals, and high-grade fuels, including biofuels from renewable, sustainable feedstock. The current production of fine and commodity chemicals involving olefin metathesis exclusively relies on catalysts based on second- and third-row transition metals, such as Mo, Ru, W, and Re. The use of Earth-abundant first-row metal, such as V, will have a broad impact on society by providing less expensive and greener alternatives for existing methods. This, in turn, will make essential chemicals more accessible to consumers and decrease the human environmental footprint. Sustainability, low cost, and environmental preservation are essential but not the only driving force of our research. Thus, V-based catalysts can offer a unique reactivity compared to second- and third-row counterparts. In my talk, I will give an overview of our recent progress in developing V catalysts for olefin metathesis.