Safer and Efficient Schrock Catalysts

Tech ID: 34048 / UC Case 2024-9CQ-0

BACKGROUND

Olefin metathesis is a highly important reaction to make polymers, petrochemicals, fragrances, pheromones, and pharmaceutical intermediates in industrial scale and Schrock catalysts are used in olefin metathesis. Schrock catalysts are often synthesized through addition of highly reactive chemicals like triflic acid or Grignard reagents. For decades, simpler and more direct syntheses of active Schrock catalysts have been sought that do not require triflic acid or other highly reactive chemicals.

BRIEF DESCRIPTION

Professors Richard Schrock, Matthew Conley, and colleagues from the University of California, Riverside have developed a new Schrock catalysts for olefin metathesis that can be produced in fewer synthetic steps, activated with perfluorinated alcohols, and reactivated using light or heat. The method provides a more convenient route to a variety of Schrock catalysts that avoid corrosive triflic acid and reactive Grignard reagents to yield Schrock catalysts, which can then be converted readily into other catalyst variations. This technology is advantageous because it is a safer and less expensive way to synthesize and activate Schrock catalysts for industrial and research applications.

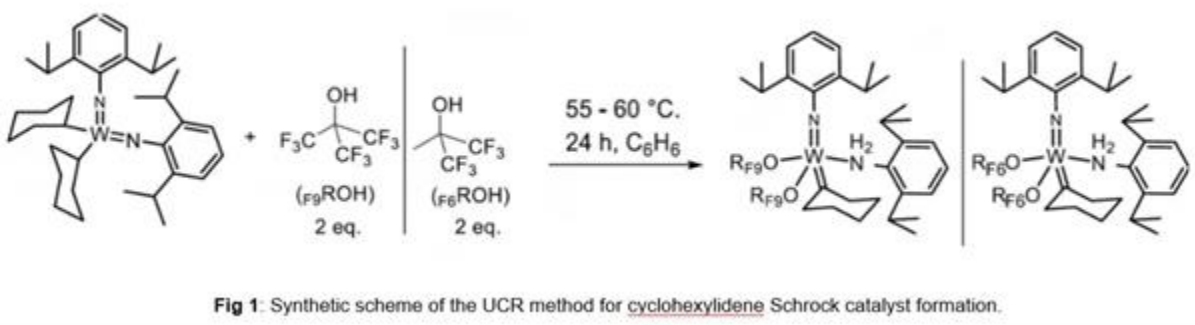

Fig 1: Synthetic scheme of the UCR method for cyclohexylidene Schrock catalyst formation.

APPLICATIONS

- A cost-effective and safer approach in the production of Schrock catalysts for industrial and research application
- For use in various industries including agrochemical, renewables, pharmaceutical, flavors and fragrances, polymers, and advanced materials.

PATENT STATUS

Patent Pending

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OTHER INFORMATION

KEYWORDS

Schrock catalyst, cyclohexylidene, olefin metathesis polymerization.

CATEGORIZED AS

- **Materials & Chemicals**
  - Chemicals
  - Other
  - Polymers

RELATED CASES

2024-9CQ-0

RELATED MATERIALS

- Schrock, Richard Royce, et al. “Syntheses of tungsten imido cyclohexylidene complexes using perfluoro-t-butanol or hexafluoro-t-butanol as acids.” Angewandte Chemie International Edition, 13 Aug. 2024, https://doi.org/10.1002/anie.202410923. - 08/13/2024

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