Novel Ligands Improve Battery Development

Tech ID: 24336 / UC Case 2014-481-0

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	9,994,595	06/12/2018	2014-481

IMAGES

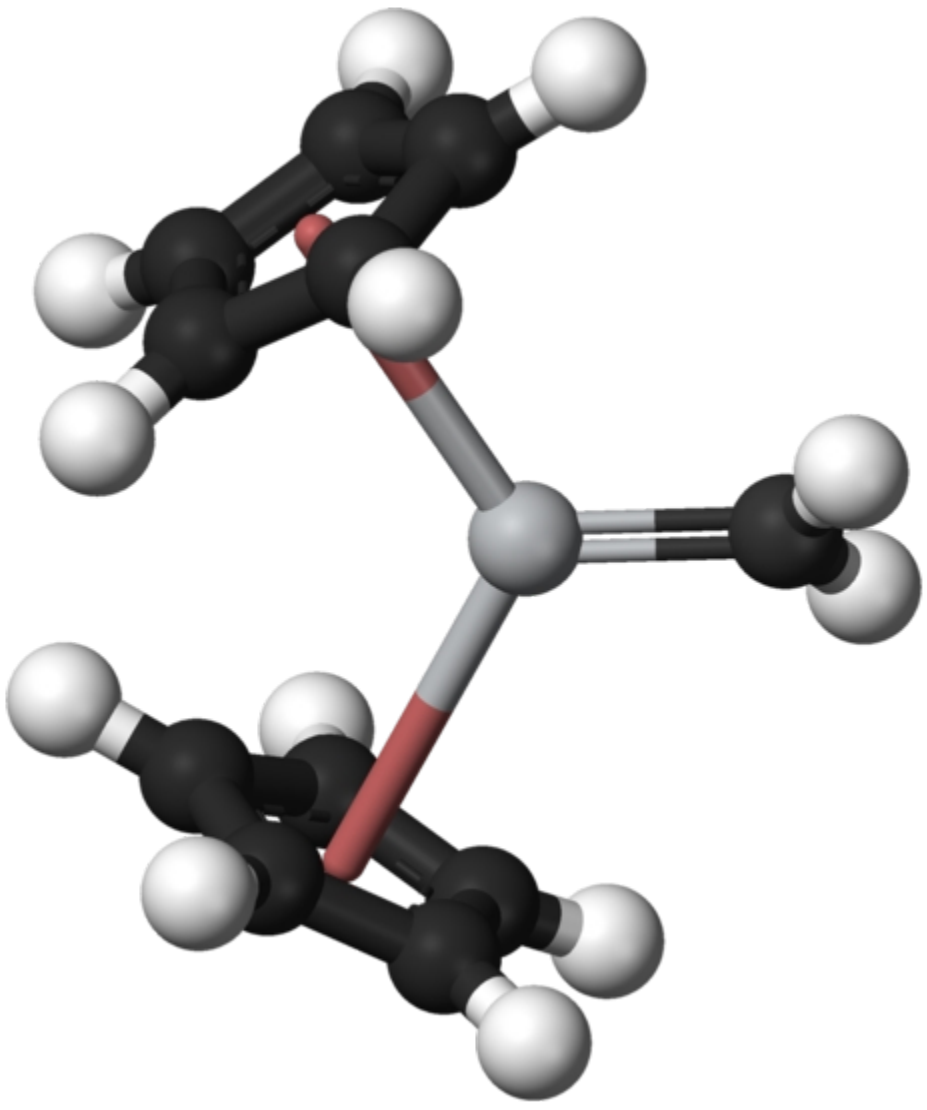

Image: 3-dimensional representation of Carbene.

http://commons.wikimedia.org/wiki/File:Tebbe%27s-reagent-Shrock-carbene-3D-balls.png

BRIEF DESCRIPTION

Background: As technology grows, there is an increased demand of lithium ion batteries. Carbene chemistry has promising value in the advancement of lithium batteries. N-Heterocyclic carbenes (NHCs) have been found to exhibit extraordinary utility as ligands for catalysts and the stabilization of reactive species. Due to evidence from research, the NHCs convey distinct and sometimes superior catalytic properties to the metals

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OTHER INFORMATION

KEYWORDS

Carbene chemistry, lithium batteries, catalysts, carborene anions, N-Heterocyclic Carbenes, ligand, catalysis, battery components

CATEGORIZED AS

- **Energy**
  - Storage/Battery
- **Engineering**
  - Engineering

RELATED CASES

2014-481-0

they bind to.

Description: UCR researchers developed a novel fusion of N-heterocyclic carbenes (NHC) and carborane anions. This novel technique paves the way for the development of a broad new generation of polyanionic N-heterocyclic carbenes with distinct steric and electronic profiles. The properties of these carbenes allows us to use the catalysts for the batteries in a controlled way. The results indicate that the combination of two unusual forms of carbon atoms can lead to unexpected chemical behaviour. This strategy paves the way for the development of a broad generation of NHC ligands for catalysts for battery components.

ADVANTAGES

- ❑Superior catalytic properties
- ❑Ability to be used as charge carriers
- ❑Ability to be used at electrolytes
- ❑Distinct steric and electronic profiles

APPLICATIONS

- ❑Battery components
- ❑Battery Catalysts

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