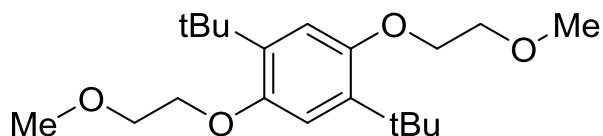


Catalog #08-0215 1,4-Di-t-butyl-2,5-bis(2-methoxyethoxy)benzene, 99+% Redox shuttle ANL-RS2



Technical Notes:

Redox Shuttles for Lithium Ion Batteries

1. Provides a long term intrinsic overcharge protection of lithium-ion batteries.
2. Maintains the safe operation of lithium-ion batteries.
3. Highly-soluble in conventional non-aqueous, carbonate based electrolytes.
4. Increases battery long-term stability and oxidation potential.

Electrochemical Properties:

1. ANL-RS2 (abbreviated DBBB) redox shuttle, compared to other dimethoxybenzene-based shuttles, has demonstrated improved solubility in carbonate-based electrolytes. DBBB displays a reversible redox potential at 3.9 V. [1]
2. In comparison to a variety of quinoxaline-based species, DBBB exhibits a reversible single electron transfer at 4 V vs. Li/Li⁺. Quinoxaline and its derivatives demonstrate two redox events between 2.4-3 V vs. Li/Li⁺. [2]
3. DBBB enriched electrolyte demonstrated effective protection against overcharge abuse in 18650 format LiFePO₄ based lithium ion batteries. [3]
4. Due to excellent solubility in carbonate-based electrolytes and improved electrolyte conductivity, DBBB is compatible with modern battery technologies. [4-5]

References:

1. *Energy Environ. Sci.*, **2012**, 5, 8204.
2. *Adv. Energy Mater.*, **2012**, 2, 1390.
3. *J. Power Sources*, **2014**, 247, 1011.
4. *J. Electrochem. Soc.*, **2014**, 161, A1905.
5. *J. Electrochem. Soc.*, **2016**, 163, A1.

