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METHOD FOR PREPARING IONIC COMPOUNDS

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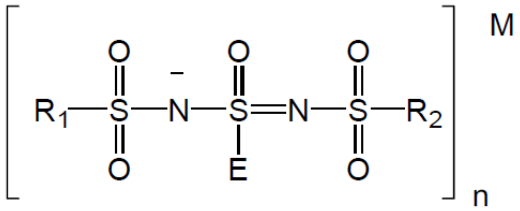
The authors of the present invention have developed a less wasteful, step-economical and facile method to prepare ionic compounds with a sulfonimide core which not only display a high delocalization of the anionic charge and improved dissociation ability but can be also comprised in solid-state electrolyte to improve the total ionic conductivity.

The new method to prepare ionic compounds of formula I is performed in one-pot and displays several advantages compared to prior art, among these: higher step-and atom-economy, milder conditions, as well as the ability to synthesize a broad range of salts having high negative charge delocalization.



(I)

The anion of salt I involves an S-N-S-N-S core where sulfur atoms are hexavalent and the negative charge is delocalized between the two nitrogen atoms and the five oxygen atoms linked to the sulfur atoms; and, specifically, a group (E) and two groups R1 and R2 are directly attached to the S-N-S-N-S core. This highly delocalized anion structure can be combined with different cations to generate salts which properties are governed by the anion properties. The invention of this innovative route gives access to a variety of delocalized anions with tuned properties. Those salts are of interest for multiple applications. It has been found that they lead to improved solid electrolytes as compared to non-delocalized salts.

ADDED VALUE

- ✓ Robust method for preparation of a variety of superdelocalized anions E, R1, R2
- ✓ Safe synthetic route with mild reaction conditions
- ✓ Efficient synthetic route

APPLICATION OF THE TECHNOLOGY

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- ✓ Superdelocalized anions for solid state polymer electrolytes for lithium, sodium and similar batteries
- ✓ Stable and versatile anions for lithium metal batteries

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