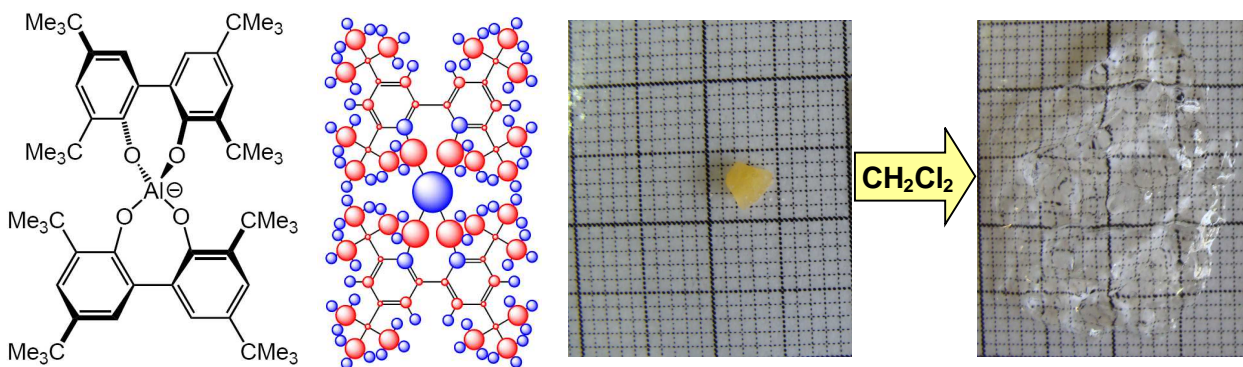


Lipophilic Metallates to Improve the Performance of High Tech Applications based on Non-Polar Liquids



Our unrivalled lipophilic metallates are highly suitable to improve the performance of high tech applications by interaction with non-polar liquids. They are superior due to their outstanding properties, their cost-efficient [★]producibility, and their environmental sustainability.

Example: Sodium Aluminate
Superabsorbents at 25°C

Solvent	Maximum Swelling Factor
C ₂ H ₄ Cl ₂	111
THF	97
CH ₂ Cl ₂	152
Diesel	28
H ₂ O	0

Fields of Application:

- Adhesives with novel/improved properties
- Superabsorbent for organic solvents
- oily wood preservatives
- microelectronics / clean-room technology
- use in fatty/oily cosmetics
- salt extraction with alkanes
- weakly coordinating anions
- production of polyolefins
- catalysts for hydrogenation

★ **1 g** of our **sodium aluminates** can be synthesised with basic compounds for less than **0.1 €**, while **1 g** of the comparable **flour-containing boric salts** (Na-BArF²⁴) of SynQuest Laboratories, Inc. cost around **134 €**. No responsibility is taken for the correctness of this information.

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Innovation:

These lipophilic aluminates are novel metal-based anions, characterized in that their **salts are very soluble in non-polar liquids**. The shielding of the inner, reactive core of the anion is achieved by the steric space occupied by eight tertiary butyl groups. The central metal ion can be preferably aluminium ("Altebate") or boron ("Bortebate"), but also gallium, scandium or a lanthanide.

Thanks to their cost-efficient and fluorine-free production our aluminates are suitable for mass produced articles as well as for specialized products.

One example for a novel application of the lipophilic metallates is their use as superabsorbent for non-polar liquids.

So far the abilities of superabsorbents were limited to aqueous liquids and thus to products like napkins or soil conditioner. Now, for the first time ever, economic superabsorbents for non-polar liquids like alkanes, chlorinated hydrocarbons, fuels, and organic solvents are available. They are based on lipophilic anions that are combined with cations (e.g. polyacrylate esters).

"High tech adhesives" is another very interesting field of applications for the lipophilic metallates, which could be used to improve the performance of adhesives and/or to create truly novel properties.

Furthermore, boron compounds are widely used as active ingredients in aqueous wood preservatives. Our lipophilic Bortebates allow producing boron containing oily wood preservatives, which was not possible so far.

Advantages:

- **for the first time economic superabsorbents for non-polar liquids**
- allows cost-efficient production of environmental friendly products in large quantities
- **improving performance of high tech applications**
- totally fluorine-free!
- **high environmental sustainability**
- meets many of the requirements of an ideal anion
- high solubility (borate salts: 21-72 g/L in pentane; aluminium salts 7 g/L in pentane at 24°C)
- high tendency to crystallize
- high temperature resistance

Patent Portfolio and Transfer of Technology:

A German and an international patent application has been filed (DE 10 2009 041 864).

The international search report was positive (only "A"-documents cited); patentability was acknowledged.

Transfer of technology: All options are currently available.

Further information: "lipophilic metallates":

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