



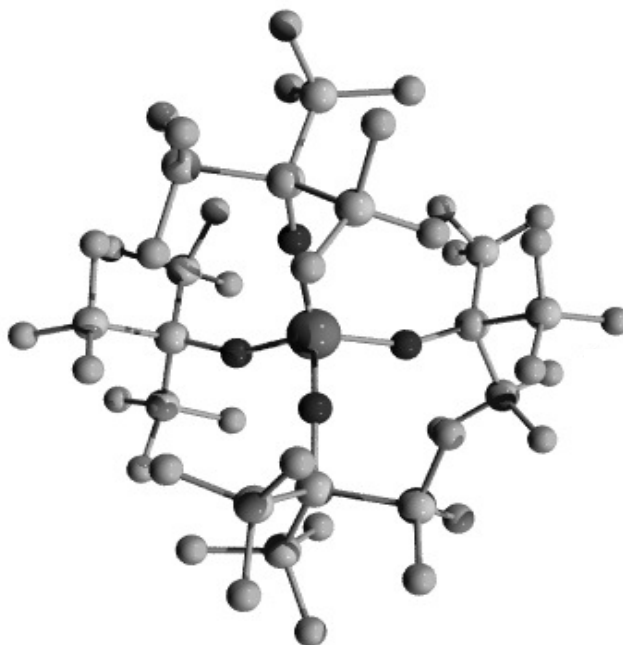
## Weakly-Coordinating Anions

Weakly-Coordinating Anions (WCAs) are a class of anions in which few strong interactions are replaced by many but very weak interactions.<sup>[1]</sup> This is most probably the closest approximation to the ideal "Non Coordinating Anion", since noncoordination can never be achieved in condensed phases.<sup>[2]</sup> Thus, WCAs allow one to stabilize strongly acidic gas phase species, highly electrophilic metal and non metal cations or weakly-bound Lewis acid-base complexes of metal cations.<sup>[3]</sup>

Apart from being very interesting for academic research, weakly-coordinating anions have achieved major commercial importance in such diverse areas as **olefin polymerization**, **homogenous catalysis**, **super capacitors** and **lithium battery technology** to name only a few.<sup>[2,4]</sup>

These applications have grown out of two decades of basic research into the special properties of anions containing hydrocarbon and fluorocarbon groups.

The resulting fluorinated surface of such anions leads to exceptional characteristics such as low nucleophilicity, chemical inertness, solubility, leaving group lability, and weak coordination. These characteristics then led to applications throughout organic and inorganic chemistry, where they are particularly useful for stabilizing highly reactive cations and as counterions for cationic Lewis acid catalysts in a wide variety of electrophilic chemistry.



IOLITEC offers a selection of alkoxy aluminate WCA salts, namely of the  $[Al(OR^F)_4]^-$  [ $OR^F = OC(CF_3)_3$ ] anion (figure) in combination with  $Li^+$ ,  $Ag^+$ ,  $Ph_3C^+$ ,  $H(OEt_2)_2^+$  cations. Salts with other alkoxy aluminate anions are available on demand.

Product Code	Compound	Quantities
KI-0018-HP	Lithium tetrakis(perfluoro-tert.-butoxy)aluminat, 99%	1 to 250 g
KI-0019-HP	Silver tetrakis(perfluoro-tert.-butoxy)aluminat, 99%	1 to 250 g
KI-0020-HP	Triphenylcarbenium tetrakis(perfluoro-tert.-butoxy)aluminat, 99%	1 to 250 g
KI-0021-HP	Diethyloxonium tetrakis(perfluoro-tert.-butoxy)aluminat monoetherate, 99%	1 to 250 g

### References:

- [1] S. H. Strauss, *Chem. Rev.* **1993**, *93*, 927.
- [2] I. Krossing, I. Raabe, *Angew. Chem., Int. Ed.* **2004**, *43*, 2066.
- [3] I. Krossing, A. Reisinger, *Coord. Chem. Rev.* **2006**, *250(21-22)*, 2721.
- [4] S. Smidt, M. Zimmermann, M. Studer, A. Pfaltz, *Chem. Eur. J.* **2004**, *10*, 4685.

