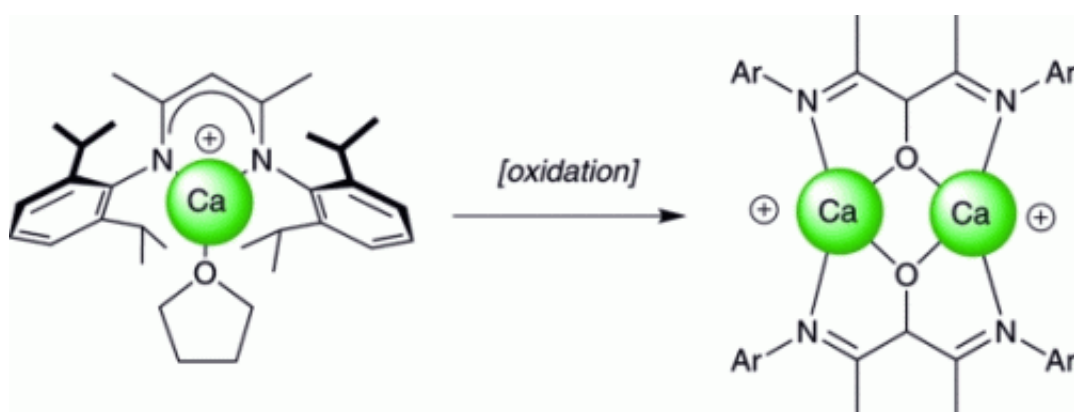


# Open, Ring! Highly electrophilic cationic complexes as catalysts in immortal ring-opening polymerization of lactide

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(Phys.org) -- Certain complexes of large alkaline earth elements such as calcium, strontium, and barium are efficient catalysts for various organic reactions. However, the stability of these heteroleptic complexes in solution is compromised by ligand scrambling. The  $\beta$ -diketiminato ligand has proven especially useful in stabilizing reactive heteroleptic complexes of calcium, but to a lesser extent those of larger alkaline earth elements.

French researchers now report well-defined ( $\beta$ -diketiminato)calcium and -strontium cationic complexes paired with weakly coordinating anions that are extremely active in the immortal ring-opening polymerization of

lactide, with a good degree of control of polymerization parameters, and display unusual reactivity by providing a unique example of oxidation of a {BDIiPr} core to afford a diiminoalkoxide.

In a Full Paper published in the *European Journal of Inorganic Chemistry*, Jean-François Carpentier, Yann Sarazin, and co-workers at the Universities of Rennes and Toulouse, France, describe the stable cationic calcium and [strontium](#) complexes, which show excellent catalytic activity in the controlled immortal ring-opening polymerization of lactide, were obtained in high yields by reaction with strong donor ligands like pyridine. With weaker Lewis bases such as THF, the high reactivity of the calcium complexes led to a remarkable case of oxidation of the {BDIiPr}–[ligand](#), which is known for its robustness, to give an unprecedented diiminoalkoxide fragment.

These results can be used to investigate the reactivity of complexes of cations with low coordination number, to prepare new alkaline earth complexes with enhanced electrophilicity at the metal center, and to design better catalytic systems for various organic transformations.

**More information:** Jean-François Carpentier et al.,  $\beta$ -Diketiminato–Alkaline Earth Cationic Complexes: Synthesis, Structures, Lactide Polymerization and Unusual Oxidative Reactivity of the Ancillary Ligand, *European Journal of Inorganic Chemistry*, [dx.doi.org/10.1002/ejic.201200183](https://doi.org/10.1002/ejic.201200183)

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