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## **New Catalysts for Reactions in Supercritical Carbon Dioxide**

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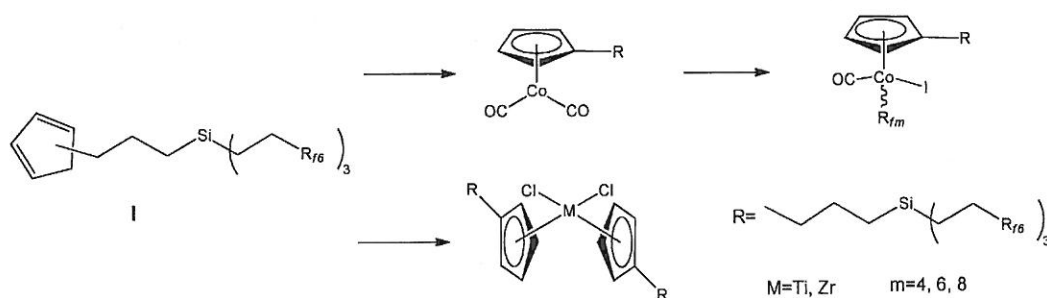
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# NEW CATALYSTS FOR REACTIONS IN SUPERCRITICAL CARBON DIOXIDE

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Carbon dioxide in its liquid or supercritical state (scCO<sub>2</sub>) has a prodigious potential as an environmentally benign reaction medium for sustainable chemical synthesis. ScCO<sub>2</sub> is a non-polar solvent, so modifications in catalytic systems are required to increase the solubility of the catalyst in the reaction media. The good results in terms of solubility have been achieved by introducing fluororous chains into the ligands. Our long time experience in finding of strategies to incorporate polyfluorinated chains into a cyclopentadiene ring<sup>1</sup> recently resulted in synthesis of new type of those compounds. Our approach is based on synthesis of reagents containing three perfluorinated chains attached via two -CH<sub>2</sub>- spacers to a silicon atom as a stable branching point. Reaction with sodium cyclopentadienide under suitable conditions gave the desired product I (in the mixture of two vinylic isomers). Subsequently a series of novel fluorinated cyclopentadienyl transition metal (Co, Rh, Ti, Zr) complexes was prepared. Fluororous cyclopentadienyl cobalt dicarbonyl complex was tested as catalyst for cyclotrimerization of alkynes in supercritical CO<sub>2</sub>.



## References:

- <sup>1</sup> (a) Červenková Šťastná, L.; Čermák, J.; Cuřínová, P.; Sýkora, J. J. *Organomet. Chem.* **2010**, 695, 537-545. (b) Čermák J.; Šťastná L.; Sýkora J.; Císařová I.; Kvíčala J. *Organometallics* **2004**, 23, 2850-2854.