# Metalporphyrin on PMO catalysts for the conversion of CO2 to cyclic carbonates

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Cyclic carbonates, mostly synthesized using the very toxic warfare gas phosgene, find many different and important applications (e.g. production of polycarbonates and electrolytes in batteries). An alternative synthesis route has been described (the catalysed reaction of epoxides and $CO_2$), and some promising metal porphyrin catalysts were reported[1]. However these porphyrins are expensive and time consuming to make. Thus it is evident that these catalysts would greatly benefit from heterogenization, not only economically but also ecologically.

To achieve this PMO supports are an interesting option, as these nanoporous materials can be post-modificated and fine-tuned for this and other applications via a variety of reactions. COMOC's extremely stable monoallyl ring PMO[2] was chosen to be used in this project, a material that's easily modified by 'click' reactions. Using the wide range of functional groups accessible by this method, the porphyrin is covalently anchored on the PMO. As the complex is bound on the pending allyl functions, the support stays rigid and the porphyrin complex accessible.

The made catalysts are catalytically tested and hot filtration experiments are performed. Different parameters are adjusted (e.g. influence of temperature and pressure, adding of a co-catalyst) and their influence is studied. A comparison with some previously described homogeneous catalysts is made.

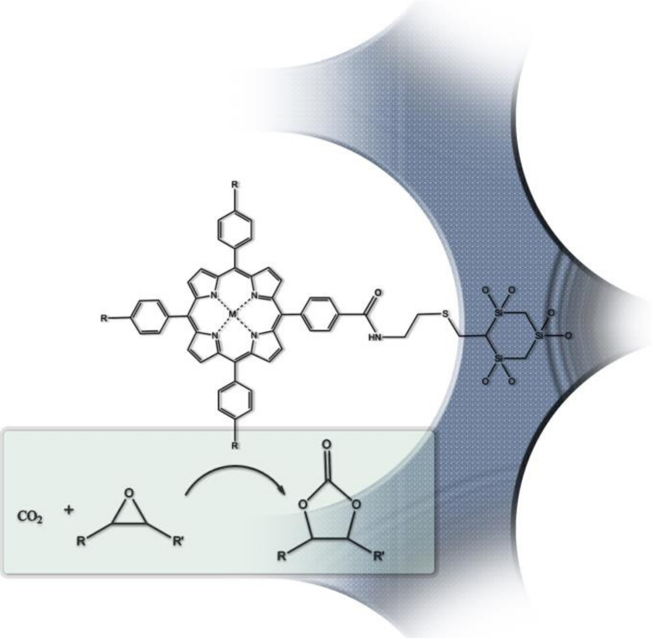

Figure 1

[1] Maeda, C., Miyazaki, Y., & Ema, T. . (**2014**). *Catalysis Science & Technology*, *6*, 1482. DOI: 10.1039/c3cy00993a
[2] Ide, M., De Canck, E., Van Driessche, I., Lynen, F., & Van der Voort, P. . (**2015**). *RSC ADVANCES*, *8*, 5546. DOI: 10.1039/c4ra15837g

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