

## The Synthesis and Characterization of Porous Polyphosphazene under Mild Conditions for CO<sub>2</sub> Capture

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The aim of this project is to obtain polydichlorophosphazene, to functionalise it and to study the properties of polyphosphazene derivatives to consider the possibility of their use for CO<sub>2</sub> uptake.

2D polyphosphazene networks were synthesized under mild conditions. Hydroquinone, tetrafluoroquinone, biphenyl and 5'-(4-hydroxyphenyl)-[1,1':3',1''-terphenyl]-4,4''-diol were chosen as linkers. The reactions were monitored by FT-IR spectroscopy. The porous nature of substituted polymers was investigated by BET, NLDFT, BJH analyses.

The following issues are dealt upon:

1. The difference between mono and bi functional linker efficiency to form porous network.
2. The impact of fluorine substitution on the porosity of the network.
3. The possibility to control porosity using larger molecular geometry of bi- and trifunctional linkers.

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