

## Highly Efficient Isocyanate-Free Microwave-Assisted Synthesis of [6]-Oligourea

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### Electronic Supporting information (ESI)

#### [6]-Oligourea results

All products were white colored oligomers. The analytical data below is given for the following conditions: A 1:1 molar ratio of diamine: PC; 2.0 mL PC, 2.0 mol% TBD, 50 °C, 10 min, 200 W. In addition, the total oligomer's formula weight is accounted upon inclusion of both amine and urethane end groups after calculating the degree of polymerization from the <sup>1</sup>HNMR.

Two sets of methodologies were used to produce the title oligomer:

**Dynamic mode.**

Optimized conditions: 2.0 mol % TBD, 10 min, 50 °C and 200 W.

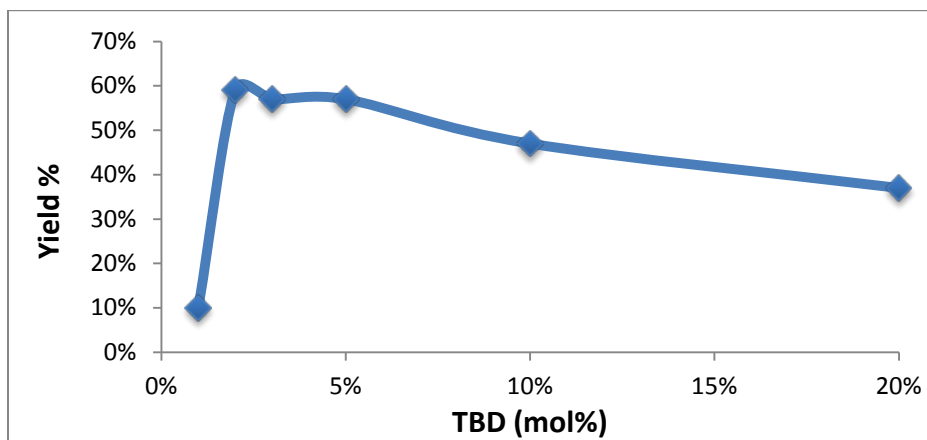
**Fixed power mode.**

Optimized conditions: 2.0 mol % TBD, 20 min, 10 W.

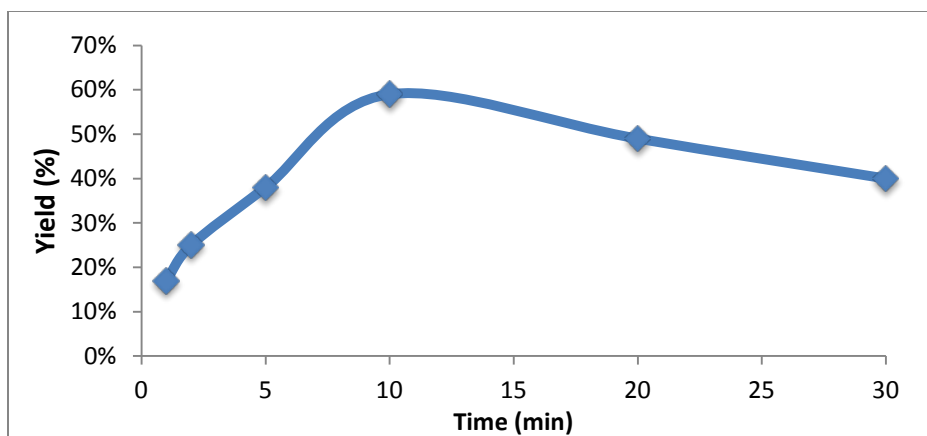
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**Dynamic mode (Optimization experiments)**

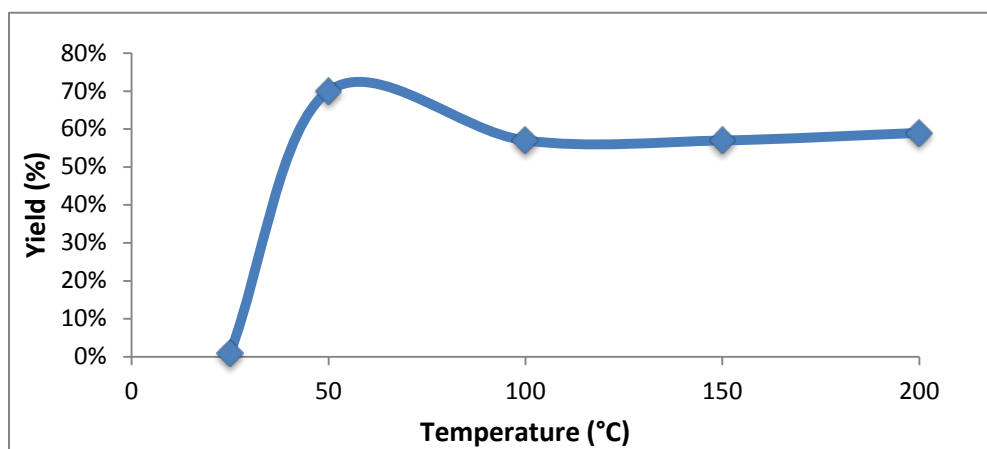
*Optimized conditions: 2.0 mol % TBD, 10 min, 50 °C and 200 W.*



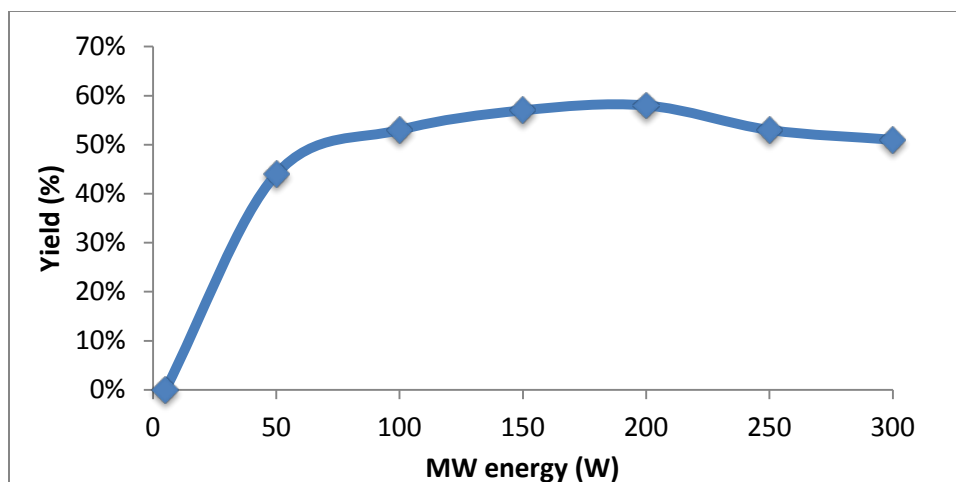
**S 1.** Yield as a function of catalyst loading (*mol %*); parameters used: TBD (*mol%*), 220W, 100 °C, 10 *min* and solvent-free conditions.



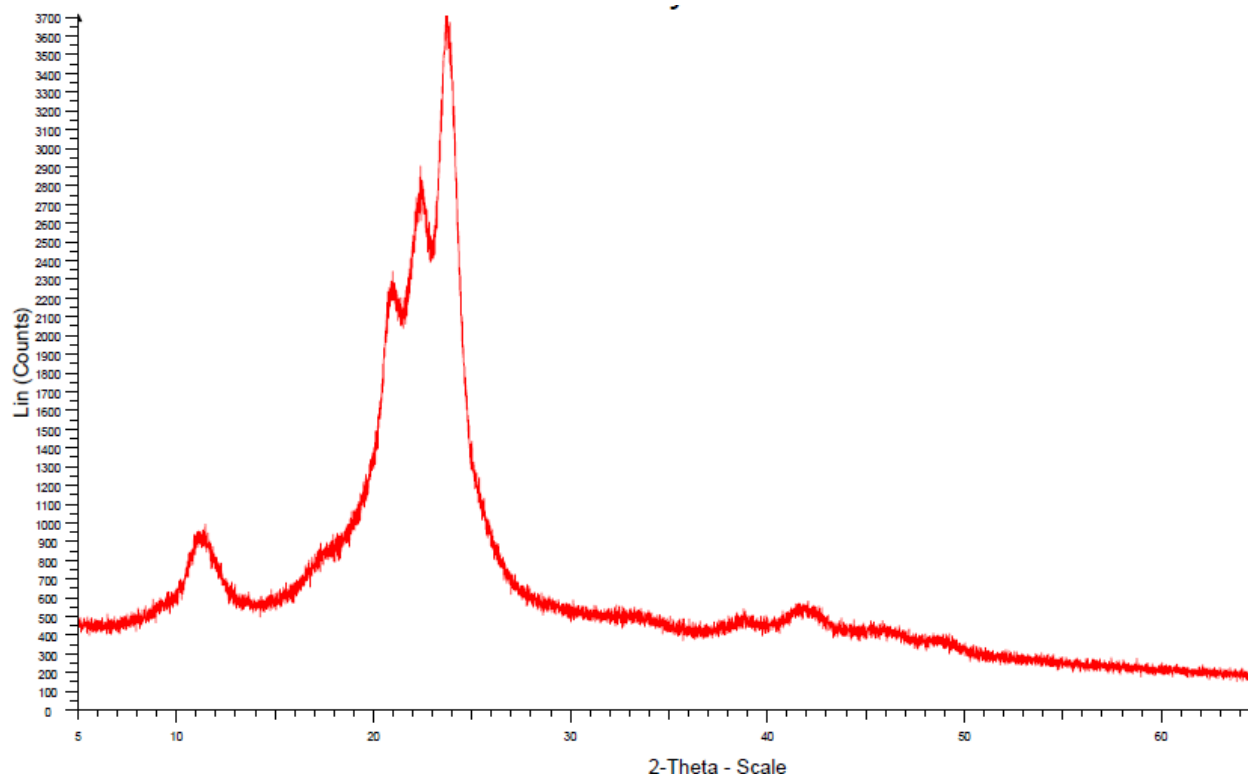
**S 2.** Yield as a function of time (*min*), parameters used: time (*min*), 3.1 mol% TBD, 220W, 100 °C and solvent-free conditions.



**S 3.** Yield as a function of temperature (°C), parameters used: Temp (°C), 3.1 mol% TBD, 220W, time 10 min and solvent-free conditions.



**S 4.** Yield as a function of MW energy (W)-Dynamic mode, parameters used: Microwave power 220 W, 3.1 mol% TBD, 100 °C, time 10 *min* and solvent-free conditions.



**S 5.** XRD pattern of the [6]-oligourea prepared in the study