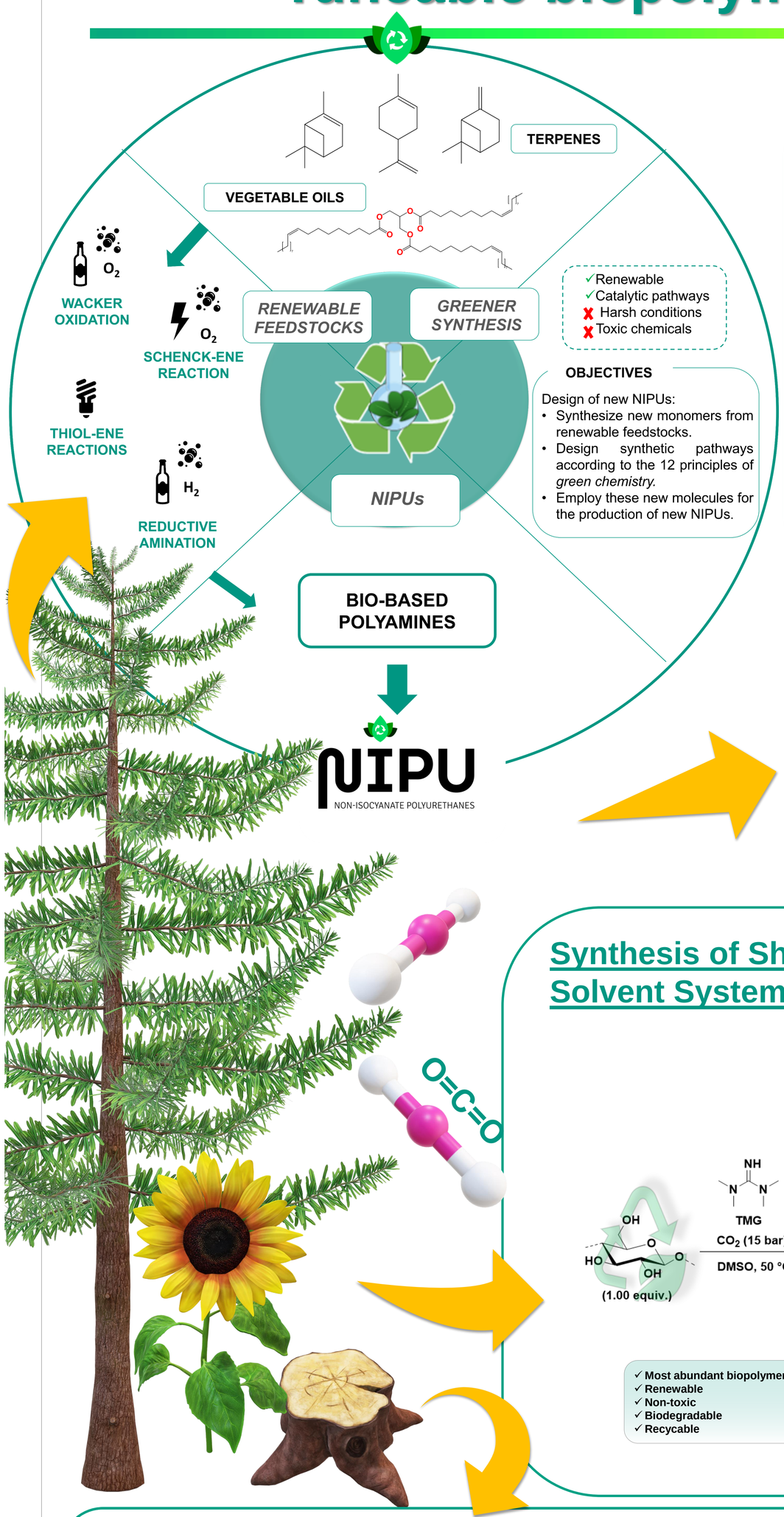
Karlsruhe Institute of Technology

IBCS-FMS
Functional-Molecular-Systems

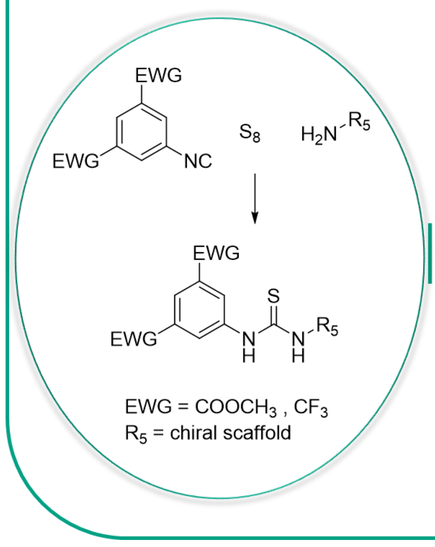
AK Meier

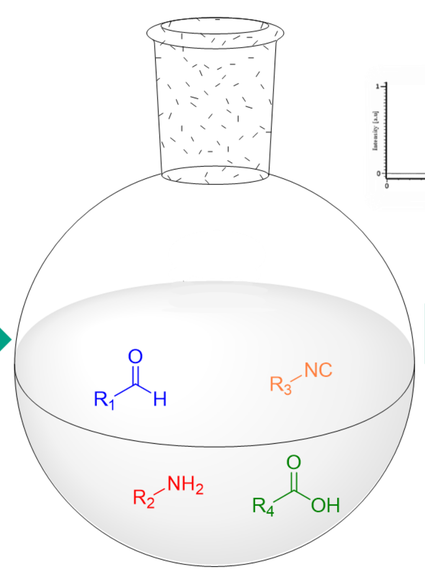
Tuneable biopolymers from renewable resources



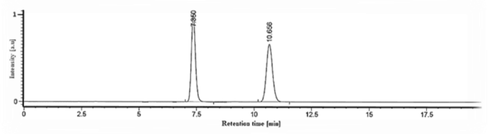
Asymmetric Thiourea - catalyzed four-component Ugi reaction (Ugi-4CR)

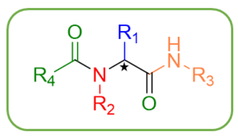
More sustainable Thiourea catalyst synthesis in a *one-pot* multicomponent reaction (MCR) using elemental sulphur





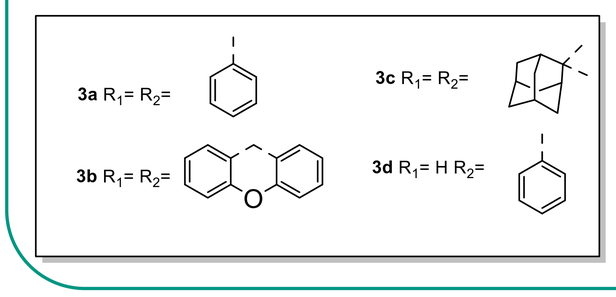
Chiral HPLC analysis

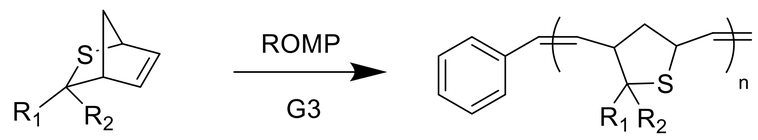




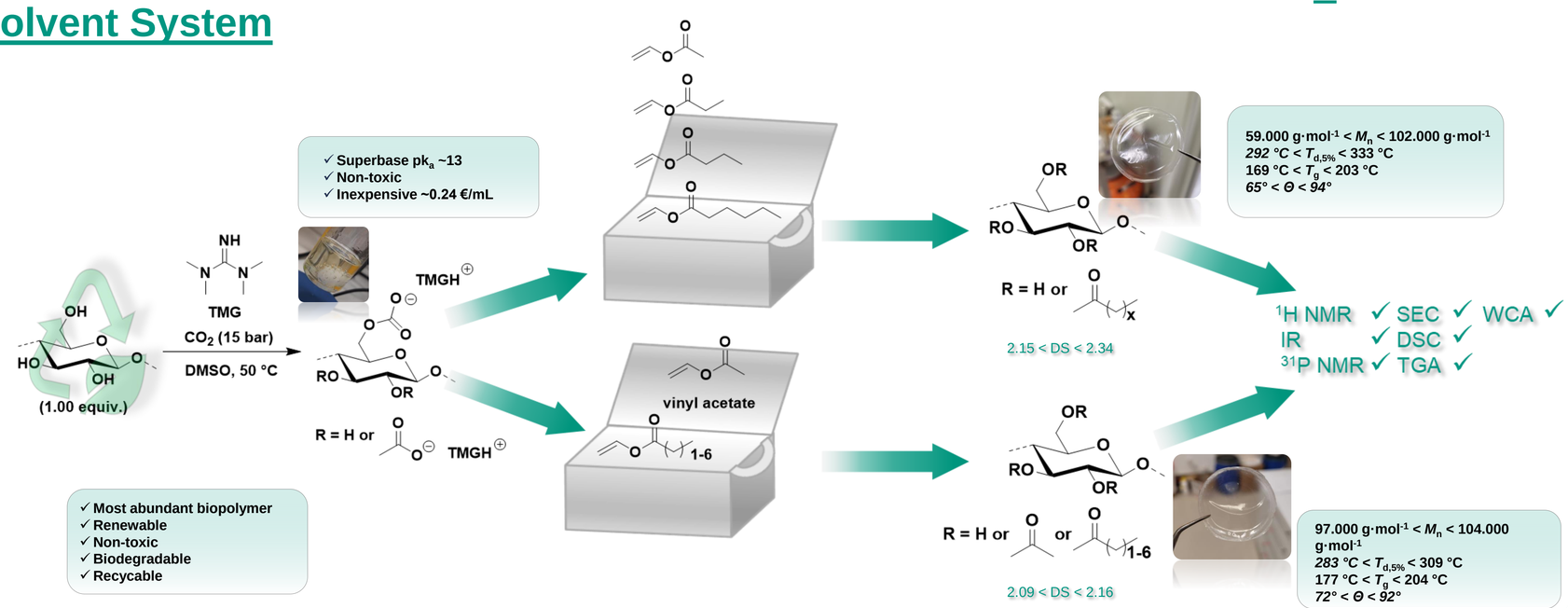
- Bis-amide synthesis
- One-pot reaction
- High atom-economy
- Library synthesis possible

Sulfur-containing polymers obtained from Thionorbornenes



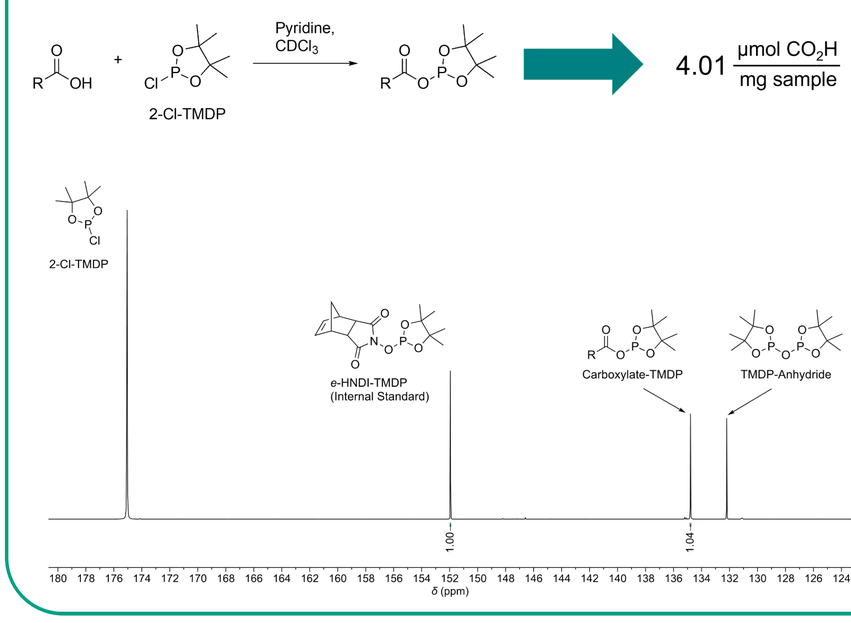


Synthesis of Short Chain (Mixed) Cellulose Esters in a DMSO/TMG/CO_2 Switchable Solvent System

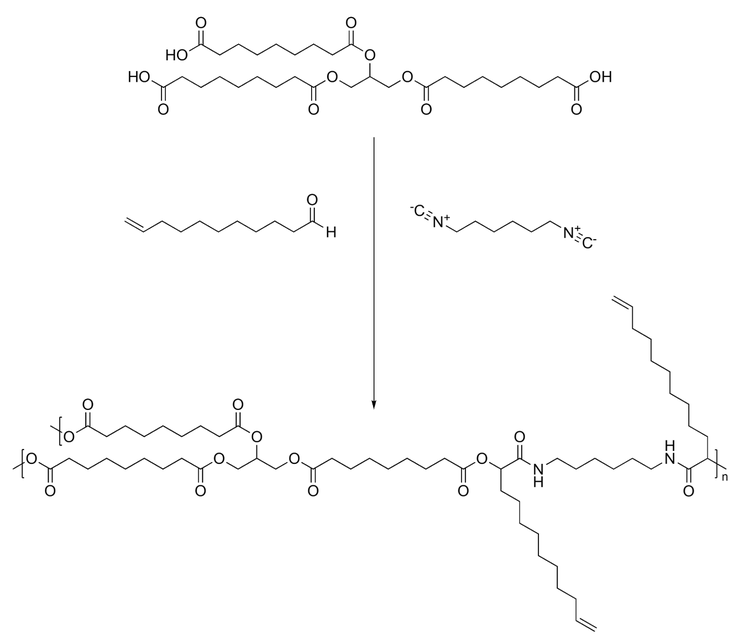


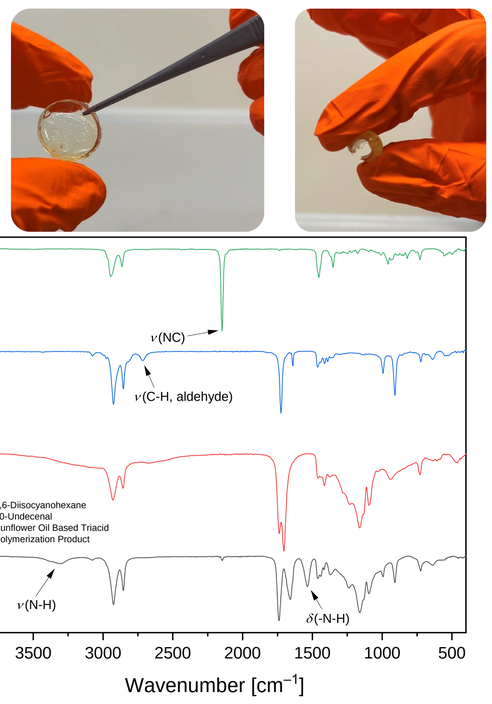
Passerini Polymerization of Sunflower Oil Based Triacid with 10-Undecenal and 1,6-Diisocyanohexane

Determination of Carboxylic Acid content via ^{31}P NMR Method [2]



Polymerization at room temperature





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KIT – The Research University in the Helmholtz Association

References

[1] This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No 955700

[2] King, A. W. T.; Jalomäki, J.; Granström, M.; Argyropoulos, D. S.; Heikkinen, S.; Kilpeläinen, *Anal. Methods* **2010, 2 (10), 1499-1505.**

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