

University of Groningen

## Biobased, thermoreversibly crosslinked polyesters

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## Stellingen

Behorende bij het proefschrift:

### “Biobased, thermoreversibly crosslinked polyesters”

*Martijn Beljaars*

- 1: With styrene contents reaching as high as 60% the term *polyester resin* is inappropriate. It would be more correct to speak of *crosslinked polystyrene*.
- 2: *Going green* is not enough (this thesis): while the implementation of sustainable chemicals is a step in the right direction, it does not address any problems that arise at end of life of the material.
- 3: Writing a thesis is in many ways similar to raising a child: you pour your heart and soul into it, it keeps you awake at night and in the end you hope to end up with something you can be proud of. There is, however, no constructive overlap when trying to do both at the same time.
- 4: As Kermit the frog puts it: “It’s not easy being green”. In order to even be considered for commercial application, a sustainable product is required to meet or exceed the performance of current products. This severely limits the implementation of innovative materials which try to go beyond being a drop-in replacement.
- 5: After thoroughly investigating the mechanical and chemical properties of a “thermoreversible cross-linking” polymer, a result as vague as OK or NG (not good) on the recyclability of said polymer without any mechanical justification is highly subjective. *Macromolecules* **2001**, 34, 9201-9204

- 6: The Diels-Alder reaction is the perfect tool for thermally reversible crosslinking as it enables the presence of covalent bonds (and the resulting superior properties) as well as a convenient method for reopening them.
- 7: By adjusting the composition, the (mechanical) properties of polymeric materials can be tailor-made to meet a wide range of requirements, as long as all the interactions between the materials are well understood. (This thesis).
- 8: The modernization of analysis methods has led to a *black box* approach where one inserts a sample, presses a button and obtains a number. Even though correct conclusions can be drawn with this method, it limits the applicability of the results in a wider perspective.
- 9: When assessing the toxicity of a compound, it is imperative that one draws (and knows) the correct structure. <https://goo.gl/4mUQWO> (national toxicology report of the US department of health)
- 10: The quality of education should not and cannot be measured by numbers like passing-percentages.
- 11: I strongly agree with Linus Pauling who states that: "The best way of having a good idea is having a lot of ideas" and feel that the best way of achieving this is to have an open mind and taking an active interest in the work of ones colleagues.
- 12: Everything can be put to song. And nearly everything will be improved by doing so.