# Article information:

Evolution of thermal behavior, mechanical properties, and microstructure in stereocomplexable poly(lactic acid) during physical ageing - ScienceDirect  
<https://www.sciencedirect.com/science/article/pii/S0032386122003275>

# Article summary:

1. This article investigates the physical ageing behavior of stereocomplexable poly(lactic acid) (PLA) blends, which have enhanced intermolecular interactions between L- and D-segments.

2. The results show that the PLLA/PDLA blend exhibits a retarded ageing kinetics compared to neat PLLA, as well as a higher elastic modulus yet at expense of ductility.

3. It is proposed that the retarded ageing kinetics and high stiffness in stereocomplexable blends are results of intermolecular interactions between PLLA and PDLA chains.

# Article rating:

Appears well balanced: The article presents the information in a reliable and balanced way, without biases and prejudices. The claims made in the article are well supported and, where applicable, all sides of the argument are given opportunity to present their point of view. The article appears trustworthy and reliable.

# Article analysis:

This article provides an in-depth analysis of the physical ageing behavior of stereocomplexable poly(lactic acid) (PLA) blends, which have enhanced intermolecular interactions between L- and D-segments. The authors use various methods such as differential scanning calorimetry (DSC), dynamic mechanical analysis (DMA), uniaxial tensile test, small-angle X-ray scattering (SAXS), Fourier-transform infrared (FTIR) spectroscopy, and solid-state nuclear magnetic resonance (NMR) spectroscopy to investigate the effect of intermolecular interactions on physical ageing kinetics and evolution of physical performances of glassy polymers.

The article is generally reliable and trustworthy due to its comprehensive coverage of the topic, detailed description of experimental methods used, clear presentation of data obtained from experiments, and thorough discussion on the implications of findings. The authors also provide references to relevant literature for further reading. However, there are some potential biases in the article that should be noted. For example, while the authors discuss possible risks associated with PLA materials such as their relatively low Tg values, they do not mention any potential environmental impacts or health risks associated with PLA materials or their production processes. Additionally, while they discuss how intermolecular interactions can affect physical ageing behaviour in PLA materials, they do not explore any counterarguments or alternative explanations for their findings. Furthermore, while they present data from experiments conducted on different PLA blends with varying ratios of L- and D-enantiomers, they do not compare these results to those obtained from other types of polymer systems or discuss how their findings may be applicable to other materials systems.

In conclusion, this article provides a comprehensive overview on the physical ageing behaviour in stereocomplexable PLA blends with enhanced inter

# Topics for further research:

* Environmental impacts of PLA materials
* Health risks associated with PLA production
* Alternative explanations for physical ageing behaviour in PLA blends
* Comparison of physical ageing behaviour in different polymer systems
* Applicability of findings to other materials systems
* Intermolecular interactions and physical ageing kinetics

# Report location:

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