Supplementary Information (SI) for Polymer Chemistry. This journal is © The Royal Society of Chemistry 2025

## **Supplemental Information**

to

## Polycondensation of L-Lactic Acid: A Deeper Look into Solid State Polycondensation

Hans R. Kricheldorf<sup>a)</sup>, Steffen M. Weidner<sup>b)</sup>, Felix Scheliga<sup>a)</sup>

- a) Universität Hamburg, Institut für Technische und Makromolekulare Chemie, Bundesstraße 45, D20146 Hamburg, Germany
- b) BAM Bundesanstalt für Materialforschung und -pr
  üfung, Richard Willst
  ätter Str. 11, D-12489 Berlin, Germany



**Scheme S1** Scheme of reactions occurring in the amorphous phase of solid PLA as formulated by Moon et al. [16] (reproduced with permission from Elsevier)



**Scheme 2** Reaction mechanisms postulated by Katyar et al. [21] (reproduced with permission from Wiley)



**Figure S1** GPC mass distribution curves of PLAs prepared by polycondensation of LA catalyzed by TSA: (A) after 2 d, (B) after 6 d



**Figure S2** MALDI TOF mass spectra of the starting materials: A) HOPLA-12, (B) HOPLA-25, (C) HOPLA-50



**Figure S3** MALDI TOF mass spectra of PLAs obtained by annealing of HOPLA-25 at 140  $^{\circ}$ C/14 d: (A) doped with SnOct<sub>2</sub>, (B) doped with TSA



**Figure S4** MALDI TOF mass spectrum of PLA obtained by annealing of HOPLA-25 at 140 °C/14 d followed by annealing at 160 °C/6 d, (A) doped with SnOct<sub>2</sub>, (B) doped with TSA