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A scalable post-treatment method for modifying polylactic acid to create nanoporous polymers

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Document en libre accès dans PolyPublie
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Date	2025
Type	Article de revue / Article
Version	Version officielle de l'éditeur / Published version
URL de PolyPublie **PolyPublie URL**	https://publications.polymtl.ca/65731/
Évaluation par les pairs **Peer reviewed**	Révisé par les pairs / Refereed
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Référence **Citation**	Klassen, D., Karthikeyan, A., Simon, W., Mimoso, C., Badiali, T., Chouinard, G., Dumont, M.-J., & Tavares, J. R. (2025). A scalable post-treatment method for modifying polylactic acid to create nanoporous polymers. Polymer, 330, 128495 (18 pages). https://doi.org/10.1016/j.polymer.2025.128495

Publication officielle
Official publication

Titre de la revue **Journal title**	Polymer (vol. 330)
Maison d'édition **Publisher**	Elsevier Ltd
URL officielle **Official URL**	https://doi.org/10.1016/j.polymer.2025.128495
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Supplementary Information

S.1. Supporting information for methodology

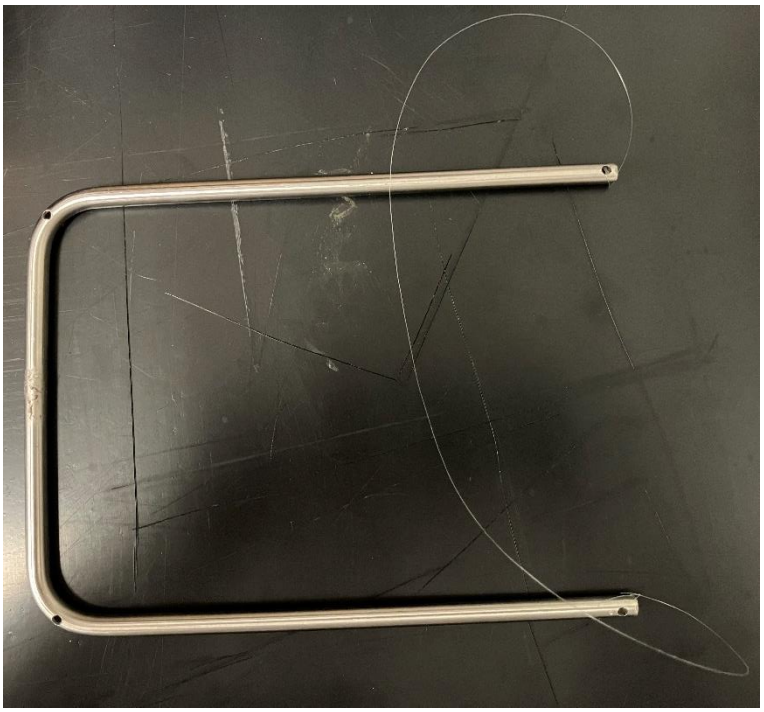


Figure S1: U-bar used for DDD treatment of MONF and MULF fibers

Table S1: DDD treatment of LDPE

Procedure name	Time in solvent (s)	Time in coagulant (s)	Solvent temperature (°C)
LDPE30-1	30	300	45
LDPE30-2	30	300	55
LDPE30-3	30	300	65
LDPE30-4	30	300	75
LDPE60-1	60	300	45
LDPE60-2	60	300	55
LDPE60-3	60	300	65
LDPE60-4	60	300	75

LDPE120-1	120	300	45
LDPE120-2	120	300	55
LDPE120-3	120	300	65
LDPE120-4	120	300	75
LDPE300-1	300	300	45
LDPE300-2	300	300	55
LDPE300-3	300	300	65
LDPE300-4	300	300	75

S.2. DSC curves

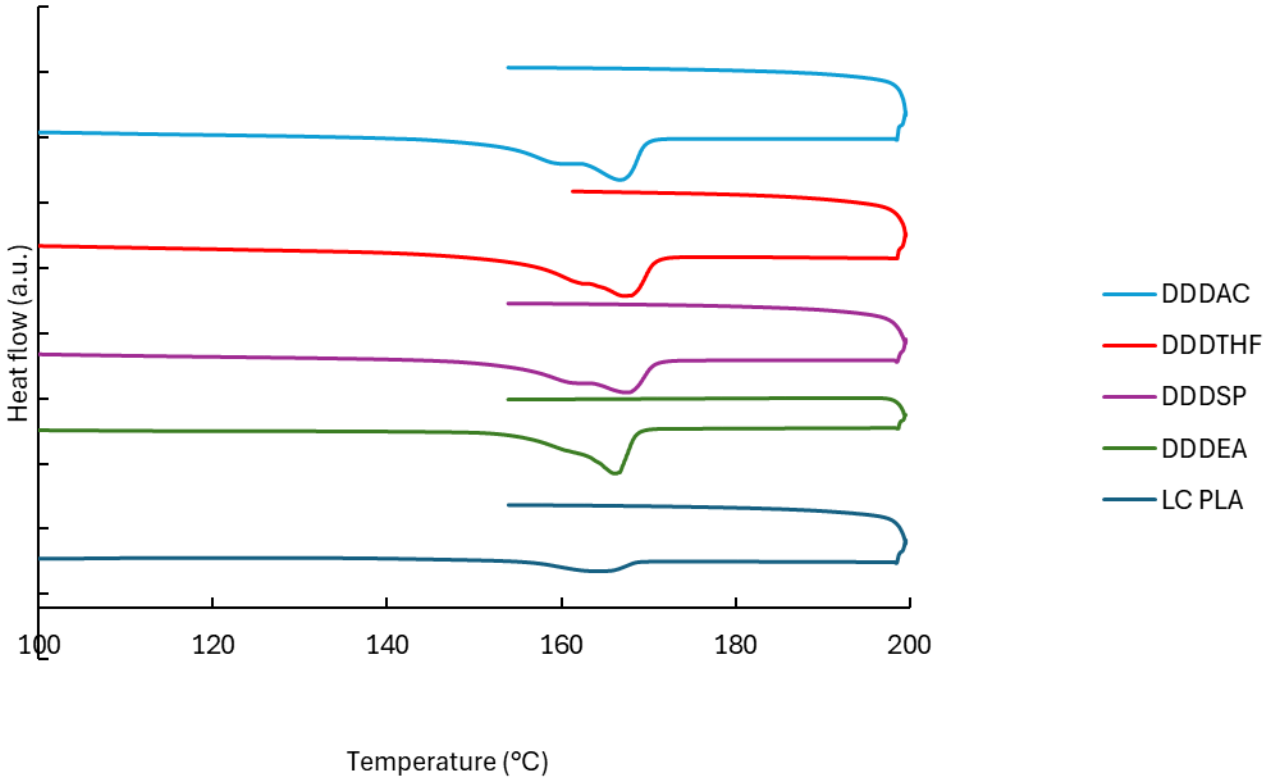


Figure 19: DSC curves for LC PLA DDD treated using different solvents

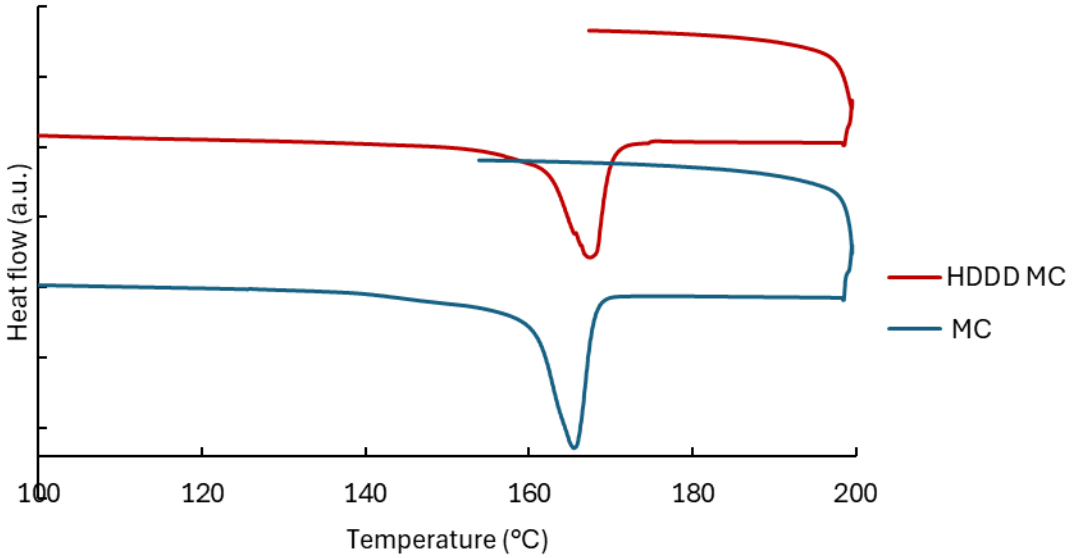


Figure S3: DSC curve for treated and untreated MC PLA

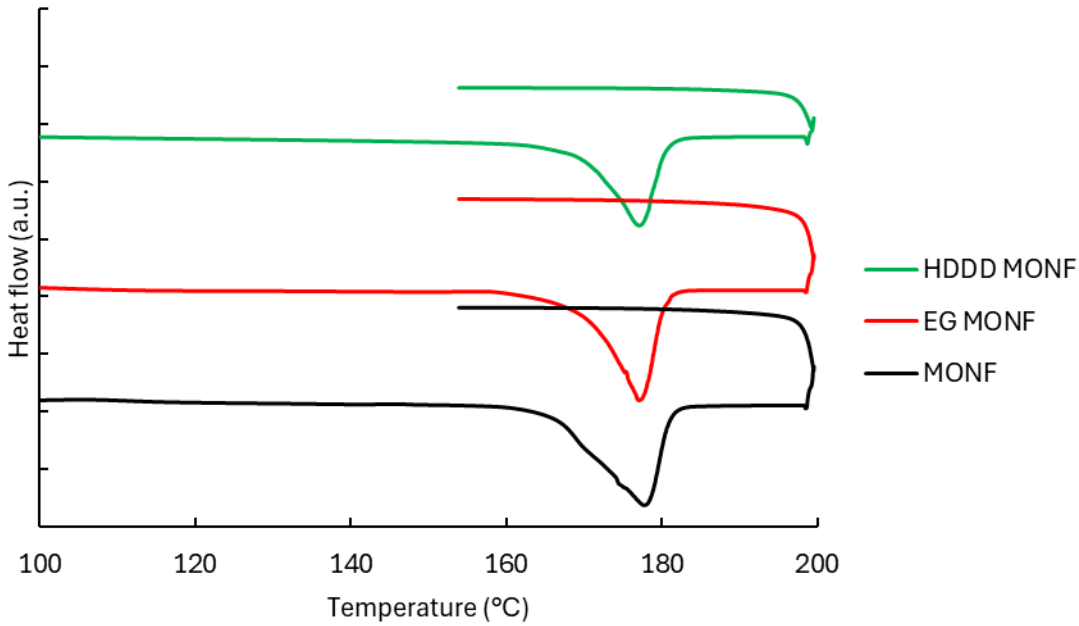


Figure S4: DSC curves for treated and untreated MONF PLA

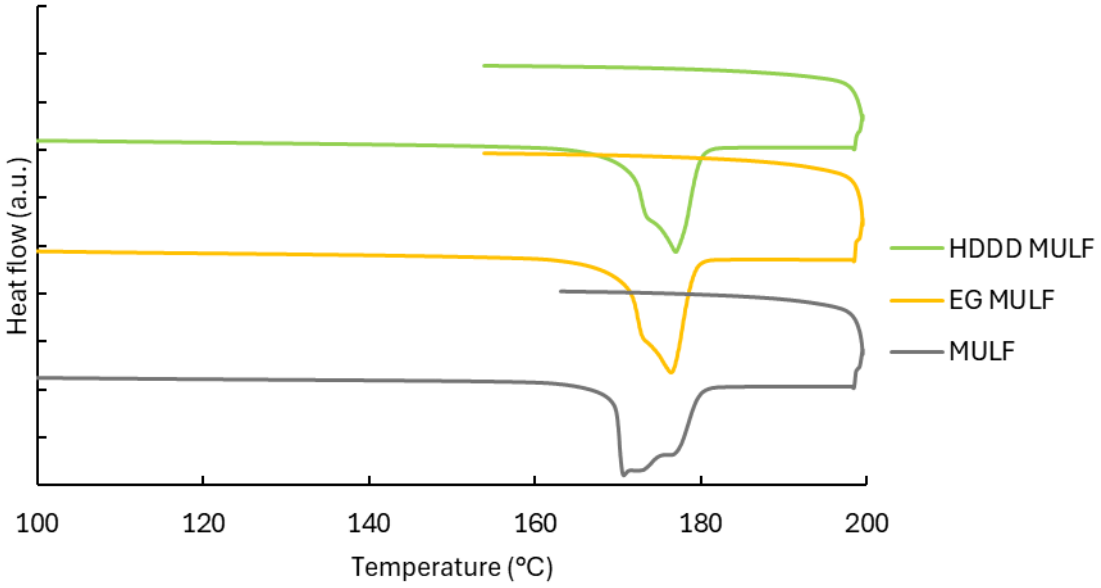


Figure S5: DSC curves for treated and untreated MULF PLA

S.3. Additional Mercury intrusion porosimeter results

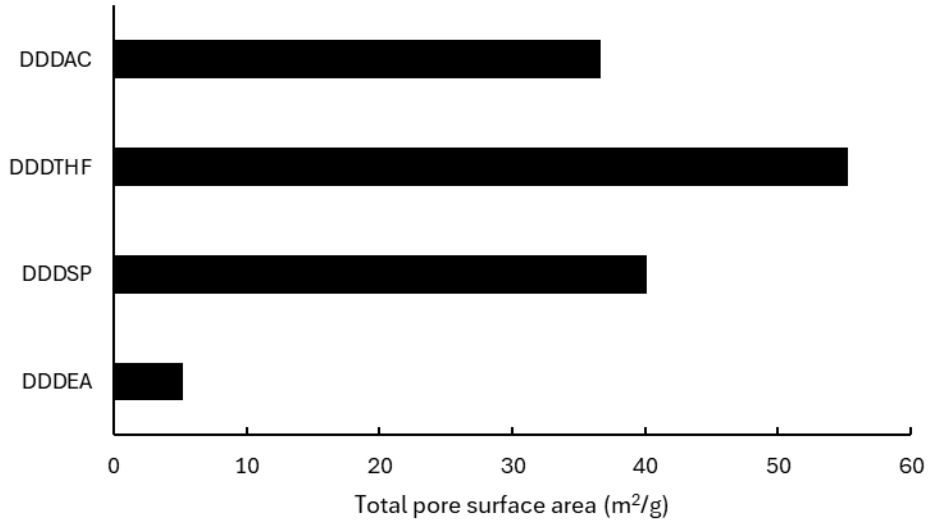


Figure S6: Surface area of porous layers created using DDD with different solvents

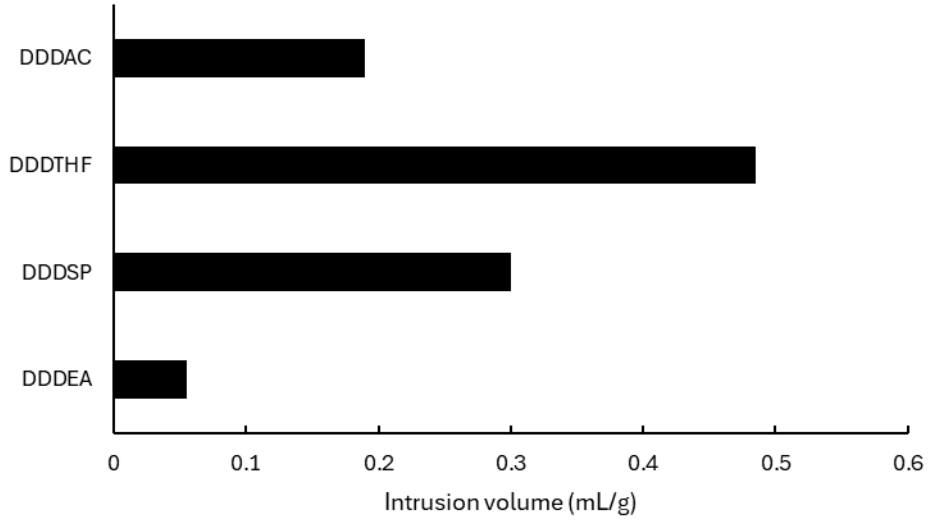


Figure S7: Total intrusion volume of porous layers created using DDD with different solvents

S.4. Additional SEM images

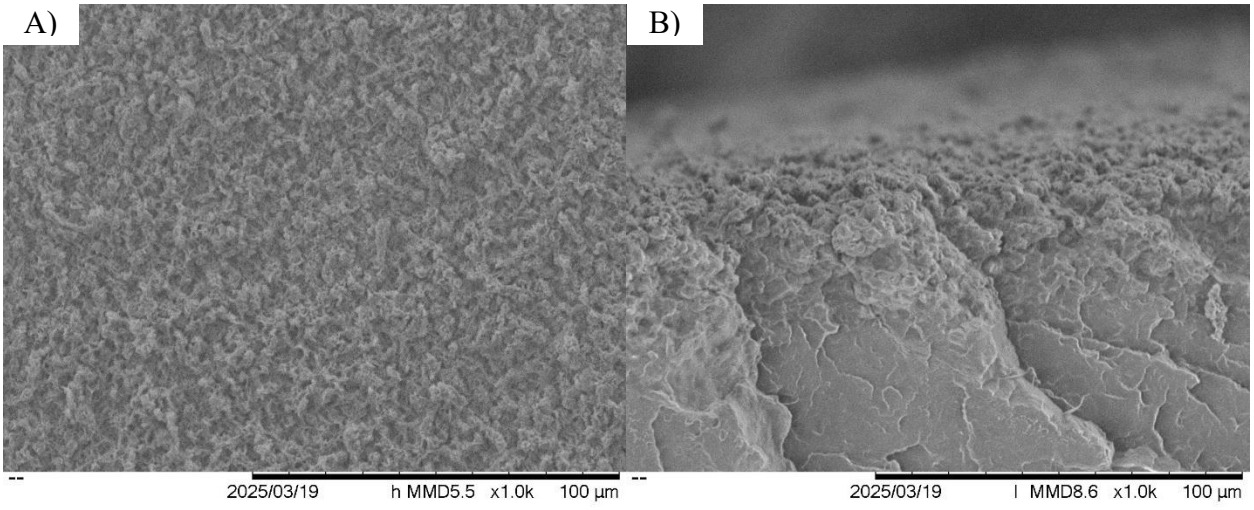


Figure 20: SEM images of DDDEA treated disk surface (A) and cross section (B)

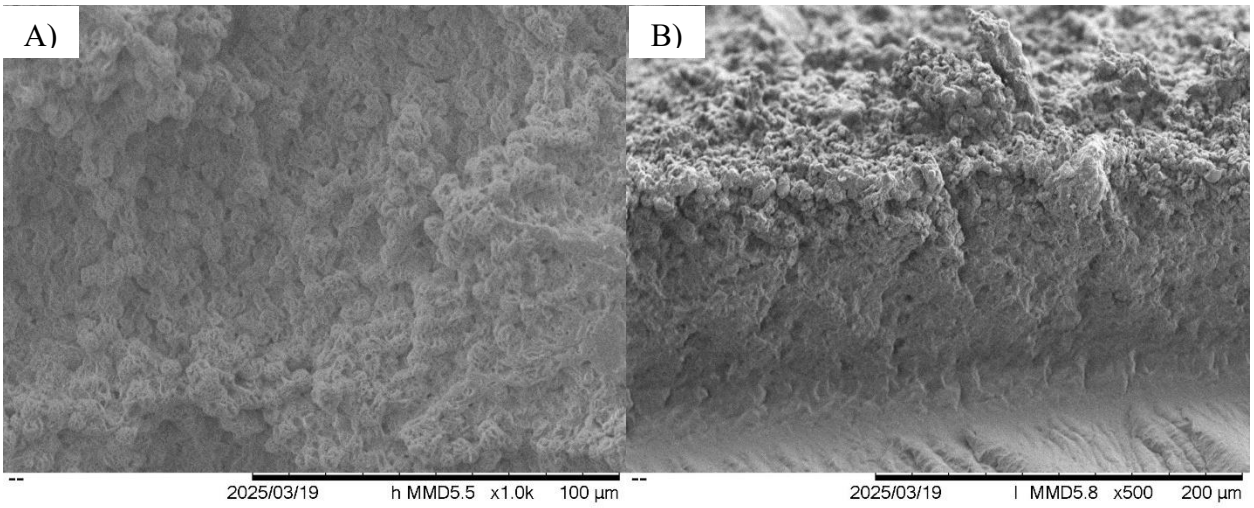


Figure S9: SEM images of DDDTHF treated disk surface (A) and cross section (B)

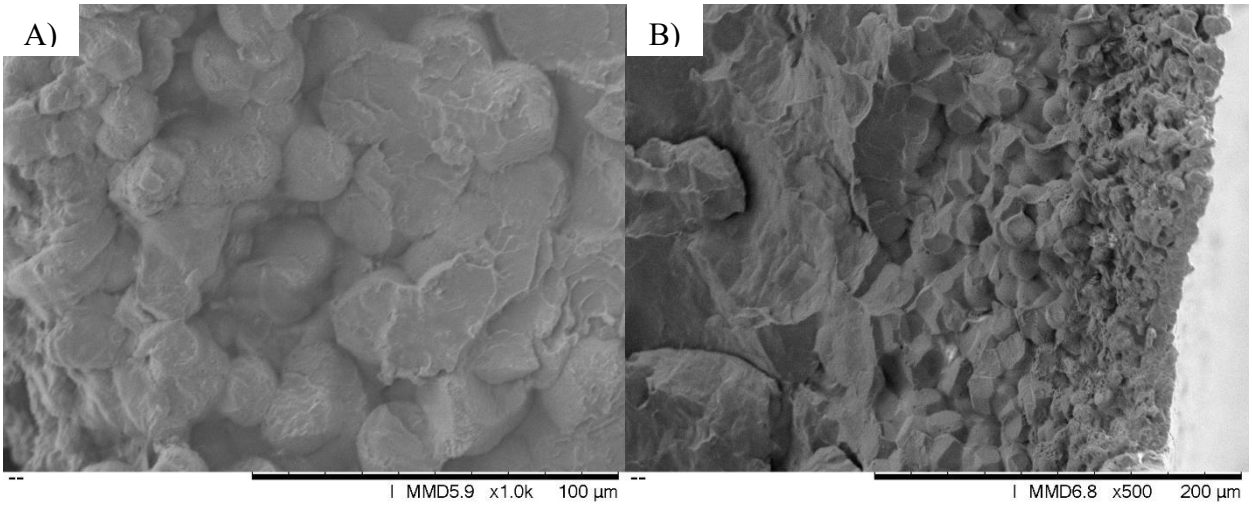


Figure S10: SEM images of DDDAC treated disk surface (A) and cross section (B)

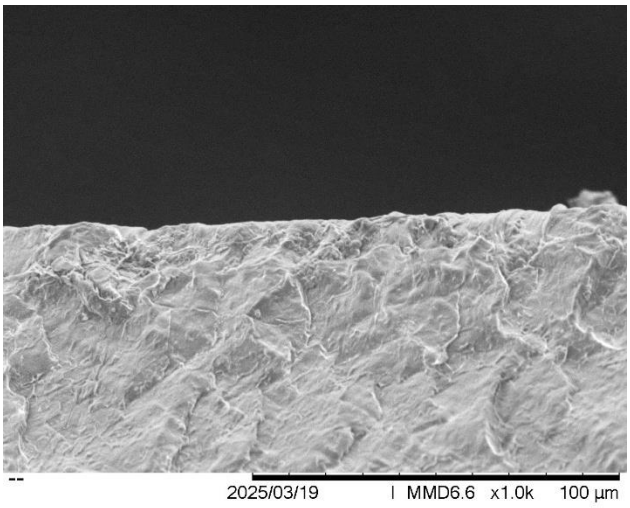


Figure S11: SEM image of LDPE disk cross section after DDD treatment with heated xylene