

Control Over the Morphology of Electrospun Microfibrous Mats of a Polymer of Intrinsic Microporosity

Elsa Lasseuguette ^{1,*}, Richard Malpass-Evans ², John M. Tobin ², Neil B. McKeown ² and Maria-Chiara Ferrari ¹

¹ School of Engineering, University of Edinburgh, Robert Stevenson Road, Edinburgh EH9 3FB, UK; M.Ferrari@ed.ac.uk

² EaStCHEM School of Chemistry, University of Edinburgh, David Brewster Road, Edinburgh EH9 3FJ, UK; R.Malpass-Evans@ed.ac.uk (R.M.-E.); J.Tobin@ed.ac.uk (J.M.T.); Neil.McKeown@ed.ac.uk (N.B.M.)

* Correspondence: e.lasseuguette@ed.ac.uk

Citation: Lasseuguette, E.; Malpass-Evans, R.; Tobin, J.M.; McKeown, N.B.; Ferrari, M.-C. Control over the morphology of electrospun microfibrous mats of a polymer of intrinsic microporosity. *Membranes* **2021**, *11*, 422. <https://doi.org/10.3390/membranes11060422>

Academic Editor: Rasel Das and Guorong Xu

Received: 16 April 2021

Accepted: 27 May 2021

Published: 31 May 2021

Publisher's Note: MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.



Copyright: © 2021 by the authors. Submitted for possible open access publication under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

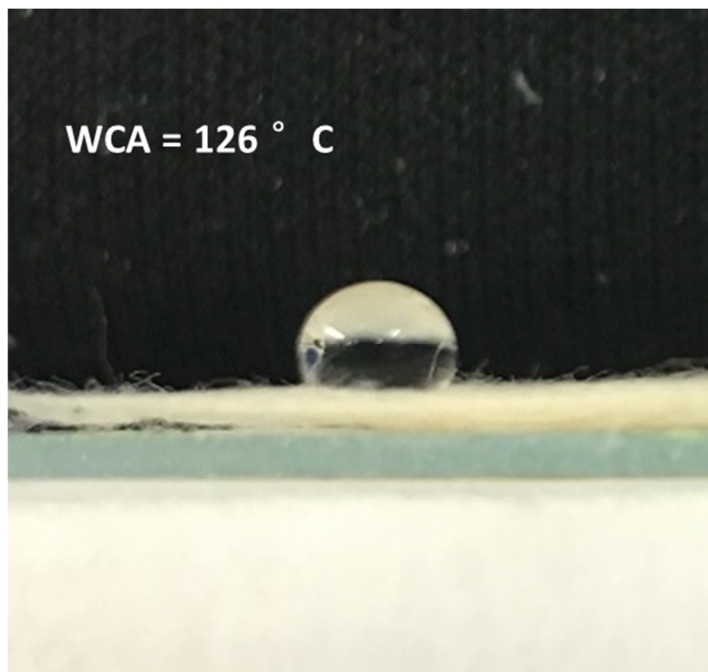
Physical properties

Table S1. Surface tension of solvent systems.

	Surface tension (mN/m) [+/-0.1 mN/m]
CHCl ₃ /nPL (10/0)	28.31
CHCl ₃ /nPL (9/1)	28.32
CHCl ₃ /nPL (7/3)	28.43
CHCl ₃ /nPL (5/5)	28.83
CHCl ₃ /nPL (3/7)	28.93
CHCl ₃ /nPL (1/9)	29.28
CHCl ₃ /nPL (0/10)	29.55

Table S2. Characterizations of electrospinning solutions and corresponding electrospun mats.

20%PIMEATB in	Electrospinning solutions		Electrospun sample				
	Conductivity ($\mu\text{S}/\text{cm}$) [+/- 5%]	Viscosity (Visual aspect)	Contact angle ($^{\circ}$)	FD (μm)	PD (μm)	$P_{\text{H}_2\text{O}}$ (10^{-2}Bar) [+/- 0.1]	R_{Air} (10^{+7} m^{-1}) [+/-5%]
CHCl ₃ /nPL (10/0)	0.02	-	126	7.9 (+/-0.5)	51.4 (+/- 0.5)	0.5	4.9
CHCl ₃ /nPL (9/1)	0.08			7.2 (+/- 0.9)	30.3 (+/- 0.5)	2.6	9.2
CHCl ₃ /nPL (7/3)	0.25			5.3 (+/- 0.5)	28 (+/- 0.3)	1	9.5
CHCl ₃ /nPL (5/5)	0.42			4.7 (+/- 0.5)	20.3 (+/- 0.2)	1.3	10.1
CHCl ₃ /nPL (3/7)	0.64		No fibres				
CHCl ₃ /nPL (1/9)	0.78						
CHCl ₃ /nPL (0/10)	0.96	+					

Water contact angle**Figure S1:** Water contact angle on PIMEATB fibres from solution (9/1).