

Supporting information

Preparation and structure-property relationship of flexible aramid films with enhanced strength by introducing asymmetric and symmetric aromatic ether bond structures

Zheng Zhang¹, Wenqin Hong¹, Xiaoyan Wang¹, Changhai Xu¹, Yang Jiang¹, Jinmei Du^{1, *}, Dagang
Miao¹, Guowei Xiao¹

¹College of Textile and Clothing, Qingdao University, Qingdao 266071, China

*Corresponding author: J. Du (E-mail: jinmei_du@qdu.edu.cn)

Table 1S Inherent viscosities of the polyamide.

Samples	MPDA: MAPB: PAPB	Inherent viscosity ^a (dL/g)
0-PMIA	10: 0: 0	1.25
MAPB10%-PMIA	9: 1: 0	1.20
MAPB20%-PMIA	8: 2: 0	1.36
MAPB30%-PMIA	7: 3: 0	1.06
PAPB10%-PMIA	9: 0: 1	1.10
PAPB20%-PMIA	8: 0: 2	1.27
PAPB30%-PMIA	7: 0: 3	1.18

^a Measured with a 0.5% (w/v) polyamide solution in sulfuric acid at 25 °C.

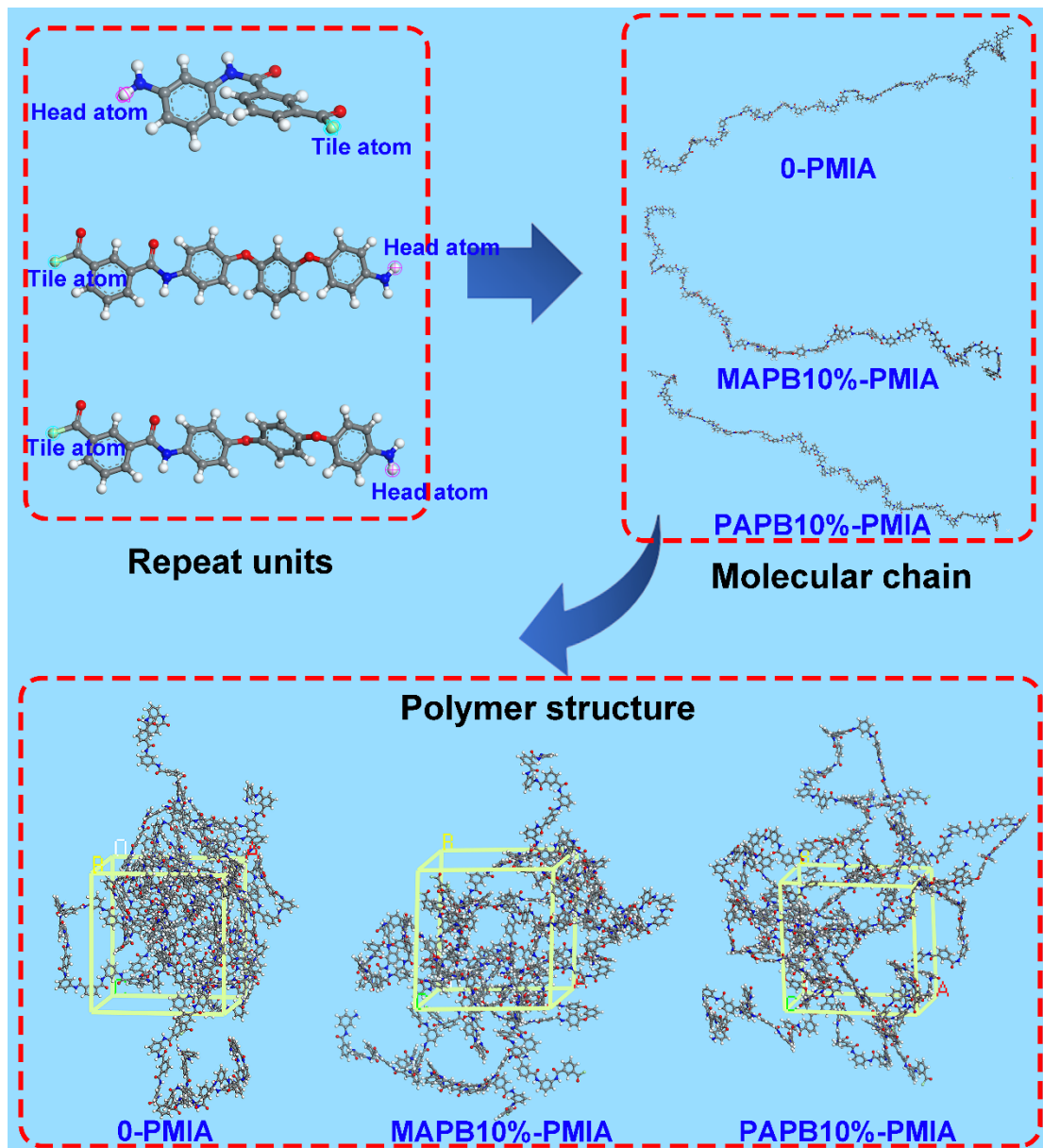


Fig. S1. Construction of polyamide models.

Flame retardancy

The UL-94 vertical burning tests were performed on LFY- 601A vertical burning tester (Shandong Textile Institute) according to the ASTM D3801. The dimension of specimen was 125 mm × 13 mm × 3 mm.

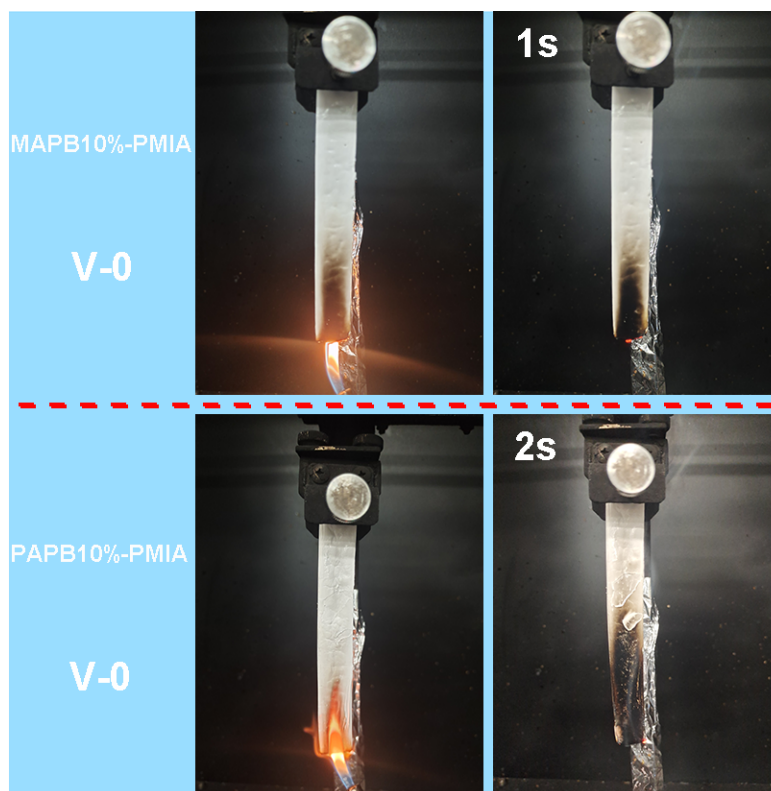


Fig. S2. Digital image of vertical combustion test.

Solubility

Table 2S. Solubility of the 0-PMIA, MAPB10%-PMIA and PAPB10%-PMIA in different organic solvents.

Polymer	DMAC	DMF	NMP	THF	DMSO	CHCl ₃	m-cresol	DMAC-LiCl	DMF-LiCl
0-PMIA	++	+-	++	--	+-	--	--	++	++
MAPB10%-PMIA	++	++	++	--	++	--	--	++	++
PAPB10%-PMIA	++	++	++	--	++	--	--	++	++

For 10 mg of polymer sample in 1 mL of solvent at room temperature, ++: soluble; +-: partially soluble; --: insoluble.