AppliedChem

Article

Processing–Property Relationships in Melt Processing of Polyamide–Elastane Textile Blends

Sabrina Bianchi [1,*], Flavia Bartoli [1], Michele Pinna [1], Pierpaolo Minei [1], Daniele Filidei [1], Ilaria Canesi [2], Noemi Cei [2], Daniele Spinelli [2], and Maria Beatrice Coltelli [3]

Supplementary Materials

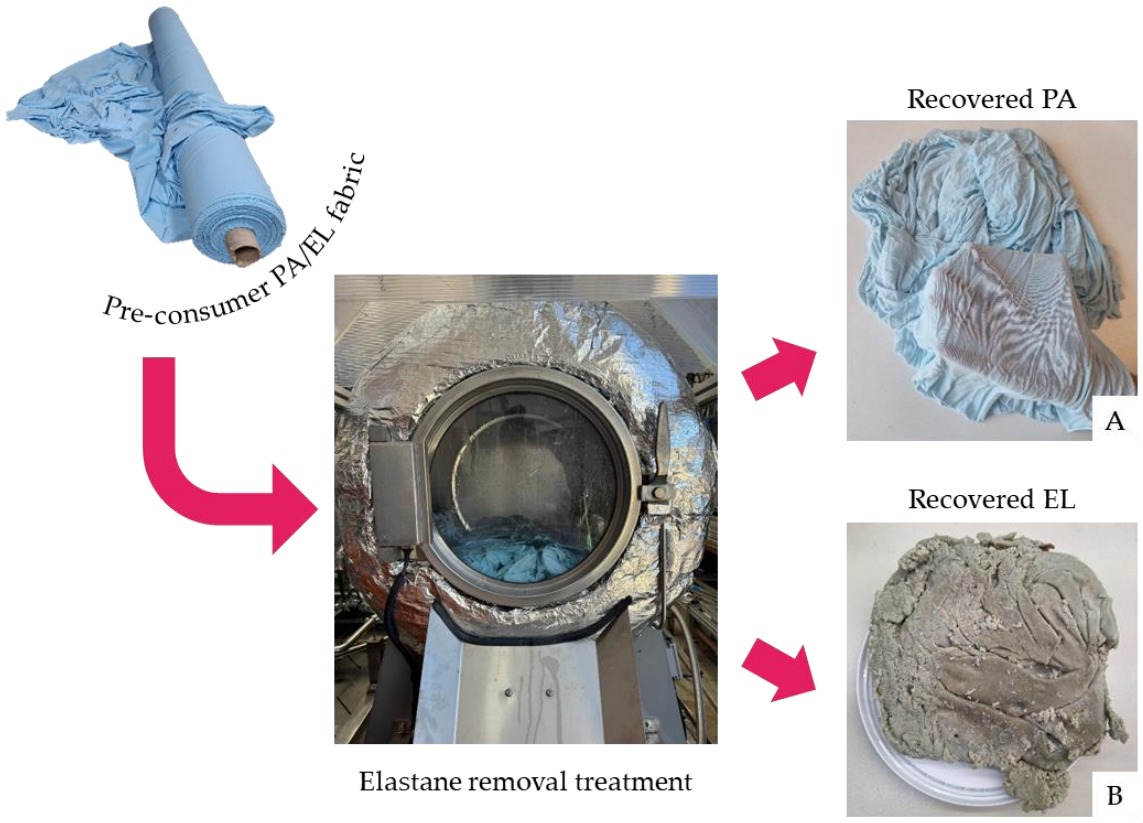


Figure S1. Pre-consumer PA/EL fabric treated in NTT's pilot plant: selective separation of EL (B) from PA (A).

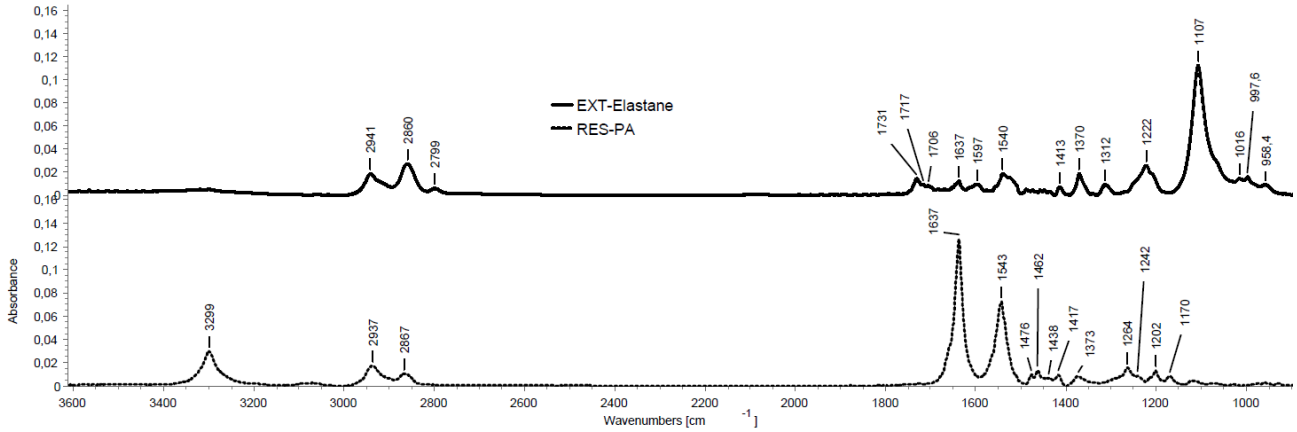
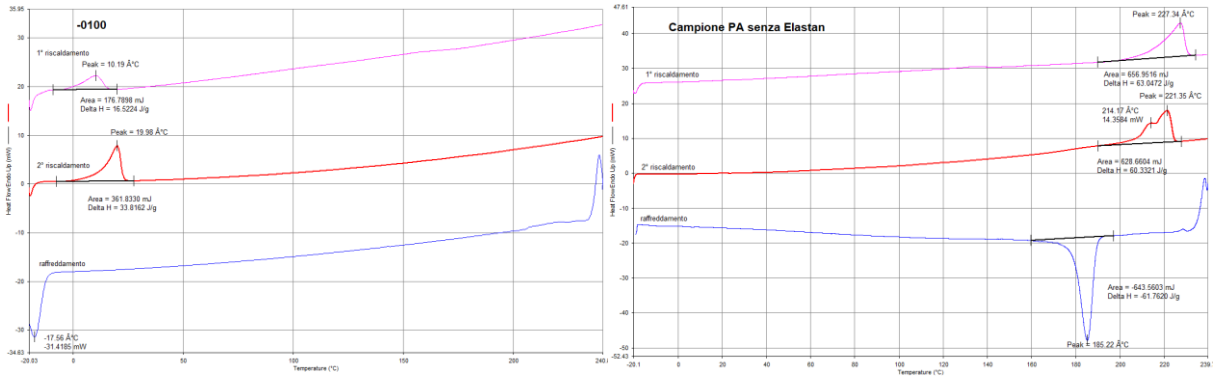
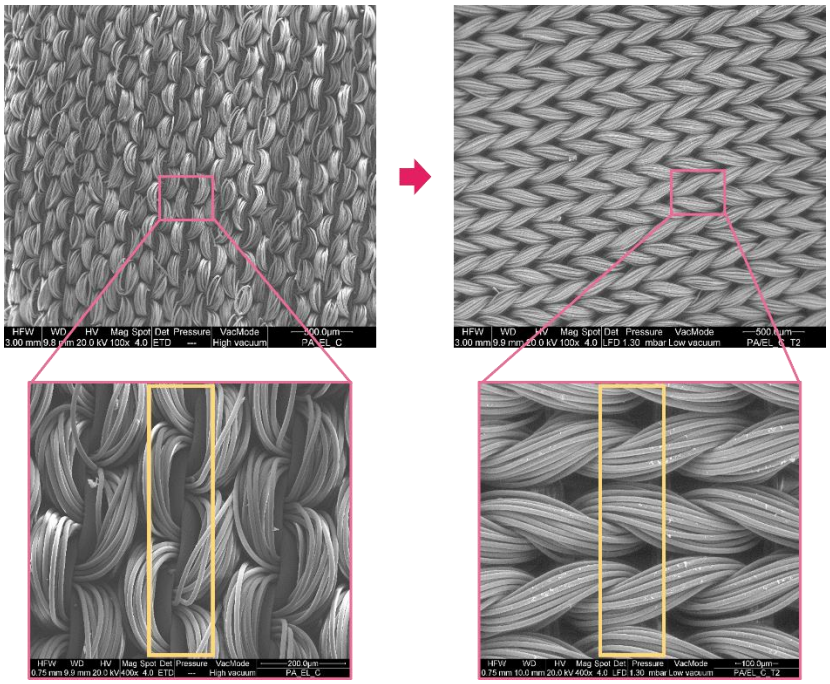


Figure S2. ATR-FTIR spectra of EXT-EL end RES-PA-C35-230 recovered materials.



(**a**) (**b**)

Figure S3. DSC thermograms of EXT-El (**a**) and RES-PA-C35-230 (**b**).



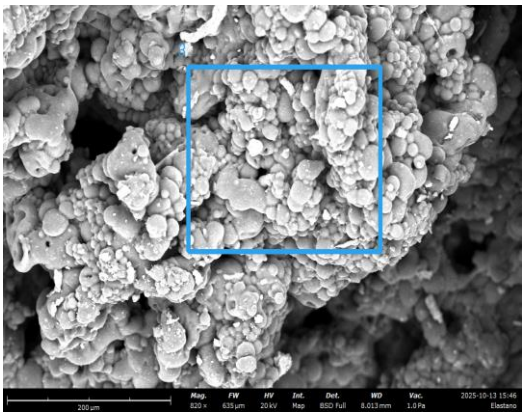
(**a**) (**b**)

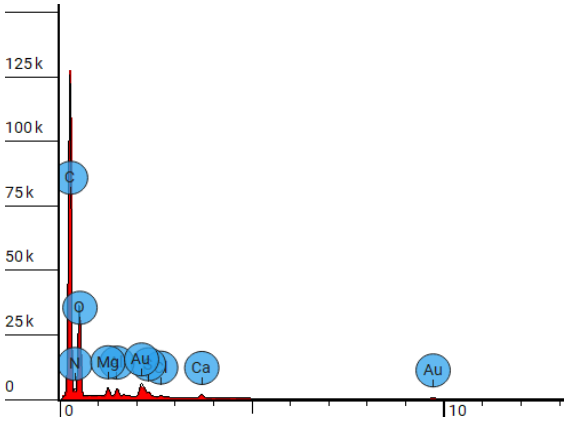
Figure S4. SEM images of PA/EL fabric, before (**a**) and after (**b**) the EL removal treatment. The yellow squares indicated the position of the EL fiber (minor component), before and after the process.

Table S1. Composition analysis for textile samples.*.

Sample	PA content (%)	EL content (%)
Original PA/EL fabric	84	16
RES-PA-C35-230	98 – 99	2 – 1

*According to the European standard methods GU UE L272:2011 + REG. UE 1007/2011, ISO 1833-1:2020 (and other parts).



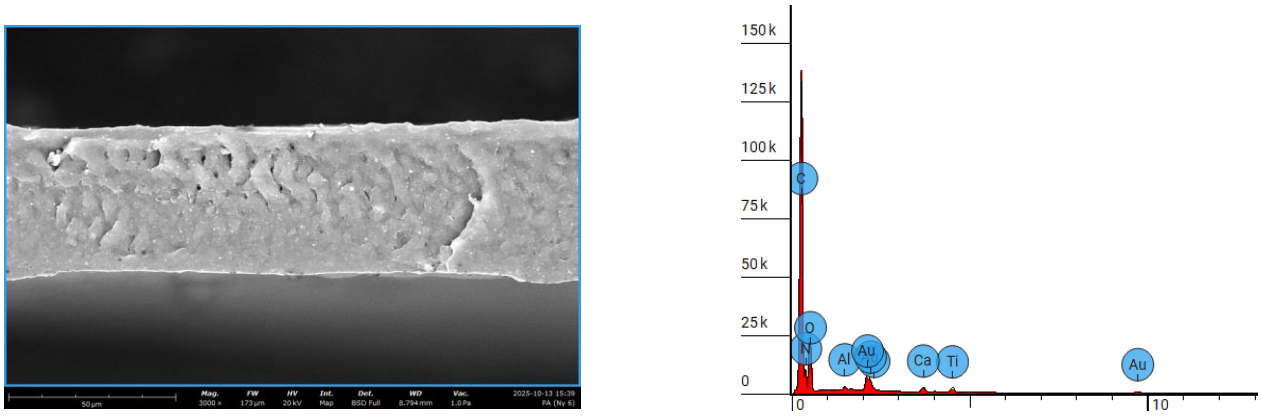


FW: 635 µm, Mode: 20 kV - Map, WD: 8.0 mm, Detector: BSD Full, Time: 10/13/25 3:46 PM

Element Number	Element Symbol	Atomic Conc. [%]	Weight Conc. [%]
6	C	60.44	51.60
7	N	4.62	4.60
8	O	33.58	38.20
12	**Mg**	**0.35**	**0.60**
13	Al	0.31	0.60
16	S	0.22	0.50
17	Cl	0.08	0.20
20	Ca	0.18	0.50
79	Au	0.23	3.20

Figure S5. SEM image, EDS spectrum, and quantitative elemental analysis of the extracted elastane (EXT-EL) sample. The blue box indicates the general imaging area; the EDS signal originates from a localized region within this field.

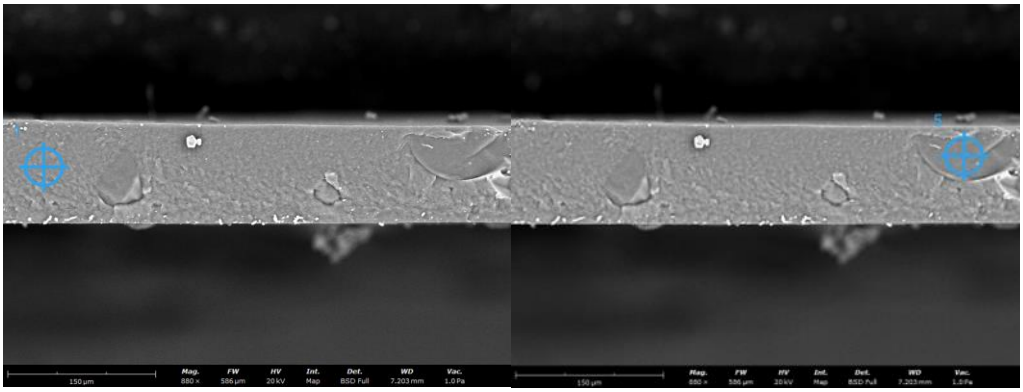
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FW: 173 µm, Mode: 20 kV - Map, WD: 8.8 mm, Detector: BSD Full, Time: 10/13/25 3:39 PM

Element Number	Element Symbol	Atomic Conc. [%]	Weight Conc. [%]
6	C	58.56	49.70
7	N	14.04	13.90
8	O	26.27	29.70
13	Al	0.16	0.30
16	S	0.13	0.30
20	Ca	0.28	0.80
22	Ti	0.24	0.80
79	Au	0.32	4.50

Figure S6. SEM image, EDS spectrum, and quantitative elemental analysis of RES-PA-C35-230 sample. The blue box indicates the general imaging area; the EDS signal originates from a localized region within this field.



Spot 1 Spot 2

FW: 586 µm, Mode: 20 kV - Map, WD: 7.2 mm, Detector: BSD Full, Time: 10/14/25 11:24 AM

Spot 1

Element Number	Element Symbol	Atomic Conc. [%]	Weight Conc. [%]
6	C	51.89	42.48
7	N	19.09	18.24
8	O	27.19	29.66
22	Ti	1.47	4.81
79	Au	0.36	4.81

Spot 2

Element Number	Element Symbol	Atomic Conc. [%]	Weight Conc. [%]
6	C	83.35	73.24
7	N	4.98	4.90
8	O	15.38	18.01
12	**Mg**	**0.45**	**0.80**
13	Al	0.31	0.60
79	Au	0.51	7.34

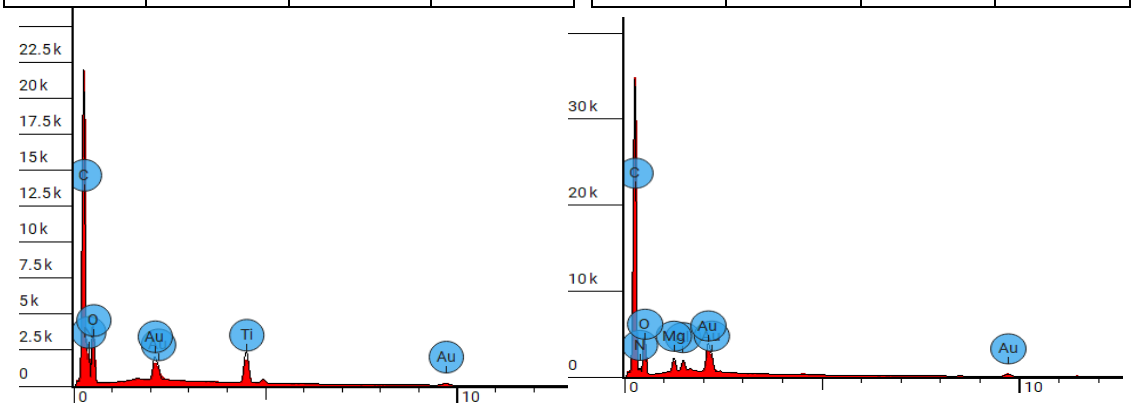


Figure S7. EDS analysis of C-70-230 compound.