# Supplementary Materials: Solvent-Free Production by Extrusion of Bio-Based Poly(Glycerol-Co-Diacid) Sheets for the Development of Biocompatible and Electroconductive Elastomer Composites

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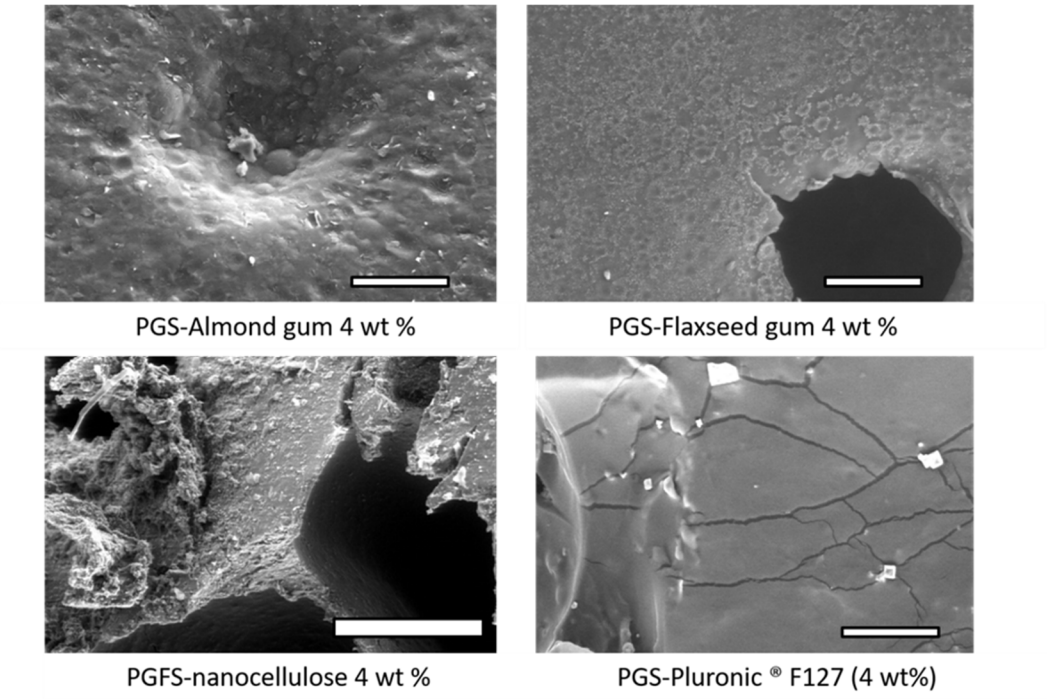


**Figure S1.** FE-SEM micrographs of various poly(glycerol-co-diacids) blended composites. The scale bars were set up at 400 ⊙m.

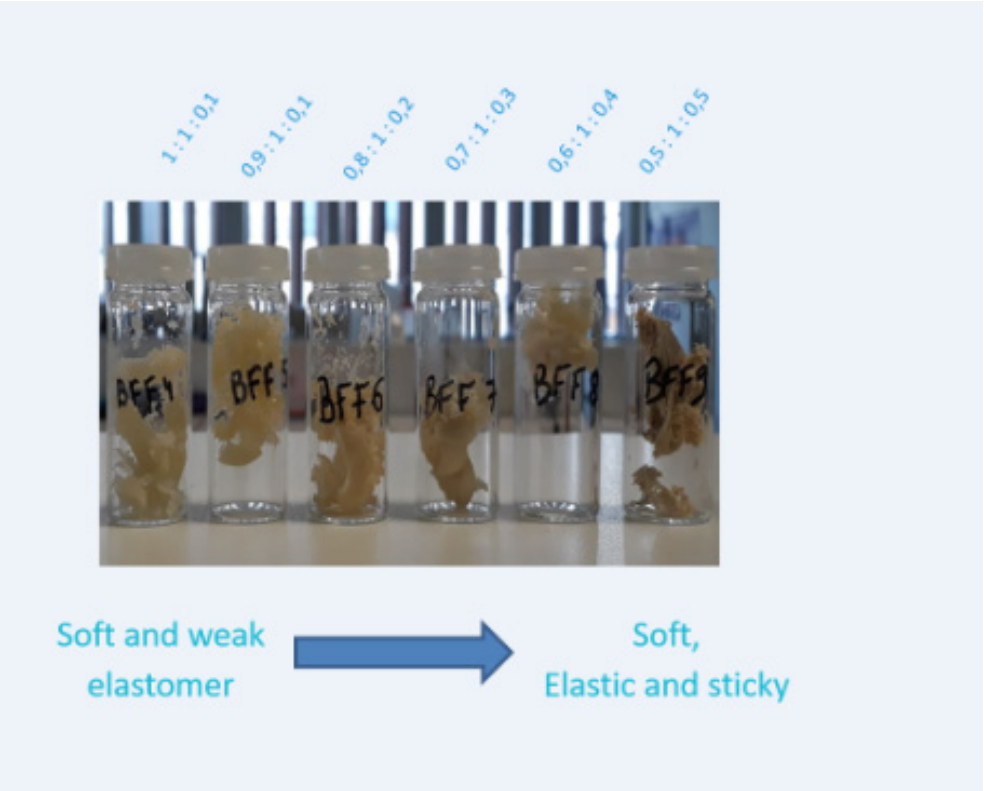


**Figure S2.** Evolution of PGFS aspect function of their SA and FDCA contents.

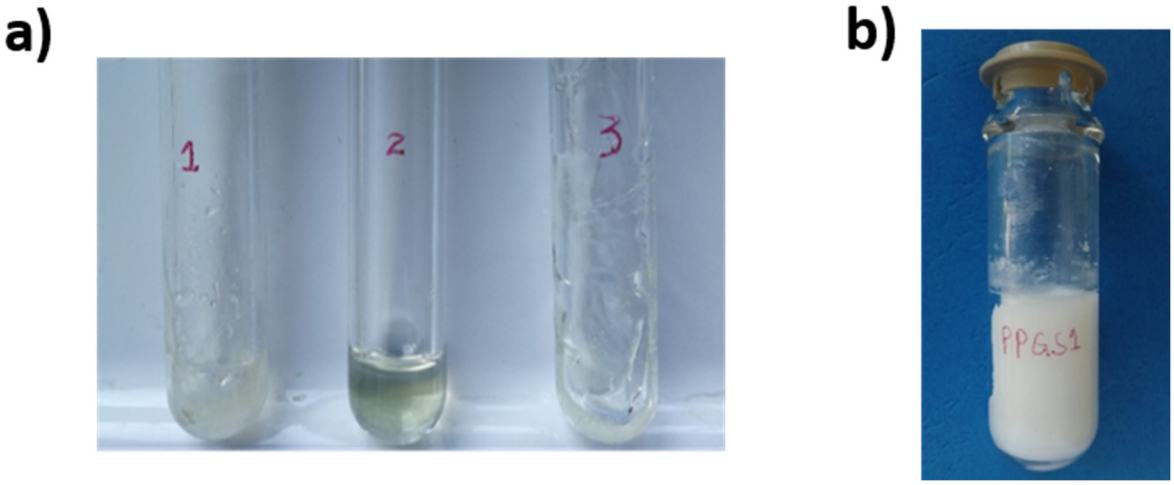


**Figure S3.** Pictures of: (a) PGI prepolymer formed under micro-wave heating (from left to right: 15 min without *p*TSA ; 5 min with *p*TSA ; 15 min with *p*TSA); (b) PGS prepolymer produced after 15 min of MW irradiation in presence of *p*TSA catalyst.

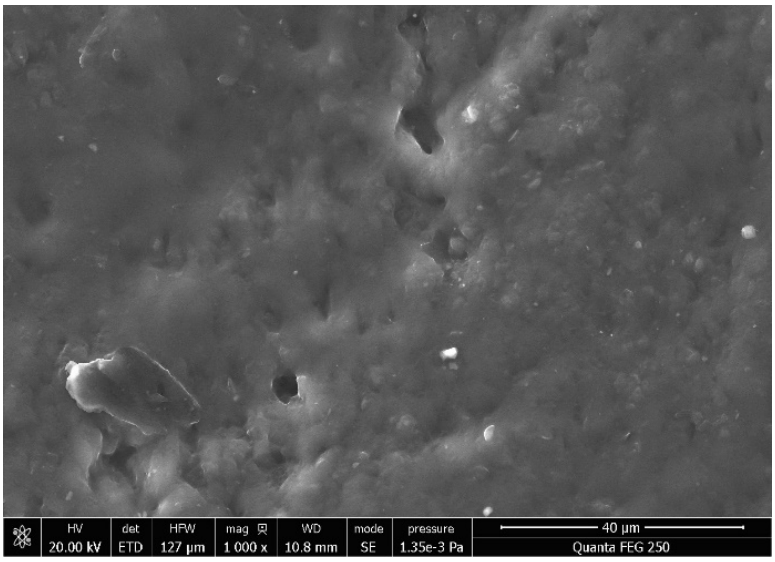


**Figure S4.** Picture of enlargement from PGS5 FE-SEM observation enlargement.

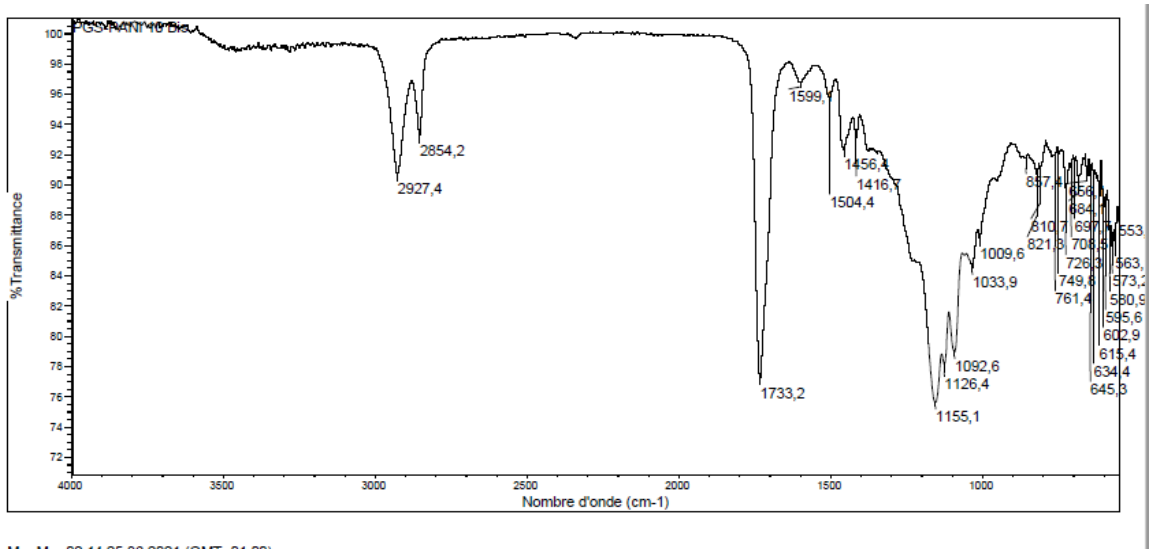


**Figure S5.** FT-IR spectrum of PGS9.

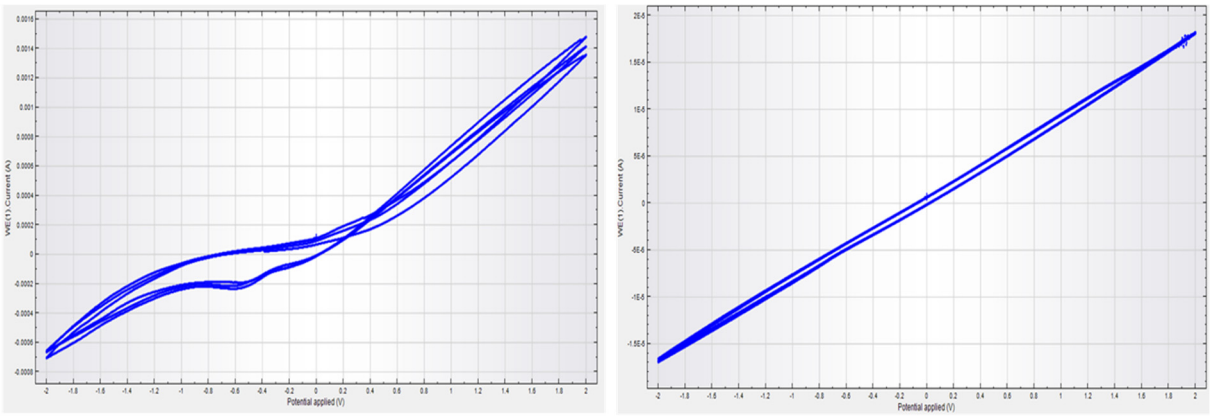


**Figure S6.** Cyclic voltammograms (CV) obtained from measurements conducted in 0.1 M $LiClO_4$ aqueous solution using PGS8 and PGS9 as working electrodes.

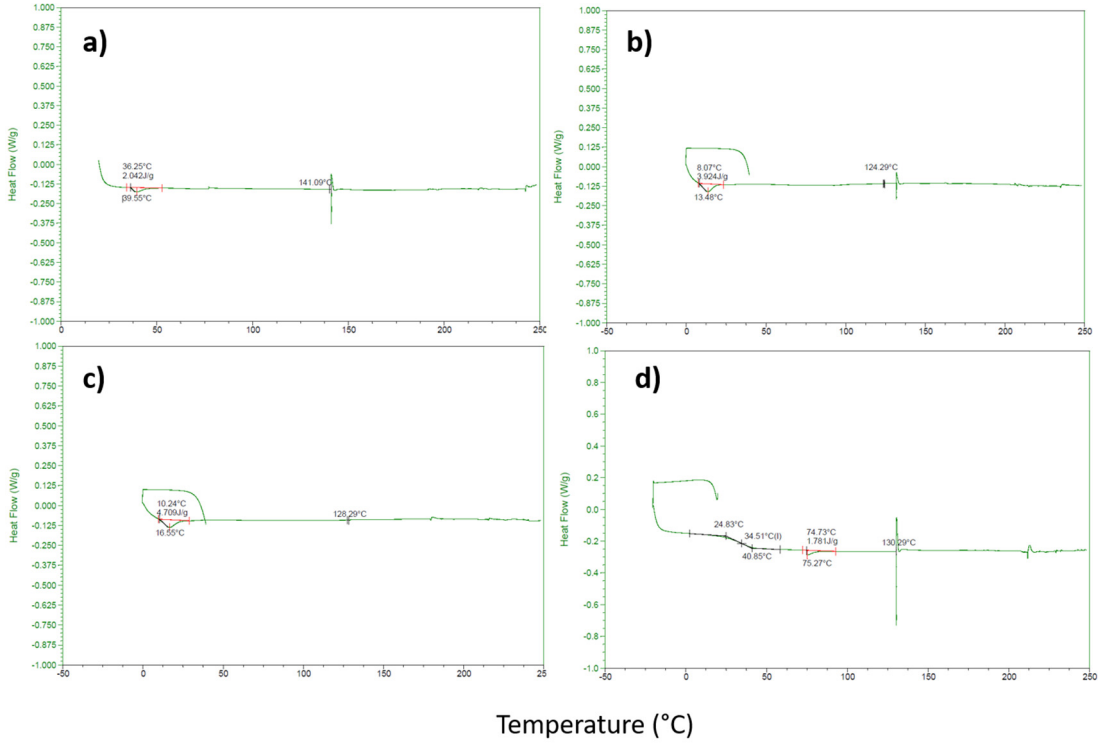


**Figure S7.** DSC thermograms of: (a) PGS1; (b) PGS2; (c) PGS3; (d) PGS4.

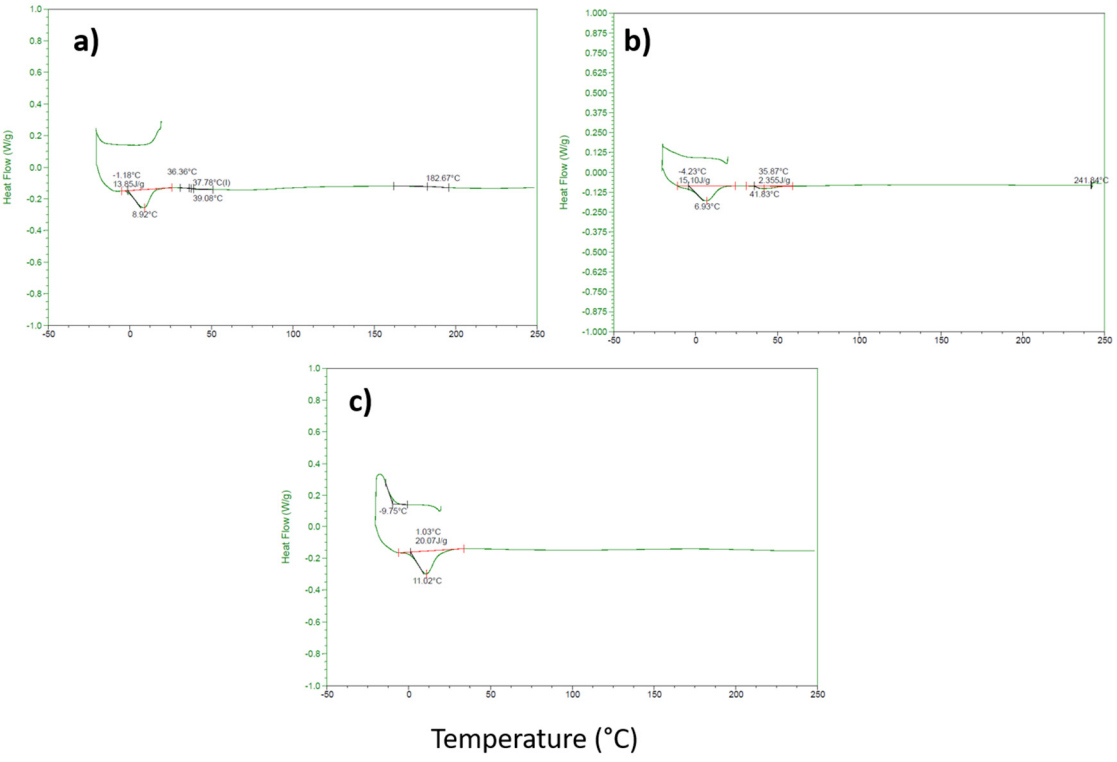


**Figure S8.** DSC thermograms of: (a) PGS5; (b) PGS6; (c) PGS7.

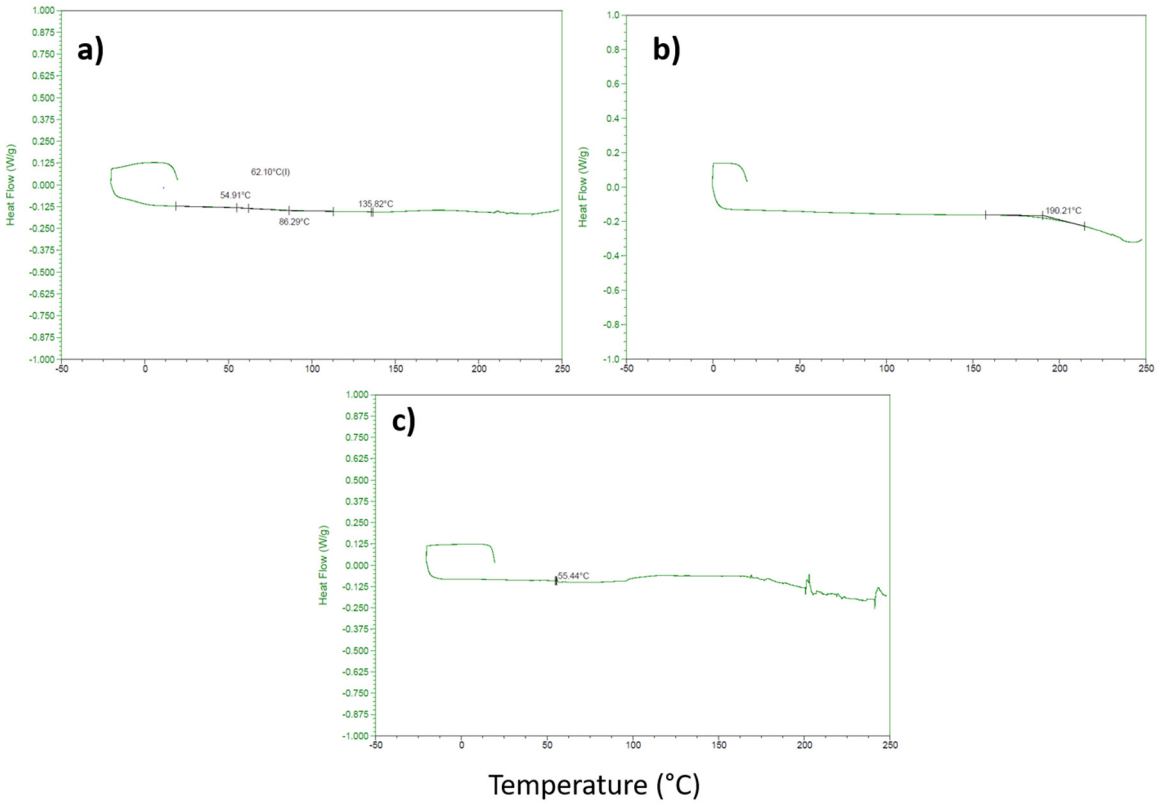


**Figure S9.** DSC thermograms of: (a) PGI2; (b) PGFS1; (c) PGFS2.

1. Cytotoxicity tests: General procedure for verifying cytocompatibility of polymer sheets

Extracts:

**Latex (thickness < 0.5 mm) = 6 cm²/mL**

1 piece of 1cm² = 2cm² (both sides counting) => 5 mL medium = 15 pieces of latex

***Place 15 pieces of latex in 5 mL of medium in a 50 mL tube.***

**Elastomeric materials (thickness > 1mm) = 1.25 cm²/mL**

PGI-Co, PGS7-Co, PGS4, PGS6, PGS7 and PGFS-Co => 5 mL = 6.25 cm²

***Place material in adequate medium volume in 50 mL tube***

Protocol:

- Seed L929 to 10,000 cells in 100 µL of complete medium per well of a 96-well plate. Incubate 24 hours at 37°C 5% $CO_2$
- Prepare the extracts using previously sterilized materials at the required concentration. Incubate 24 hours on stirring at 37°C 5% $CO_2$
- After 24 hours, remove the culture medium from the cells and replace with 100 µL of extract (vortexed at the end of incubation but not centrifuged). Incubate 24h at 37°C and 5% $CO_2$.
- After 24 h of incubation, replace the medium with an MTS mix previously heated at 37°C (CellTiter 96® AQueous One Solution Cell Proliferation Assay-PROMEGA) diluted in complete DMEM (MTS mix = 20 µL of MTS reagent + 100 µL of medium). Incubate at 37°C and 5% $CO_2$ for 2 hours.
- Read absorbance at 492 nm.
- Calculate cell viability: $\frac{DO_{EXTRACTS} - DO_{MEDIUM}}{DO_{CTRL-}} \times 100$