

Article

Eco-Conversion of Two Winery Lignocellulosic Wastes into Fillers for Biocomposites: Vine Shoots and Wine Pomaces

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Gel permeation chromatography (GPC)

GPC measurements were performed at 30°C on a GPC Hewlett Packard Series 1100 using a PL gel 5 µm Minimixed-C column with chloroform as an eluent with a 0.3 mL/min flow; the Refractive Index detector was used and a calibration plot was constructed with monodisperse polystyrene standards. The composite samples were dissolved in a mixture of CHCl₃/1,1,1,3,3,3-hexafluoro-2-propanol (HFIP) 95/5 v/v and filtered on a Teflon syringe filter with a pore size of a 0.45 µm Teflon sieve to eliminate the insoluble residue.

It is notable to observe that the molecular weight of the PHBV matrix did not change with respect to the nature of the filler nor the filler content. Therefore, the changes of the properties of the composites, in particular the thermal stability, with respect to those of the polymeric matrix cannot be explained by modifications in the molecular weight. See Table 1S below:

Table 1. S: the molecular weight data measured by gel permeation chromatography (GPC) for the indicated samples and polydispersity (PD).

	Mn · 10⁻³	Mw · 10⁻³	PD
PHBV ref 1	98.5	216	2.2
5ViSh-V	79.5	212	2.7
10ViSh-V	88.0	210	2.4
20ViSh-V	92.1	219	2.4
5ViSh-E	93.5	209	2.2
10ViSh-E	89.6	217	2.4
20ViSh-E	90.8	207	2.3
PHBV ref 2	83.4	201	2.4
5WiPo-V	98.4	212	2.2
10WiPo-V	92.8	224	2.4
20WiPo-V	88.6	218	2.5
5WiPo-E	94.0	208	2.2
10WiPo-E	88.4	206	2.3
20WiPo-E	92.6	224	2.4



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