frontiers

Supplementary Material

Viscoelastic and adhesion properties of new poly(ether-urethane) pressure sensitive adhesives

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Content

1 Characterization of the polyether polyols

1.1 ATR-IR spectroscopy

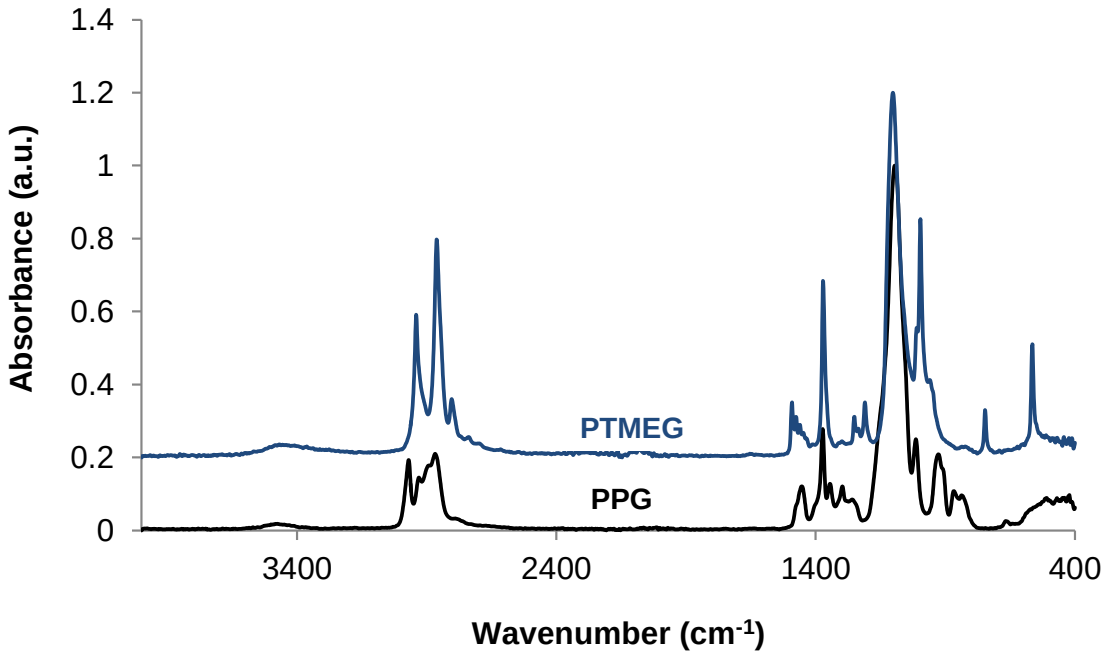

Figure S-1. ATR-IR spectra of PPG and PTMEG polyols.

Table S-1. Assignment of the main IR bands in the ATR-IR spectra of PPG and PTMEG polyols.

Assignment	Wavenumber (cm^{-1})	
	PPG	**PTMEG**
O−H stretching	3476	3467
Asymmetric and symmetric C-H stretching	2970, 2930, 2837	2941, 2862
C-H bending	1453	1460
C-H rocking	1373	1371
C−O stretching	1262	1249
C−O−C stretching	1093, 1013, 927	1101, 995

1.2 Differential scanning calorimetry (DSC)

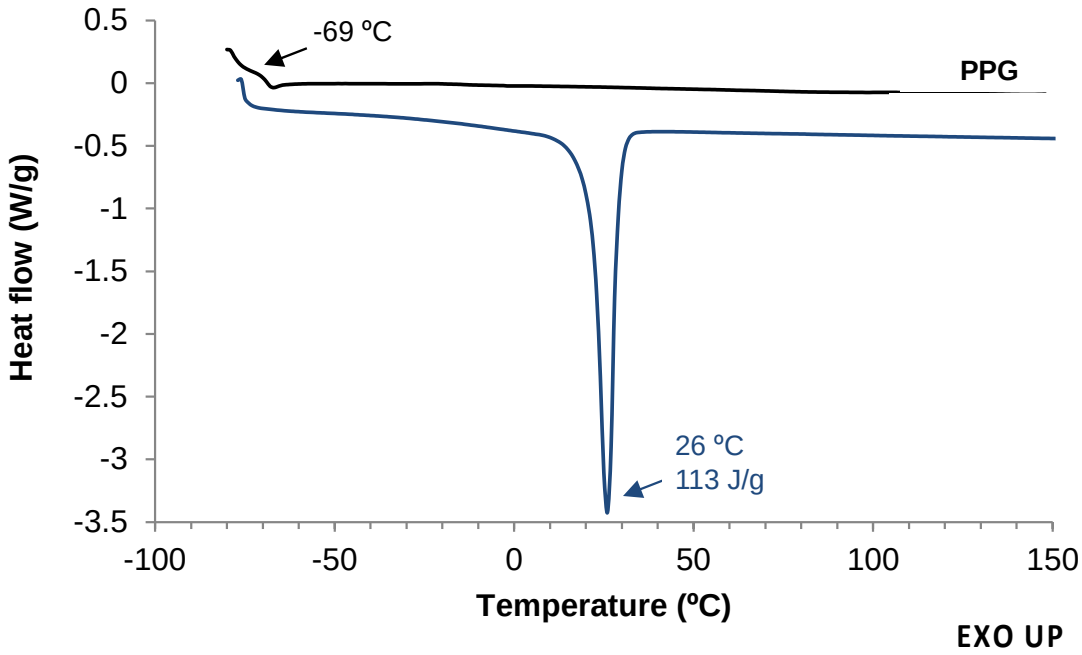

Figure S-2. DSC traces of PPG and PTMEG polyols. Second DSC heating run.

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1.3 Thermal gravimetric analysis (TGA)

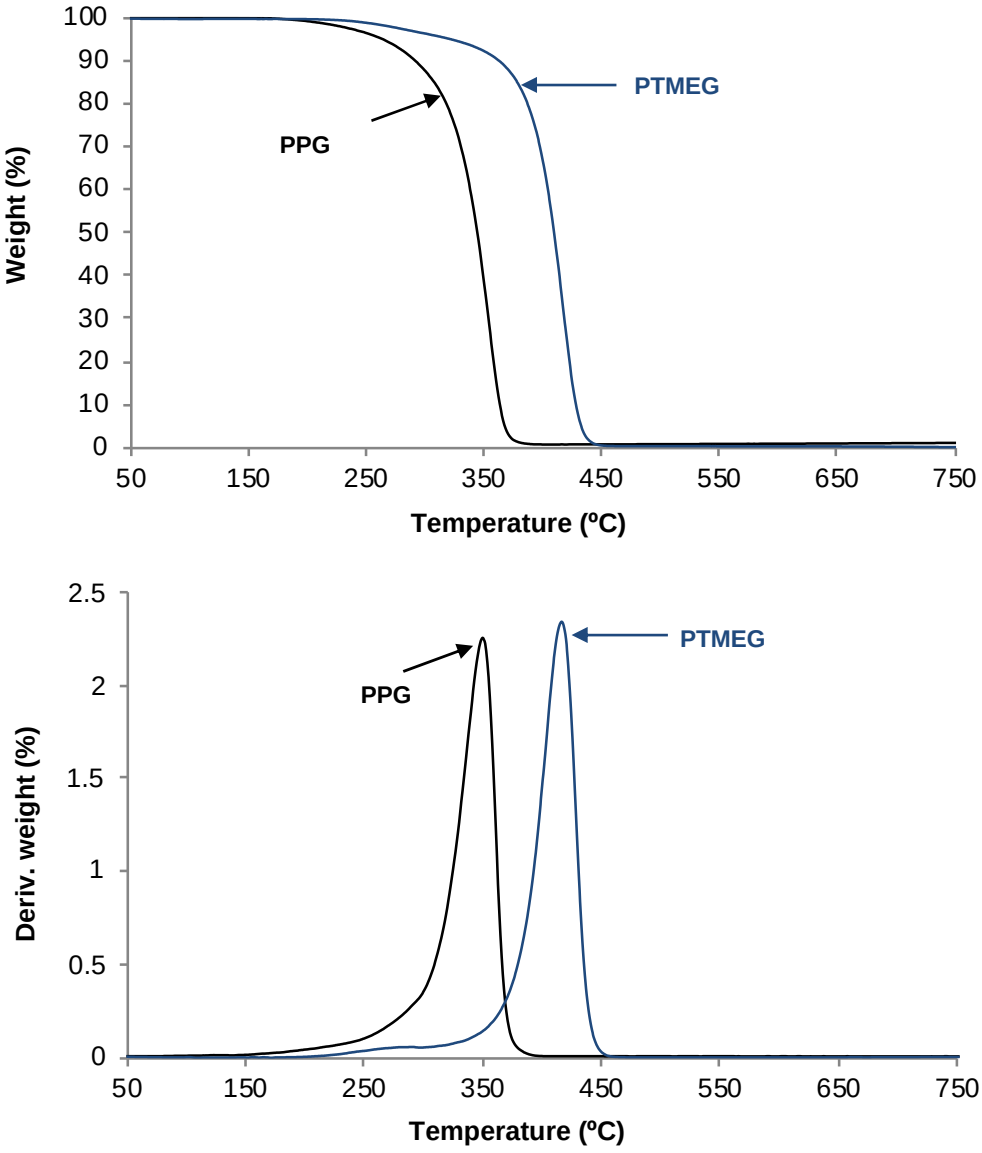

Figure S-3. TGA and DTGA thermograms of PPG and PTMEG polyols.

Table S-2. Some thermal parameters obtained from the TGA thermograms of PPG and PTMEG polyols.

Polyol	$T_{5\%}$ (ºC)	$T_{50\%}$ (ºC)	1st degradation		2nd degradation		Residue (wt%)
			T_1 (ºC)	Weight loss$_1$ (%)	T_2 (ºC)	Weight loss$_2$ (%)	
PPG	258	340	350	99	--	--	1
PTMEG	321	409	280	4	417	95	1

2 Influence of the NCO/OH ratio on the properties of the poly(ether-urethane)s

2.1 Plate-plate rheology

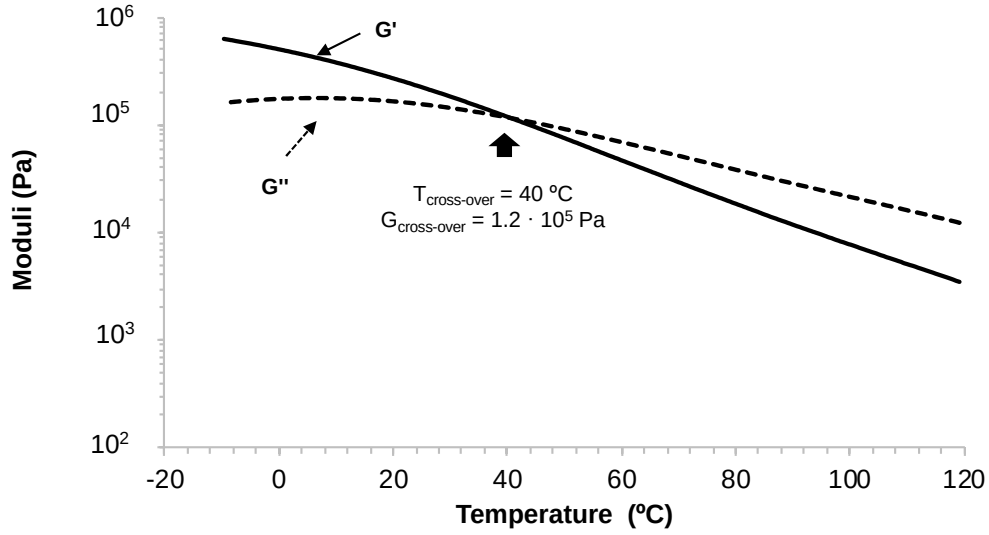

Figure S-4. Variation of the storage (G´) and loss (G´´) moduli as a function of the temperature for 1.05-50PPG50PTMEG.

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3 Influence of the PTMEG content on the properties of the poly(ether-urethane)s

3.1 ATR-IR spectroscopy

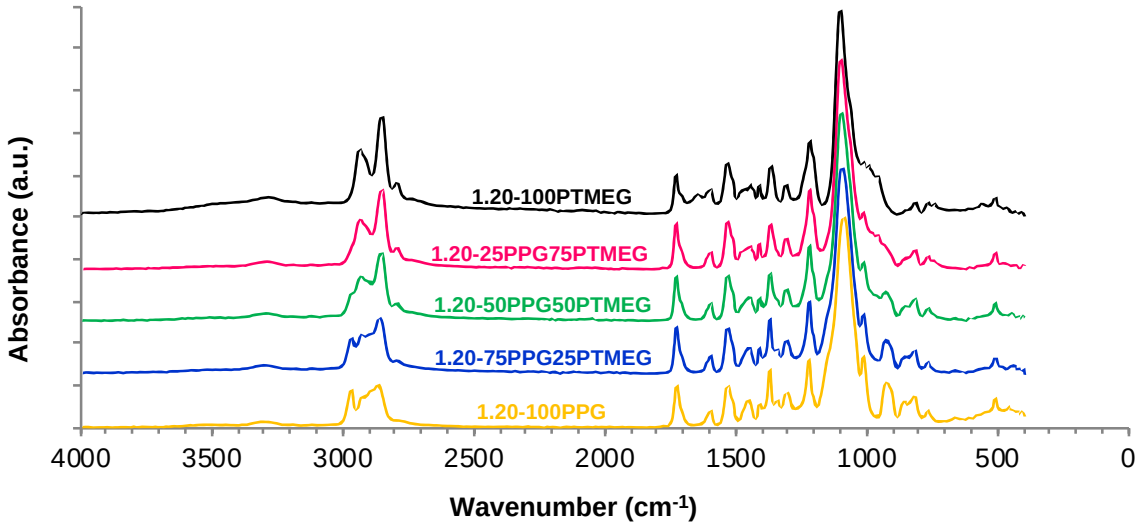

Figure S-5. ATR-IR spectra of the TPUs made with PPG + PTMEG mixtures. NCO/OH ratio = 1.20.

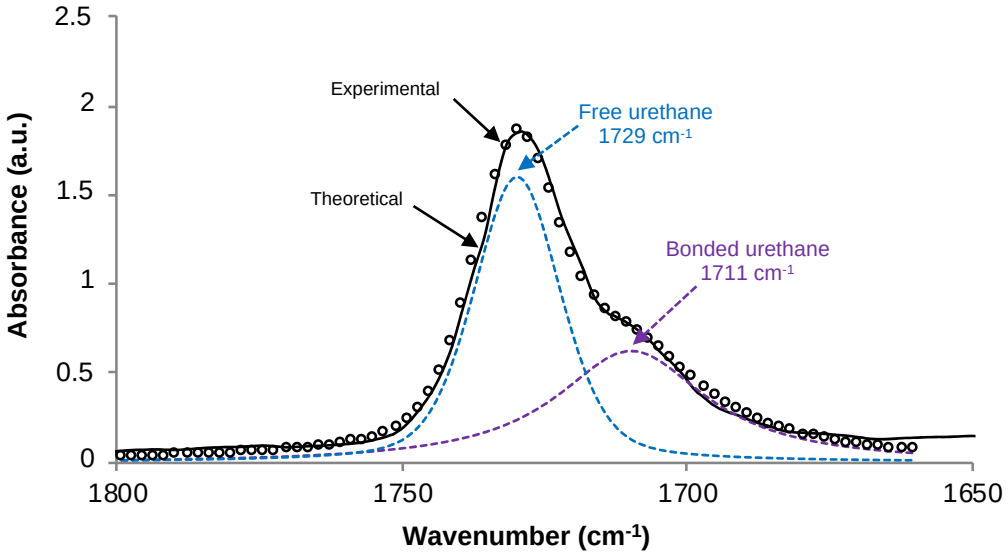

Figure S-6. Curve fitting of the carbonyl region of the ATR-IR spectrum of 1.20-75PPG25PTMEG.

3.2 Thermal gravimetric analysis (TGA)

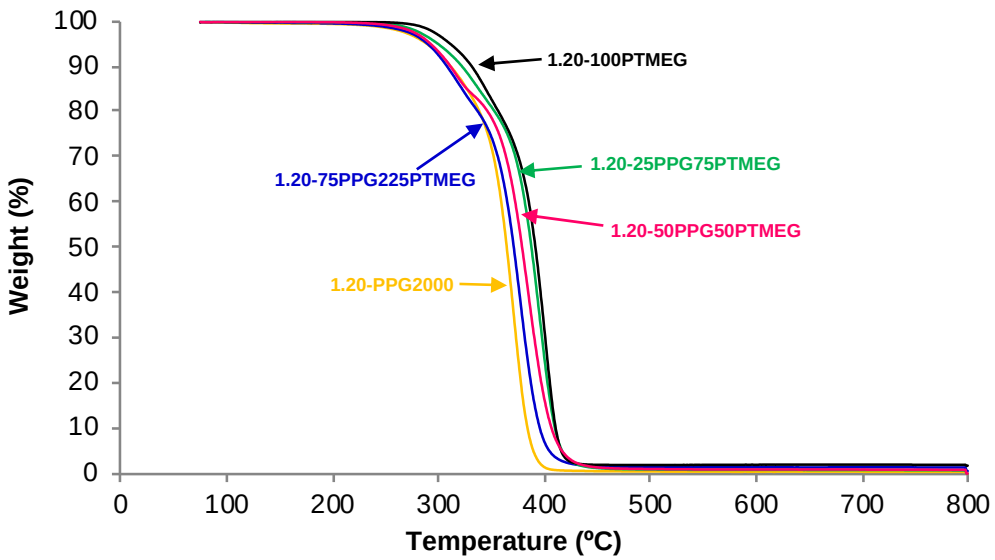

Figure S-7. Variation of the weight as a function of the temperature for TPUs synthesized with PPG + PTMEG mixtures. NCO/OH ratio = 1.20.

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3.3 Plate-plate rheology

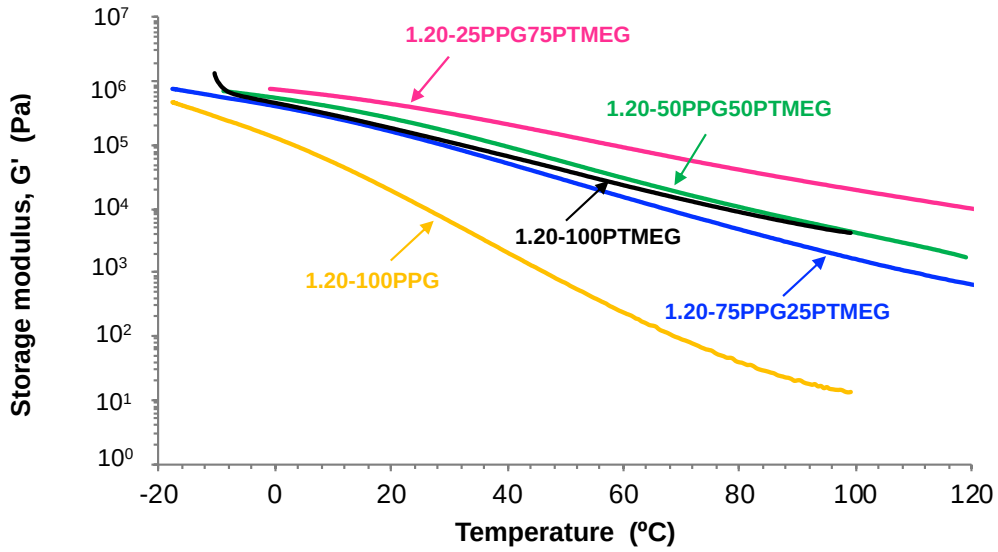

Figure S-8. Variation of the storage modulus (G´) as a function of the temperature for TPUs synthesized with PPG + PTMEG mixtures. NCO/OH ratio = 1.20.

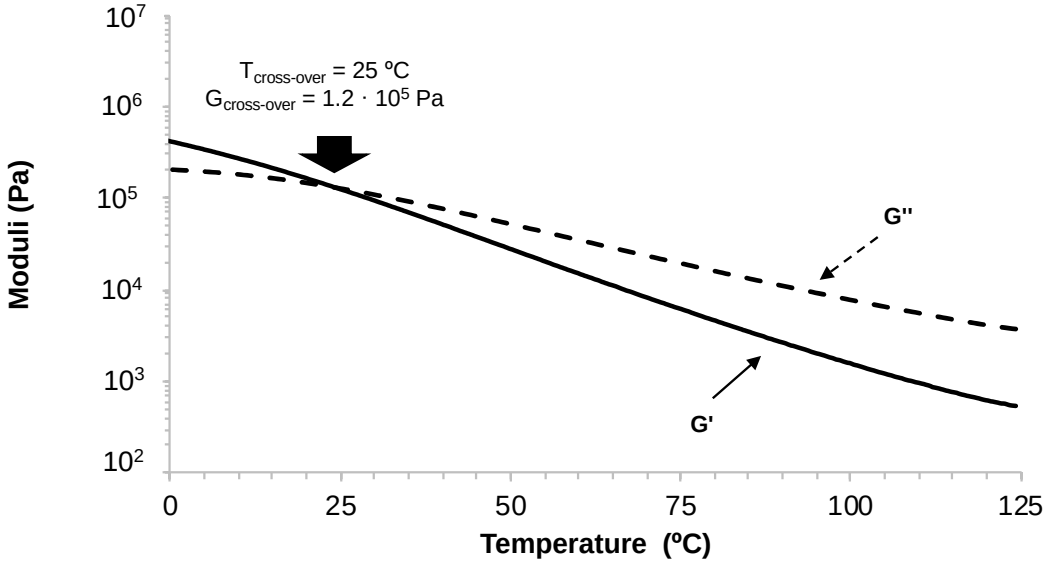

Figure S-9. Variation of the storage (G´) and loss (G´´) moduli as a function of the temperature of 1.20-75PPG25PTMEG. NCO/OH ratio = 1.20.