Electronic Supplementary Information

Influence of the Degree of Polymerization and of the Architecture on the Elastic Properties of New Polyurea Elastomers

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a) ED-400, DP = x = 6
   ED-2000, DP = x = 33
   ED-4000, DP = x = 68

b) ESD-2001, DP = x = 33

c) ET-403, DP = x+y+z = 6, R’ = CH₃CH₂
   ET-3000, DP = x+y+z = 50, R’ = H
   ET-5000, DP = x+y+z = 85, R’ = H

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Fig. ESI-1 Chemical structures of all polyetheramines (top) and their corresponding crosslinked structure (bottom): a) primary diamino-terminated polyetheramines ED-400, ED-2000 and ED-4000; b) secondary diamino-terminated polyetheramine ESD-2001; c) primary triamino-terminated polyetheramines ET-403, ED-3000 and ET-5000; d) secondary triamino-terminated polyetheramine EST-404. Note: In blue the polyetheramino backbone, in red the segmental molecular weight, in black the isocyanurate crosslinker.
Fig. ESI-2 FTIR spectra evolution upon heating from 25 °C for the elastomers ED-400, ED-2000, ED-4000 and ESD-2001.
**Fig. ESI-3** DSC thermographs for the elastomers ED-400, ED-2000, ED-4000 and ESD-2001, at 5, 10 and 20 K-min\(^{-1}\). Note: in red the heating thermographs, and in blue the cooling thermographs.
Fig. ESI-4 FTIR spectra evolution upon heating from 25 °C for the elastomers ET-403, ET-3000, ET-5000 and EST-404.
Fig. ESI-5 DSC thermographs for the elastomers ET-403, ET-3000, ET-5000 and EST-404, at 5, 10 and 20 K·min\(^{-1}\). Note: in red the heating thermographs, and in blue the cooling thermographs.
Fig. ESI-6 The absorption FTIR peaks evolution for the elastomers ED-400, ED-2000, ED-4000 and ESD-2001 (left), and the elastomers ET-403, ET-3000, ET-5000 and EST-404 (right). Note: isocyanurate (NCO)$_3$ – light grey; amide I (blue); amide II (red); and methylene CH$_2$ (dark grey).