The dataset contains machine raw data in .xls format.

Rheological analysis:

Data are labelled as follows: "Rheo_PCL X kDa Flow Y °C".xls, where "X" indicates the molecular weight of PCL and "Y" the temperature at which the test was conducted.

• DSC analysis:

Data are labelled as follows: "DSC PCL10-MA".xls, and "DSC X-PCL10-MA".xls

• QS tensile tests:

Data are labelled as follows: "QS_X-PCL10-MA".xls, followed by progressive number (e.g., (1)), indicating the replicates.

• DMA - temperature ramp:

Data are labelled as follows: "DMA_Tramp_X-PCL10-MA".xls.

• DMA - one-way shape memory test:

Data are labelled as follows: "One-way SME_X-PCL10-MA".xls.

• DMA - two-way shape memory test:

Data are labelled as follows: "Two-way SME_X-PCL10-MA_eps "X"%".xls, where "X" indicates the strain applied (40 or 50 %).