Supporting Information

Facile modification and fixation of a diaryl disulphide-containing dynamic covalent polyester by iodine-catalysed insertion-like addition reactions of styrene derivatives to disulphide units

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Figure S1  GPC chart of DADS-PEs.
**Figure S2**  GPC chart of DADS-StH-PEs.

**Fig. S3**  $^1$H NMR spectrum of DPDS-StOMe-PEs in CDCl$_3$. 
Fig. S4 $^1$H NMR spectrum of DPDS-StCH$_2$Cl-PEs in CDCl$_3$.

Fig. S5 $^1$H NMR spectrum of DPDS-StCOOH-PEs in DMSO-$d_6$. 
**Fig. S6** $^1$H NMR spectrum of DPDS-StCOOMe-PEs in CDCl$_3$.

**Fig. S7** $^1$H NMR spectrum of DPDS-St220PEG-PEs in CDCl$_3$.

**Fig. S8** The photographs of the films of (a) DADS-PEs and (b) DADS-StCOOMe-PEs.
Table S1. The solubility of the polyester before and after the addition reaction to each styrene derivative

<table>
<thead>
<tr>
<th>Solvent</th>
<th>DADS-PEs</th>
<th>Substituent on styrene moieties after the addition reaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHCl₃</td>
<td>++</td>
<td>++ H ++ CH₂Cl 4EG COOMe COOH</td>
</tr>
<tr>
<td>Acetone</td>
<td>– – – ++</td>
<td>++ – + – ++ ++ ++ ++ + + – ++</td>
</tr>
<tr>
<td>THF</td>
<td>++ + ++ ++ ++ ++ ++ ++ ++ ++ ++</td>
<td></td>
</tr>
<tr>
<td>DMF</td>
<td>+ + ++ ++ ++ ++ ++ ++ ++ ++ ++</td>
<td></td>
</tr>
</tbody>
</table>

- - - Insoluble. +: Soluble at elevated temperature. ++: Soluble at room temperature.