Supplementary information

Degradation of PVC waste into flexible polymer by chemical modification using DINP moieties

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12 pages

11 figures

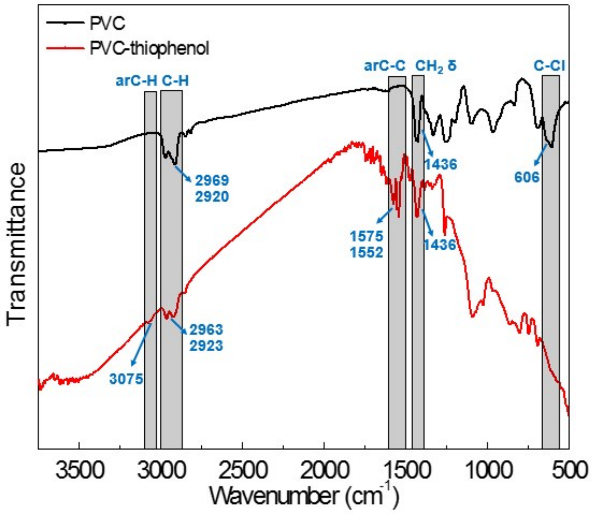

Fig. S1. FT-IR spectra of PVC and PVC-thiophenol. (Reaction condition: 500 mg PVC, 1.0 eq. thiophenol, 0.1 eq. K_2CO_3, 40°C, 50 mL DMF as solvent, 3 h.)

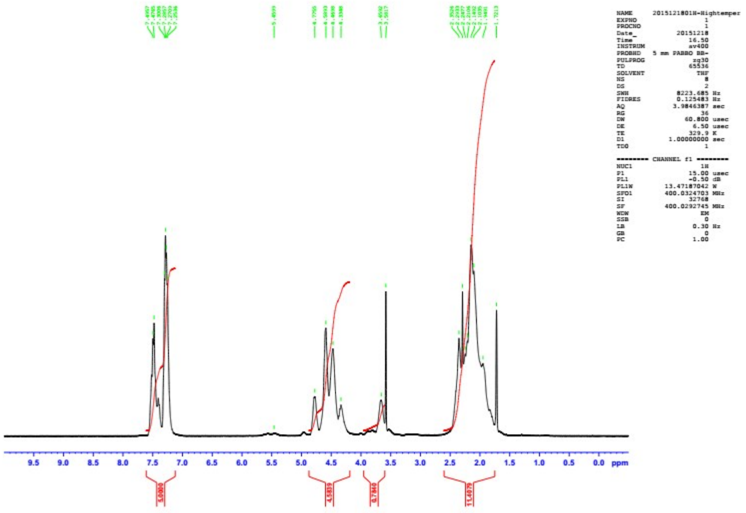

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Fig. S2. ^{1}H NMR spectrum of the nucleophilic substitution with thiophenol in the presence of K_2CO_3 (400MHz, THF-d_8, 329.9K).

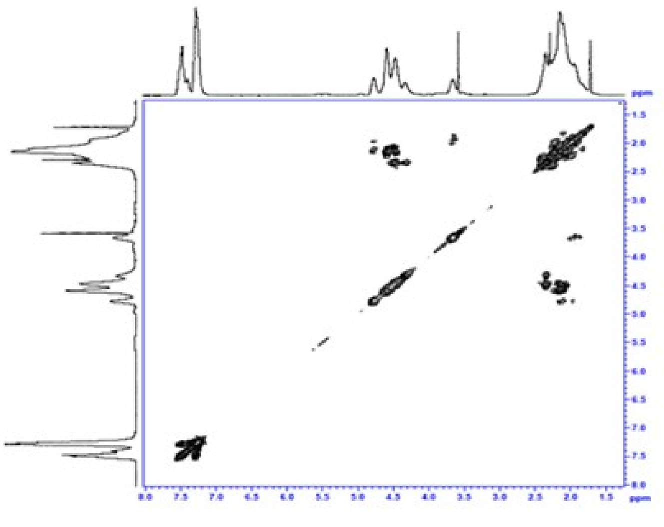


Fig. S3. ^{1}H-^{1}H COSY spectrum of the nucleophilic substitution with thiophenol in the presence of K_2CO_3 (400MHz, THF-d_8, 329.2K).

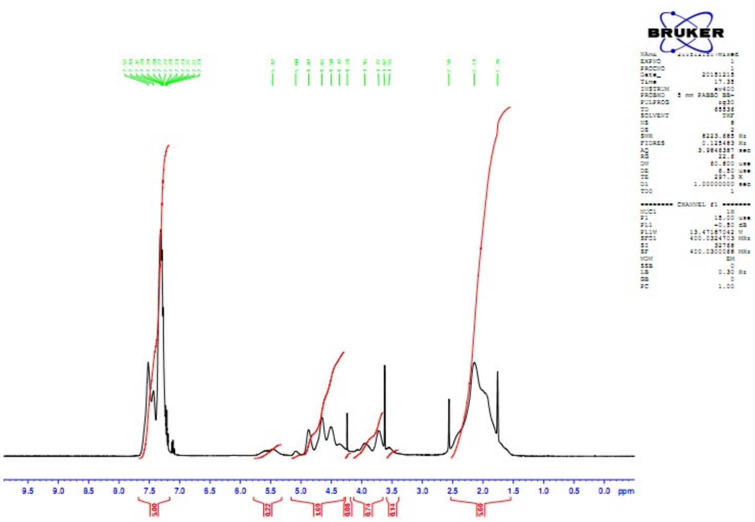


Fig. S4. ^{1}H NMR spectrum of the nucleophilic substitution with thiophenol in the presence of DIEA (400MHz, THF-d_8, 297.3K).

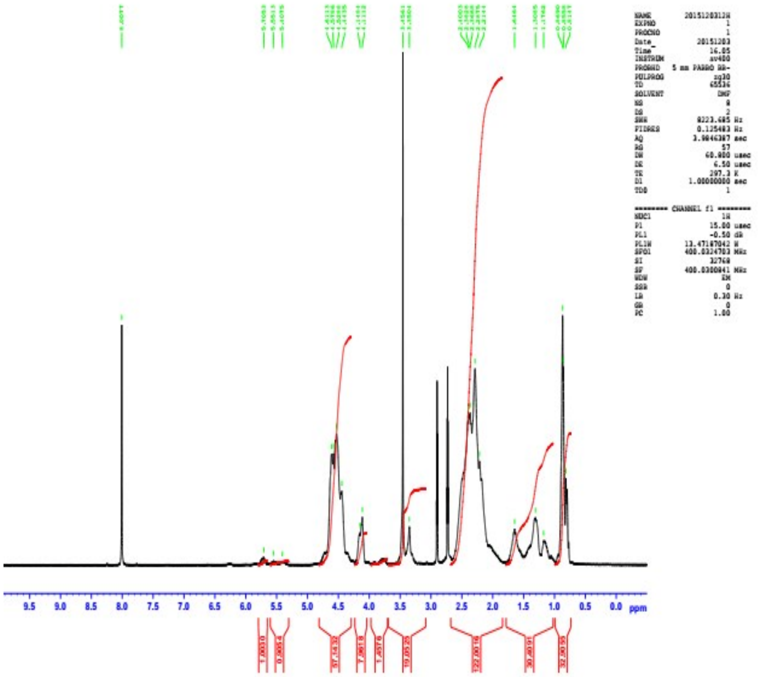


Fig. S5. ^{1}H NMR spectrum of the nucleophilic substitution with isooctyl thioglycolate in the presence of K_2CO_3 (400MHz, DMF-d_7, 297.3K).

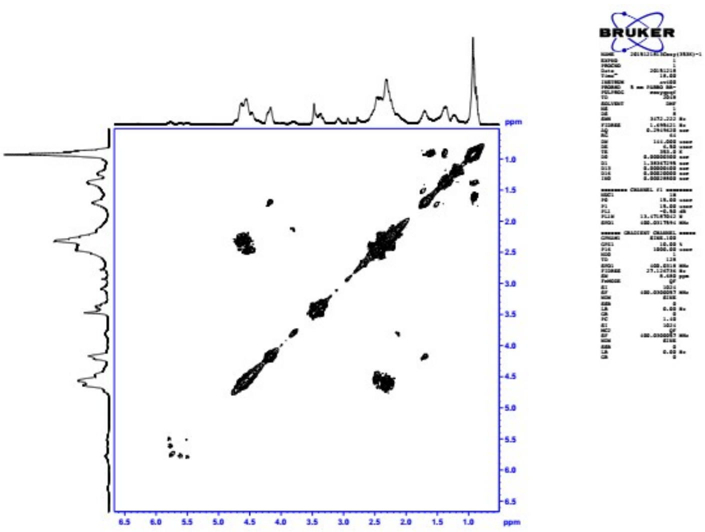
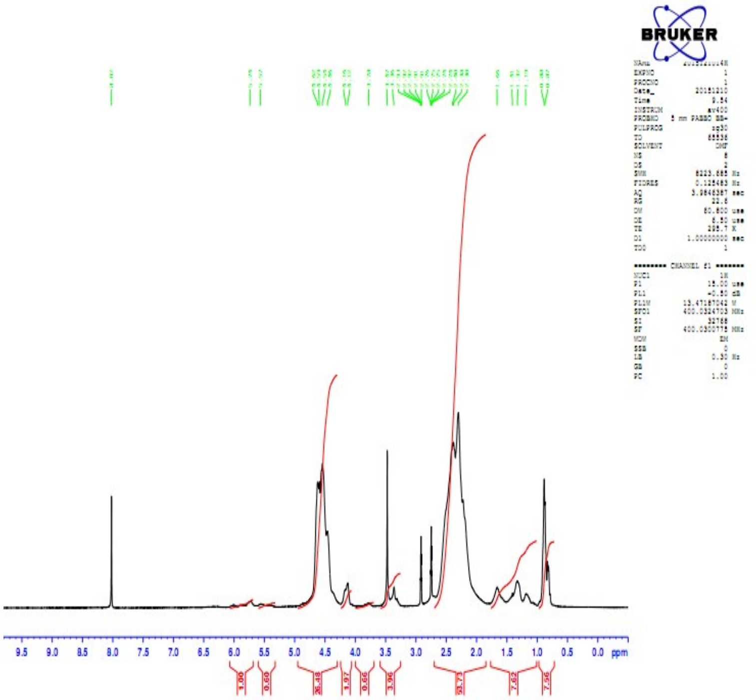


Fig. S6. ^{1}H-^{1}H COSY spectrum of the nucleophilic substitution with isooctyl thioglycolate in the presence of K_2CO_3 (400MHz, DMF-d_7, 353.0K).



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DE                 6.50 use
TE                295.7 K
D1           1.00000000 sec
TD0                   1

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P1                15.00 use
PL1               -0.50 dB
PL1W        13.47187042 W
SFO1        400.0324703 MHz
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Fig. S7. ^{1}H NMR spectrum of the nucleophilic substitution with isooctyl thioglycolate in the presence of DIEA (400MHz, DMF-d_7, 295.7K).

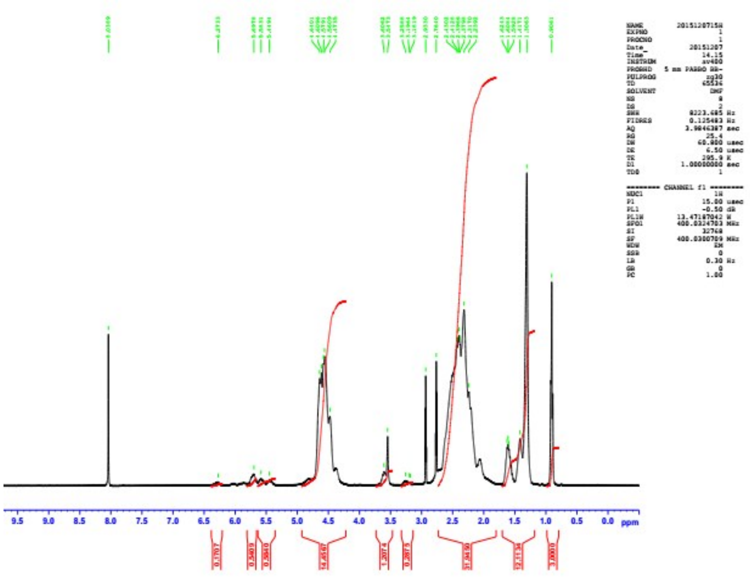

Fig. S8. ^{1}H NMR spectrum of the nucleophilic substitution with 1-octanethiol in the presence of K_2CO_3 (400MHz, DMF-d_7, 295.9K).

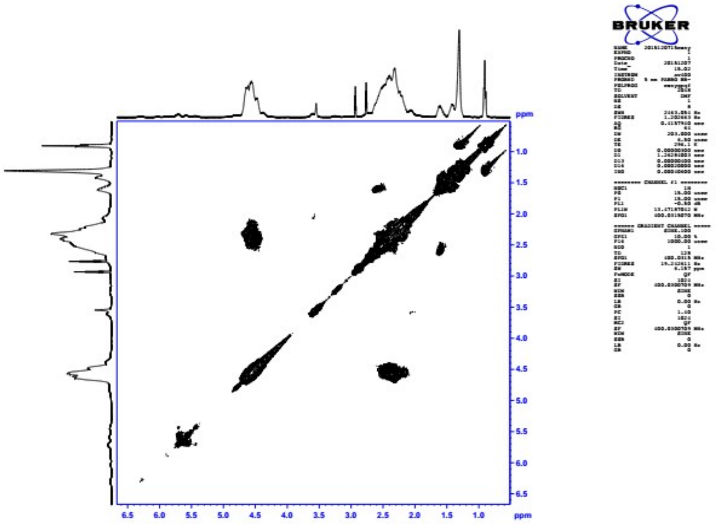

Fig. S9. ^{1}H-^{1}H COSY spectrum of the nucleophilic substitution with 1-octanethiol in the presence of K_2CO_3 (400MHz, DMF-d_7, 296.1K).

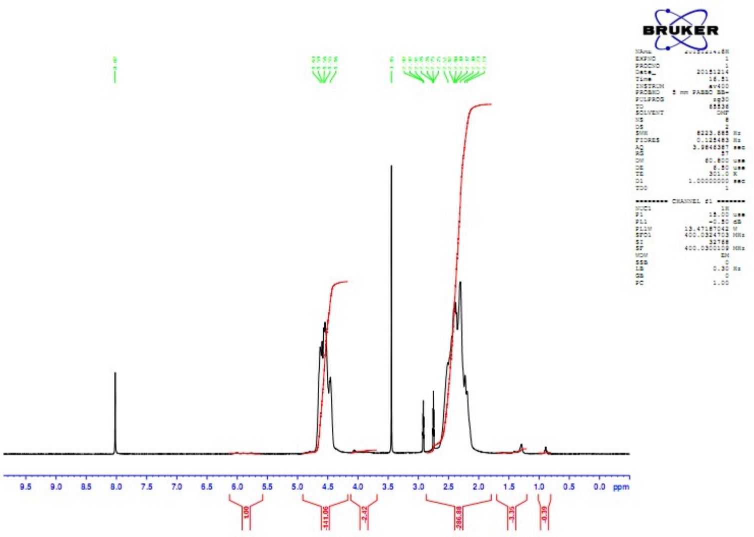

Fig. S10. ^{1}H NMR spectrum of the nucleophilic substitution with 1-Octanethiol in the presence of DIEA (400MHz, DMF-d_7, 301.0K).

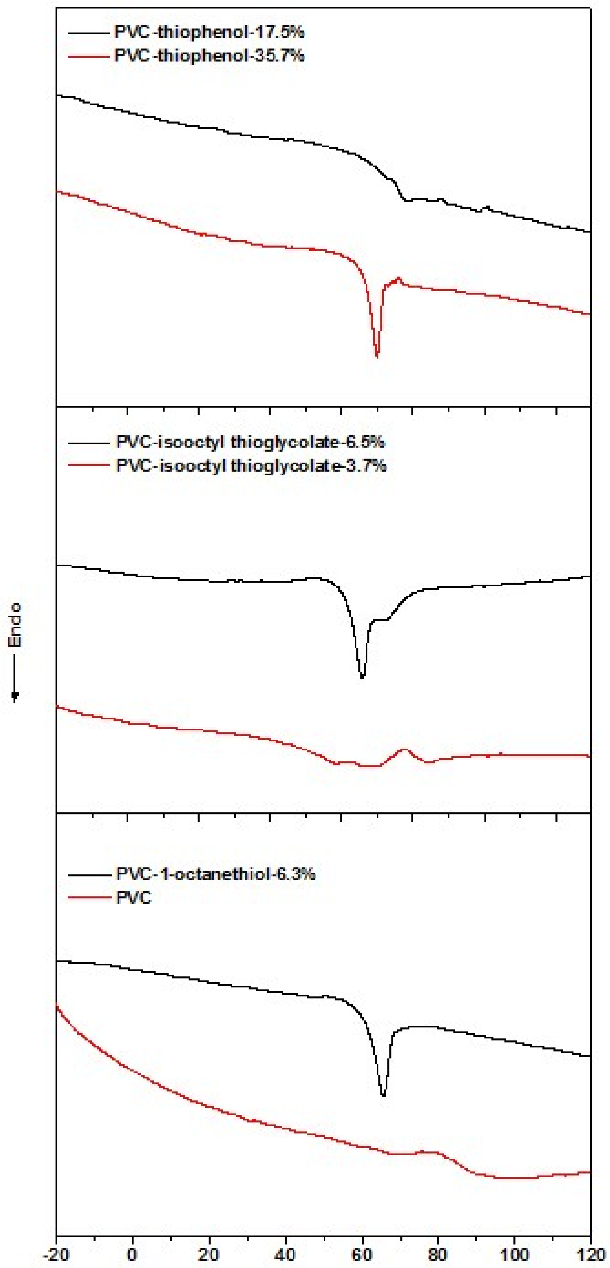

Fig. S11. DSC curves of PVC and modified PVC materials.