Supporting information for:

Direct Radical Polymerization of 4-Styryldiphenylphosphine: Preparation of
Cross-Linked and Noncross-Linked Triphenylphosphine Containing
Polystyrene Polymers

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General Procedures. All reagents were used as received. All moisture sensitive reactions were carried out in dried glassware under a nitrogen atmosphere. Tetrahydrofuran was distilled under a nitrogen atmosphere over sodium and benzophenone. Dichloromethane was distilled under a nitrogen atmosphere over calcium hydride. Silica gel 60 (230-400 mesh) was used for chromatography. Thin layer chromatography analysis was performed using silica gel 60 F₂₅₄.

Current Data Parameters
NAME: fnd18092
EXPNO: 180
PROCNO: 2

F2 - Acquisition Parameters
Date_: 20021212
Time: 10 05
INSTRUM: gpc300
PROBHD: DUL 5mm
PULPROG: zg30
TD: 32768
SOLVENT: CDCl3
NS: 10
DS: 2
SWH: 6172.839 Hz
FIDRES: 0.108380 Hz
AQ: 2.6542500 sec
RG: 514.7
DM: 81.000 usec
DE: 6.00 usec
TE: 300.0 K
D1: 1.00000000 sec

----- CHANNEL f1 -----
NUC1: 1H
P1: 9.00 usec
PL1: -6.00 dB
SFO1: 300.1318534 MHz

F2 - Processing parameters
SI: 32768
SF: 300.1300709 MHz
WDW: EM
SSB: 0
LB: 0.30 Hz
GB: 0
PC: 1.00

1D NMR plot parameters
CX: 25.00 cm
FIP: 10.000 ppm
F1: 3001.30 Hz
F2P: -1.000 ppm
F2: -300.13 Hz
PWHCH: 0.44000 ppm/cm
HZCM: 132.05721 Hz/cm

Current Data Parameters
NAME: fnd18092
EXPNO: 201
PROCNO: 3

F2 - Acquisition Parameters
Date_: 20030516
Time: 15 03
INSTRUM: gpc300
PROBHD: DUL 5mm
PULPROG: zgpg30
TD: 32768
SOLVENT: CDCl3
NS: 115
DS: 1
SWH: 18832.393 Hz
FIDRES: 0.514719 Hz
AQ: 0.870404 sec
RG: 8192
DM: 26.550 usec
DE: 6.00 usec
TE: 300.0 K
D1: 2.50000000 sec
D11: 0.03000000 sec

----- CHANNEL f1 -----
NUC1: 13C
P1: 7.00 usec
PL1: -6.00 dB
SFO1: 75.4760264 MHz

----- CHANNEL f2 -----
CPDPRG2: waltz16
NUC2: 1H
PCPD2: 100.00 usec
PL2: 120.00 dB
PL12: 18.00 dB
SFO2: 300.1312005 MHz

F2 - Processing parameters
SI: 32768
SF: 75.467531 MHz
WDW: EM
SSP: 0
LB: 1.00 Hz
GB: 0
PC: 1.40

1D NMR plot parameters
CX: 25.00 cm
FIP: 200.000 ppm
F1: 15602.90 Hz
F2P: -5.000 ppm
F2: -377.34 Hz
PWHCH: 8.00000 ppm/cm
HZCM: 679.20978 Hz/cm

Current Data Parameters
 NAME Exp180P3-P
 EXPNO 180
 PROCNO 3

F2 - Acquisition Parameters
 Date_ 20021212
 Time 19.40
 INSTRUM av400
 PROBNM 5 mm QNP 1H/13
 PULPROG zgpg30
 TO 32768
 SOLVENT CDCl3
 NS 16
 DS 4
 SWH 64935.066 Hz
 FIDRES 1.981661 Hz
 AQ 0.2523636 sec
 RG 16384
 DM 7.700 usec
 DE 8.00 usec
 TE 300.0 K
 D1 2.00000000 sec
 d11 0.03000000 sec
 d12 0.00020000 sec

***** CHANNEL f1 *****
 NUC1 31P
 P1 4.90 usec
 PL1 -5.00 dB
 SFO1 161.9753930 MHz

***** CHANNEL f2 *****
 CPOPRG2 waltz16
 NUC2 1H
 PCPD2 80.00 usec
 PL2 -4.00 dB
 PL12 14.20 dB
 PL13 14.20 dB
 SFO2 400.1316005 MHz

F2 - Processing parameters
 SI 32768
 SF 161.9755258 MHz
 WDW EM
 SSB 0
 LB 2.00 Hz
 GB 0
 PC 1.40

1D NMR plot parameters
 CX 25.00 cm
 CY 11.31 cm
 FIP 50.000 ppm
 F1 8098.78 Hz
 F2 -50.000 ppm
 F2 -8098.78 Hz
 PPMCM 4.00000 ppm/cm
 HZCM 647.90210 Hz/cm

1

Current Data Parameters
NAME Exp190P2
EXPNO 190
PROCNO 2

F2 - Acquisition Parameters
Date_ 20030104
Time 12:27
INSTRUM spect
PROBHD DUAL 5mm

PULPROG zgpg30
TD 32768
SOLVENT CDD13
NS 105
DS 2
SWH 6172.839 Hz
FIDRES 0.188380 Hz
AQ 2.6542580 sec
RG 1149.4
DM 81.000 usec
DE 6.00 usec
TE 300.0 K
D1 1.00000000 sec

***** CHANNEL f1 *****
NUC1 1H
P1 9.00 usec
PL1 -6.00 dB
SFO1 300.1318534 MHz

F2 - Processing parameters
SI 32768
SF 300.1300052 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 25.00 cm
F1P 10.000 ppm
F1 3001.30 Hz
F2P -1.000 ppm
F2 -300.13 Hz
PRNCH 0.44000 ppm/cm
HZCN 132.05721 Hz/cm

Current Data Parameters
NAME Exp181ADP
EXPNO 181
PROCNO 2

F2 - Acquisition Parameters
Date_ 20020118
Time 9.48
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 13
DS 4
SWH 6410.256 Hz
FIDRES 0.155020 Hz
AQ 2.5559140 sec
RG 128
DE 78.000 usec
TE 300.0 K
D1 1.0000000 sec

***** CHANNEL f1 *****
NUC1 13
P1 18.00 usec
PL1 -4.00 dB
SFO1 400.1324000 MHz

F2 - Processing parameters
SI 32768
SF 400.1300170 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 25.00 cm
CY 10.29 cm
FIDP 15.000 ppm
F1 4001.30 Hz
F2 -1.000 ppm
F3 -400.13 Hz
FREQ 0.44000 ppm/cx
HSCN 118.05171 Hz/cx

Current Data Parameters
NAME Exp181ADP
EXPNO 180
PROCNO 3

F2 - Acquisition Parameters
Date_ 20021214
Time 11.25
INSTRUM spect
PROBHD 5 mm QNP 1H/13
PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 130
DS 4
SWH 64920.066 Hz
FIDRES 1.7816151 Hz
AQ 0.2523635 sec
RG 4597.6
DE 7.100 usec
TE 300.0 K
D1 2.00000000 sec
d11 0.03000000 sec
d12 0.00002000 sec

***** CHANNEL f1 *****
NUC1 31P
P1 4.90 usec
PL1 -5.00 dB
SFO1 161.9753930 MHz

***** CHANNEL f2 *****
EXPRESZ waltz16
NUC2 13
PCYCL 80.00 usec
PL2 -4.00 dB
PL12 14.20 dB
PL13 14.20 dB
SFO2 400.1316000 MHz

F2 - Processing parameters
SI 32768
SF 161.9753250 MHz
WDW EM
SSB 0
LB 2.00 Hz
GB 0
PC 1.40

1D NMR plot parameters
CX 25.00 cm
CY 7.60 cm
FIDP 50.000 ppm
F1 8098.78 Hz
F2 -50.000 ppm
F3 -8098.78 Hz
FREQ 4.00000 ppm/cx
HSCN 647.90210 Hz/cx

Current Data Parameters
NAME: M8P1-2
EXPNO: 48
PROCNO: 1

F2 - Acquisition Parameters
Date_: 20030613
Time: 12:32
INSTRUM: spect
PROBHD: 5 mm QNP 1H/13
PULPROG: zgpg30
TD: 32768
SOLVENT: CDCl3
NS: 20
DS: 0
SWH: 3012.800 MHz
FIDRES: 0.244532 MHz
AQ: 2.0441733 sec
RG: 408.4
DQ: 62.400 usec
DE: 8.00 usec
TE: 300.2 K
D1: 1.0000000 sec

***** Channel f1 *****
NUC1: 13C
P1: 13.00 usec
PL1: -4.00 dB
SFO1: 400.1300000 MHz

F2 - Processing parameters
SI: 32768
SF: 400.1300000 MHz
WDW: EM
SSB: 0
LB: 0.30 Hz
GB: 0
PC: 1.00

1D NMR plot parameters
CX: 25.00 cm
CY: 9.00 cm
FAP: 10.000 ppm
F1: 400.130 MHz
F2: -1.000 ppm
PPMCK: 0.40000 ppm/cm
HDCX: 176.95721 Hz/cm

Current Data Parameters
NAME: M8P1-2
EXPNO: 48
PROCNO: 1

F2 - Acquisition Parameters
Date_: 20030613
Time: 18:15
INSTRUM: spect
PROBHD: 5 mm QNP 1H/13
PULPROG: zgpg30
TD: 32768
SOLVENT: CDCl3
NS: 139
DS: 0
SWH: 25125.625 MHz
FIDRES: 0.165713 MHz
AQ: 0.8521332 sec
RG: 1824.6
DQ: 18.900 usec
DE: 6.00 usec
TE: 300.2 K
D1: 2.5000000 sec
d11: 0.9500000 sec

***** Channel f1 *****
NUC1: 13C
P1: 9.10 usec
PL1: -5.00 dB
SFO1: 100.6273804 MHz

***** Channel f2 *****
CPDPRG2: waltz16
NUC2: 1H
PCPD2: 80.00 usec
PL2: -4.00 dB
PL12: 12.50 dB
SFO2: 400.1300000 MHz

F2 - Processing parameters
SI: 32768
SF: 100.6127021 MHz
WDW: EM
SSB: 0
LB: 1.00 Hz
GB: 0
PC: 1.40

1D NMR plot parameters
CX: 25.00 cm
CY: 11.30 cm
FAP: 220.000 ppm
F1: 271.3481 MHz
F2: -5.000 ppm
F3: -503.06 Hz
PPMCK: 9.00000 ppm/cm
HDCX: 905.51483 Hz/cm

Current Data Parameters
NAME HCP2-1
EXPNO 25
PROCNO 3

F2 - Acquisition Parameters
Date_ 20030702
Time 9.16
INSTRUM av400
PROBHD 5 mm QNP 1H/13
PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 261
DS 0
SWH 25125.629 MHz
FIDRES 0.762773 MHz
AQ 0.621332 sec
RG 1625.5
DM 19.900 usec
DE 6.00 usec
TE 300.0 K
D1 2.50000000 sec
d11 0.03000000 sec

***** CHANNEL f1 *****
NUC1 13C
P1 9.10 usec
PL1 -5.00 dB
SFO1 100.628364 MHz

***** CHANNEL f2 *****
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PL2 -4.00 dB
PL12 12.90 dB
SFO2 400.1320007 MHz

F2 - Processing parameters
SI 32768
SF 100.6127605 MHz
WDW EM
SSB 0
LB 1.00 MHz
GB 0
PC 1.40

1D NMR plot parameters
EX 25.00 cm
CY 11.24 cm
FSP 220.000 ppm
F1 20134.81 MHz
F2P -5.000 ppm
F2 -563.06 MHz
PPMCH 0.00000 ppm/cm
HZCM 905.51489 MHz/cm

4-methylbenzyl alcohol + benzoic acid

Current Data Parameters
NAME: M25P4-C
EXPNO: 25
PROCNO: 4

F2 - Acquisition Parameters
Date_: 20030624
Time: 13:29
INSTRUM: spect
PROBHD: 5 mm QNP 1H/13
PULPROG: zgpg30
TD: 32768
SOLVENT: CDCl3
NS: 130
DS: 4
SWH: 8013.800 Hz
FIDRES: 0.244532 Hz
AQ: 2.0447731 sec
RG: 128
DN: 62.400 usec
DE: 0.100 usec
TE: 300.2 K
D1: 1.0000000 sec

***** CHANNEL f1 *****
NUC1: 13C
P1: 13.20 usec
PL1: 0.00 dB
SFO1: 400.1320000 MHz

F2 - Processing parameters
SI: 32768
SF: 400.1320000 MHz
WDW: EM
SSB: 0
LB: 0.0 Hz
GB: 0
PC: 1.00

1D NMR plot parameters
CX: 25.00 cm
CY: 12.79 cm
F1: 10.000 ppm
F2: 400.130 MHz
F3: -1.000 ppm
F4: 400.130 MHz
PRNCH: 0.44000 ppm/Hz
RDCN: 178.05702 Hz/Hz

Current Data Parameters
NAME: M25P4-C ✓
EXPNO: 25
PROCNO: 4

F2 - Acquisition Parameters
Date_: 20030624
Time: 11:24
INSTRUM: spect
PROBHD: 5 mm QNP 1H/13
PULPROG: zgpg30
TD: 32768
SOLVENT: CDCl3
NS: 130
DS: 4
SWH: 25125.629 Hz
FIDRES: 0.786773 Hz
AQ: 0.0201332 sec
RG: 2580.3
DN: 19.900 usec
DE: 6.00 usec
TE: 300.2 K
D1: 2.5000000 sec
D11: 0.0300000 sec

***** CHANNEL f1 *****
NUC1: 13C
P1: 9.10 usec
PL1: -5.00 dB
SFO1: 101.6278364 MHz

***** CHANNEL f2 *****
CPROG2: waltz16
NUC2: 1H
PCPD2: 80.00 usec
PL2: -4.00 dB
PL12: 12.90 dB
SFO2: 400.1320000 MHz

F2 - Processing parameters
SI: 32768
SF: 100.6127752 MHz
WDW: EM
SSB: 0
LB: 1.00 Hz
GB: 0
PC: 1.40

1D NMR plot parameters
CX: 25.00 cm
CY: 11.58 cm
F1: 220.000 ppm
F2: 20134.81 Hz
F3: -5.000 ppm
F4: -503.86 Hz
PRNCH: 9.00000 ppm/Hz
RDCN: 905.51501 Hz/Hz

Current Data Parameters
NAME: H2SP1
EXPNO: 2
PROCNO: 1

2 - Acquisition Parameters
Date_: 20030627
Time: 10.42
INSTRUM: spect
PROBHD: 5 mm QNP 1H/13
PULPROG: zgpg30
TD: 32768
SOLVENT: CDCl3
NS: 500
DS: 4
SWH: 8012.820 Hz
FIDRES: 0.244573 Hz
AQ: 2.5447733 sec
RG: 2560.3
DQ: 62.400 usec
DE: 0.00 usec
TE: 300.2 K
F1: 1.60000000 sec

===== CHANNEL f1 =====
NUC1: 13C
P1: 13.20 usec
PL1: -4.00 dB
SFO1: 400.1324088 MHz

2 - Processing parameters
SI: 32768
SF: 400.1300980 MHz
WDW: EM
SSB: 0
LB: 0.30 Hz
GB: 0
PC: 1.00

1D NMR plot parameters
CX: 25.00 cm
CY: 11.01 cm
FID: 10.000 sec
F1: 400.130 MHz
F2: -1.000 sec
F3: -400.13 MHz
PUNCH: 0.0000 sec/cm
H2CH: 176.05121 Hz/cm

Current Data Parameters
NAME: H2SP5-C
EXPNO: 2
PROCNO: 5

F2 - Acquisition Parameters
Date_: 20030628
Time: 10.42
INSTRUM: spect
PROBHD: 5 mm QNP 1H/13
PULPROG: zgpg30
TD: 32768
SOLVENT: CDCl3
NS: 500
DS: 4
SWH: 25125.529 Hz
FIDRES: 0.766773 Hz
AQ: 0.8521332 sec
RG: 4096
DQ: 19.900 usec
DE: 0.00 usec
TE: 300.2 K
F1: 3.50000000 sec
F2: 0.03000000 sec

===== CHANNEL f1 =====
NUC1: 13C
P1: 9.10 usec
PL1: -5.00 dB
SFO1: 100.6280364 MHz

===== CHANNEL f2 =====
CPDPRG2: waltz16
NUC2: 1H
PCPD2: 86.00 usec
PL2: -4.00 dB
PL12: 12.90 dB
SFO2: 400.1300003 MHz

F2 - Processing parameters
SI: 32768
SF: 100.6127578 MHz
WDW: EM
SSB: 0
LB: 1.00 Hz
GB: 0
PC: 1.40

1D NMR plot parameters
CX: 25.00 cm
CY: 11.03 cm
FID: 200.000 sec
F1: 22134.81 Hz
F2: -5.000 sec
F3: -503.00 Hz
PUNCH: 9.00000 sec/cm
H2CH: 905.51477 Hz/cm

Current Data Parameters
NAME: M079
EXPNO: 2
PROCNO: 2

F2 - Acquisition Parameters
Date_: 20080526
Time: 10:24
INSTRUM: av400
PROBHD: 5 mm DNP 1H/13
PULPROG: zgpg30
TD: 32768
SOLVENT: CDCl3
NS: 42
DS: 0
SWH: 8013.820 Hz
FIDRES: 0.244532 Hz
AQ: 2.044773 sec
RG: 574.7
DM: 52.400 usec
DE: 8.00 usec
TE: 300.2 K
D1: 1.3000000 sec

***** CHANNEL f1 *****
NUC1: 13C
P1: 13.00 usec
PL1: -4.00 dB
SFO1: 400.1324080 MHz

F2 - Processing parameters
SI: 32768
SF: 400.1300000 MHz
WDW: EM
SSB: 0
LB: 0.30 Hz
GB: 0
PC: 1.00

1D waltz plot parameters
CX: 25.00 usec
CY: 11.30 usec
FSP: 165.000 ppm
F1: 4001.30 MHz
F2P: -11.000 ppm
F2: -408.13 MHz
PMWCH: 0.44000 ppm/cx
H2CK: 178.00701 MHz/cx

Current Data Parameters
NAME: M079-C
EXPNO: 25
PROCNO: 5

F2 - Acquisition Parameters
Date_: 20080626
Time: 10:45
INSTRUM: av400
PROBHD: 5 mm DNP 1H/13
PULPROG: zgpg30
TD: 32768
SOLVENT: CDCl3
NS: 155
DS: 0
SWH: 25126.820 Hz
FIDRES: 0.786773 Hz
AQ: 0.6521332 sec
RG: 4096
DM: 19.900 usec
DE: 6.00 usec
TE: 300.2 K
D1: 3.5000000 sec
D11: 0.03000000 sec

***** CHANNEL f1 *****
NUC1: 13C
P1: 9.10 usec
PL1: -5.00 dB
SFO1: 100.6238364 MHz

***** CHANNEL f2 *****
CPDPRG2: waltz16
NUC2: 1H
PCPD2: 80.00 usec
PL2: -4.00 dB
PL12: 12.00 dB
SFO2: 400.1320007 MHz

F2 - Processing parameters
SI: 32768
SF: 100.6127632 MHz
WDW: EM
SSB: 0
LB: 1.00 Hz
GB: 0
PC: 1.40

1D waltz plot parameters
CX: 25.00 usec
CY: 10.40 usec
FSP: 220.000 ppm
F1: 20134.81 MHz
F2P: -5.000 ppm
F2: -503.06 MHz
PMWCH: 9.00000 ppm/cx
H2CK: 965.51483 MHz/cx

Current Data Parameters
NAME ben-Br-1
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 20030614
Time 18.10
INSTRUM 60x300
PROBHD DUAL 5mm
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 17
DS 2
SMH 6172.839 Hz
FIDRES 0.188380 Hz
AQ 2.6542580 sec
RG 645.1
DM 81.900 usec
DE 6.00 usec
TE 300.0 K
D1 1.00000000 sec

----- CHANNEL f1 -----
NUC1 1H
P1 9.00 usec
PL1 -6.00 dB
SFO1 300.1318534 MHz

F2 - Processing parameters
SI 32768
SF 300.1300075 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 25.00 cm
F1P 10.000 ppm
F1 3001.30 Hz
F2P -2.000 ppm
F2 -600.26 Hz
PPHCH 0.48000 ppm/cm
HZCH 144.06241 Hz/cm

Current Data Parameters
 NAME meben-Br-1
 EXPRNO 1
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20030611
 Time 12.25
 INSTRUM dp300
 PROBHD DUAL 5mm

PULPROG zg30
 TD 32768
 SOLVENT CDCl3
 NS 17
 DS 2
 SWH 6172.839 Hz
 FIDRES 0.188380 Hz
 AQ 2.6542580 sec
 RG 574.7
 DM 81.000 usec
 DE 6.00 usec
 TE 300.0 K
 D1 1.00000000 sec

----- CHANNEL f1 -----
 NUC1 1H
 P1 9.00 usec
 PL1 -6.00 dB
 SFO1 300.1318534 MHz

F2 - Processing parameters
 SI 32768
 SF 300.1300073 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

1D NMR plot parameters
 CX 25.00 cm
 F1P 10.000 ppm
 F1 3001.30 Hz
 F2P -1.000 ppm
 F2 -300.13 Hz
 PPMCH 0.44000 ppm/cm
 HZCH 132.05721 Hz/cm

Current Data Parameters
NAME br-dm-c-1
EXPNO 68
PROCNO 2

F2 - Acquisition Parameters
Date_ 20030620
Time 14.08
INSTRUM av400
PROBHD 5 mm QNP 1H/13
PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 204
DS 8
SWH 25125.629 Hz
FIDRES 0.768773 Hz
AQ 0.6521332 sec
RG 912.3
CW 19.900 usec
DE 6.00 usec
TE 300.0 K
D1 2.50000000 sec
d11 0.67000000 sec

***** CHANNEL f1 *****
NUC1 13C
P1 9.10 usec
PL1 -5.00 dB
SFO1 100.62789364 MHz

***** CHANNEL f2 *****
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PL2 -4.00 dB
PL12 12.50 dB
SFO2 400.1300007 MHz

F2 - Processed parameters
SI 32768
SF 100.6127789 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

10 MHz plot parameters
CX 25.00 cm
CY 11.67 cm
FID 220.000 um
F1 22134.81 Hz
F2 0.000 Hz
F3 0.00 Hz
PPHM 8.80000 ppm/cm
HZCM 885.39240 Hz/cm