Supplementary information

Light Irradiation Induced Aerobic Oxidative Deep-desulfurization of Fuel in Ionic Liquid

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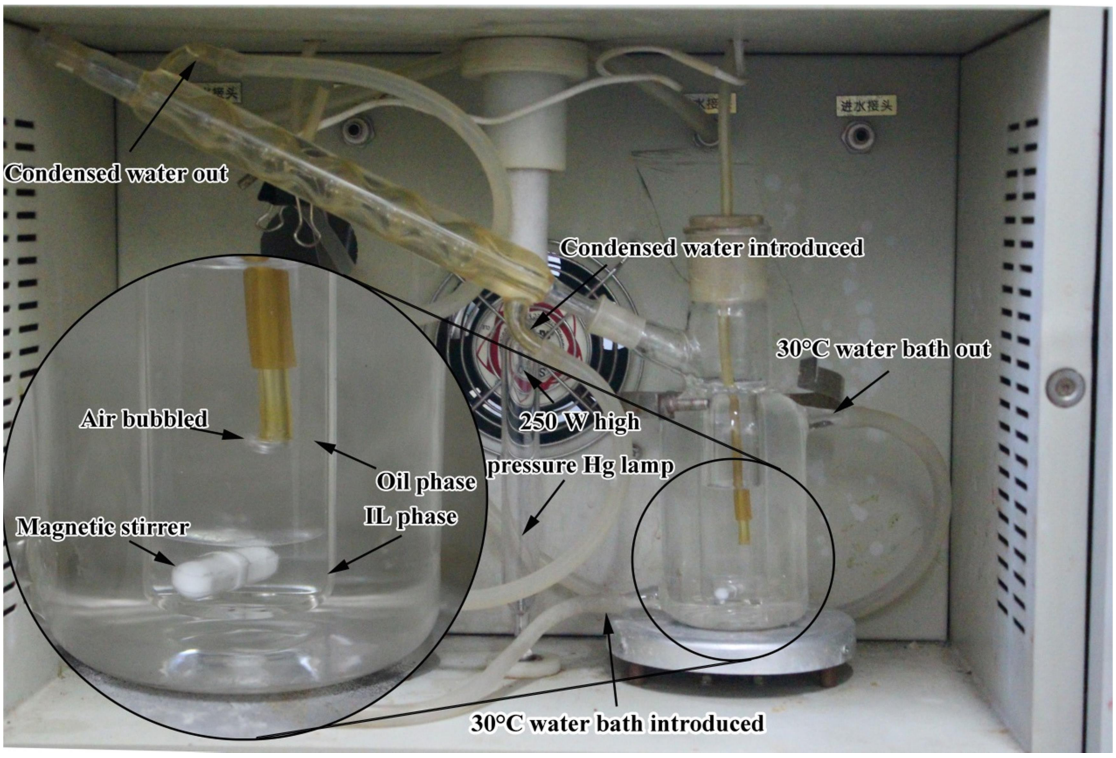
Scheme S1 The picture of reaction equipment

Fig. S1 GC-MS of model oil and the oil phase in reaction system after reaction for few hours

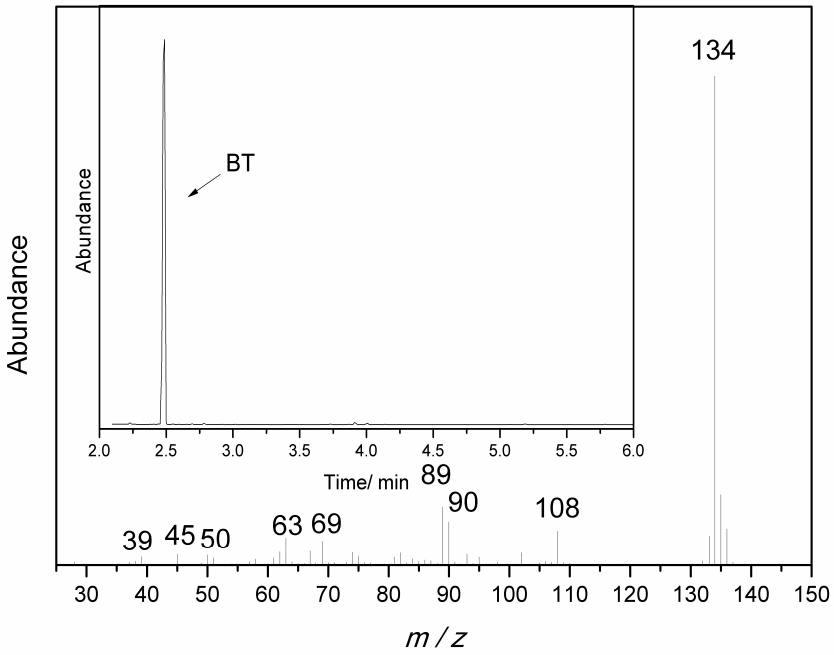
Fig. S2 The TIC of BT, DBT, 4,6-DMDBT dissolved in CCl_4

Fig. S3 GC-MS of the oxidation products of different substrate.

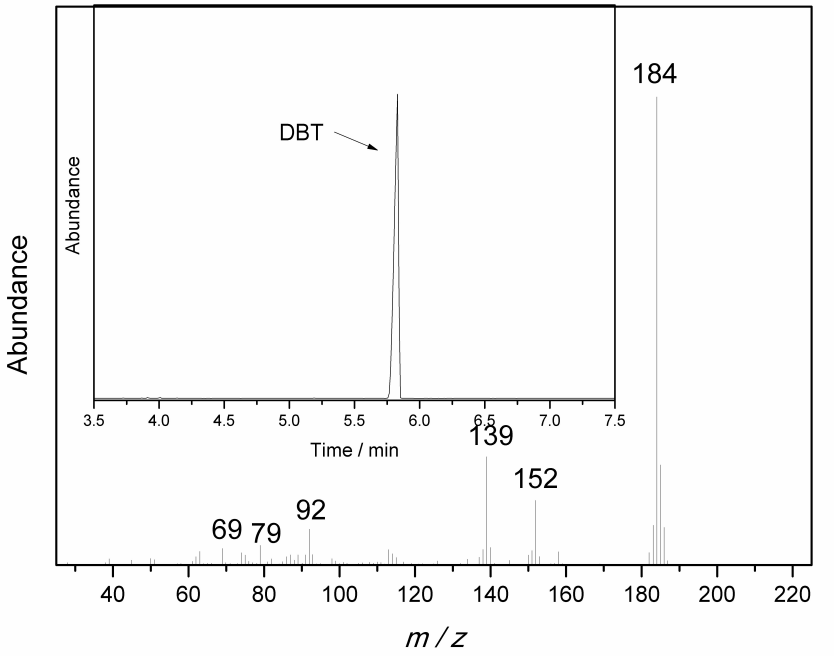


Scheme S1 The picture of reaction equipment

(a)


Abundance
BT
Abundance
2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0
Time/ min
134
89
90
108
39 45 50
63 69
30 40 50 60 70 80 90 100 110 120 130 140 150
m / z

(b)


Abundance
DBT
Abundance
3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5
Time / min
184
139
152
92
69 79
40 60 80 100 120 140 160 180 200 220
m / z

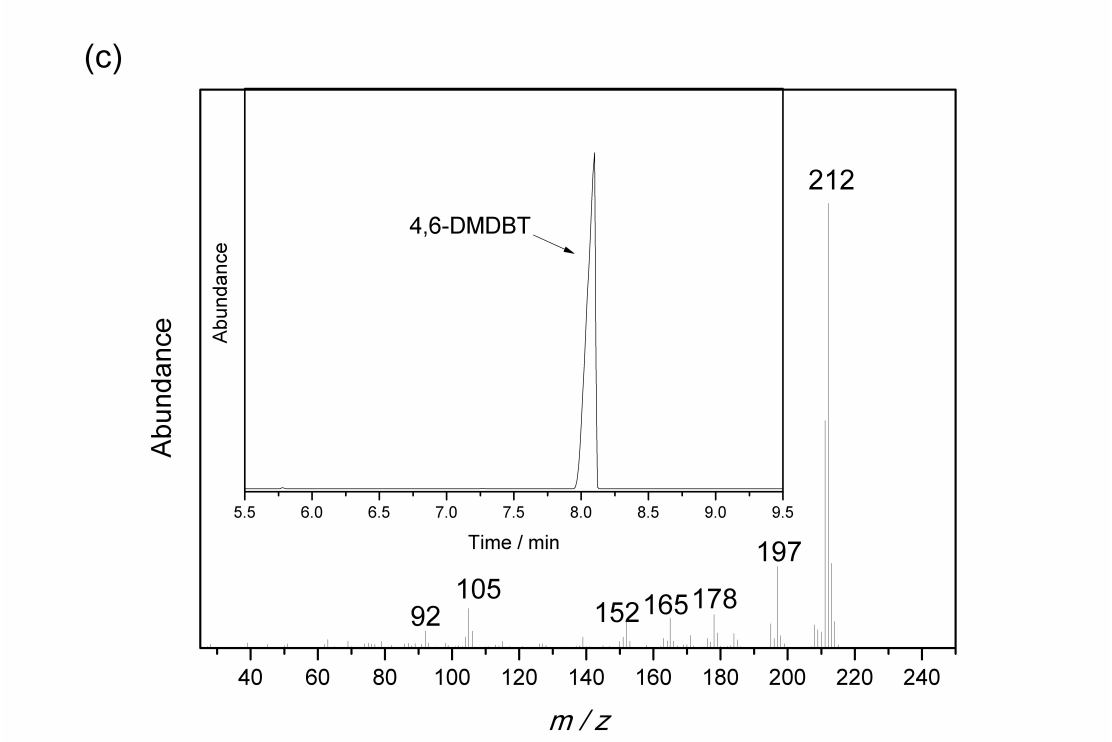
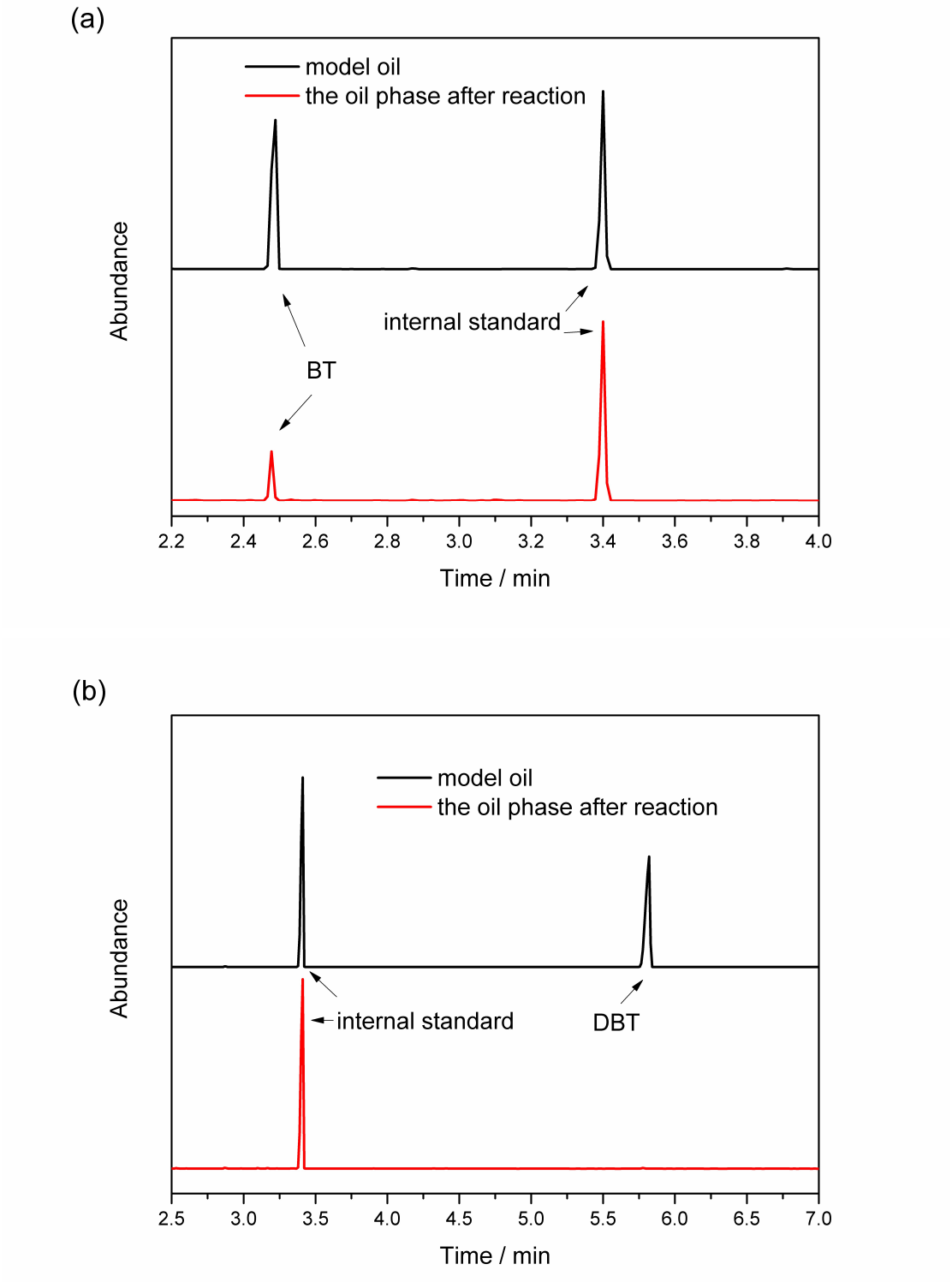


Fig. S1 The TIC of BT, DBT, 4,6-DMDBT dissolved in CCl_4


(a)
model oil
the oil phase after reaction
Abundance
internal standard
BT
2.2
2.4
2.6
2.8
3.0
3.2
3.4
3.6
3.8
4.0
Time / min
(b)
model oil
the oil phase after reaction
Abundance
internal standard
DBT
2.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
6.5
7.0
Time / min

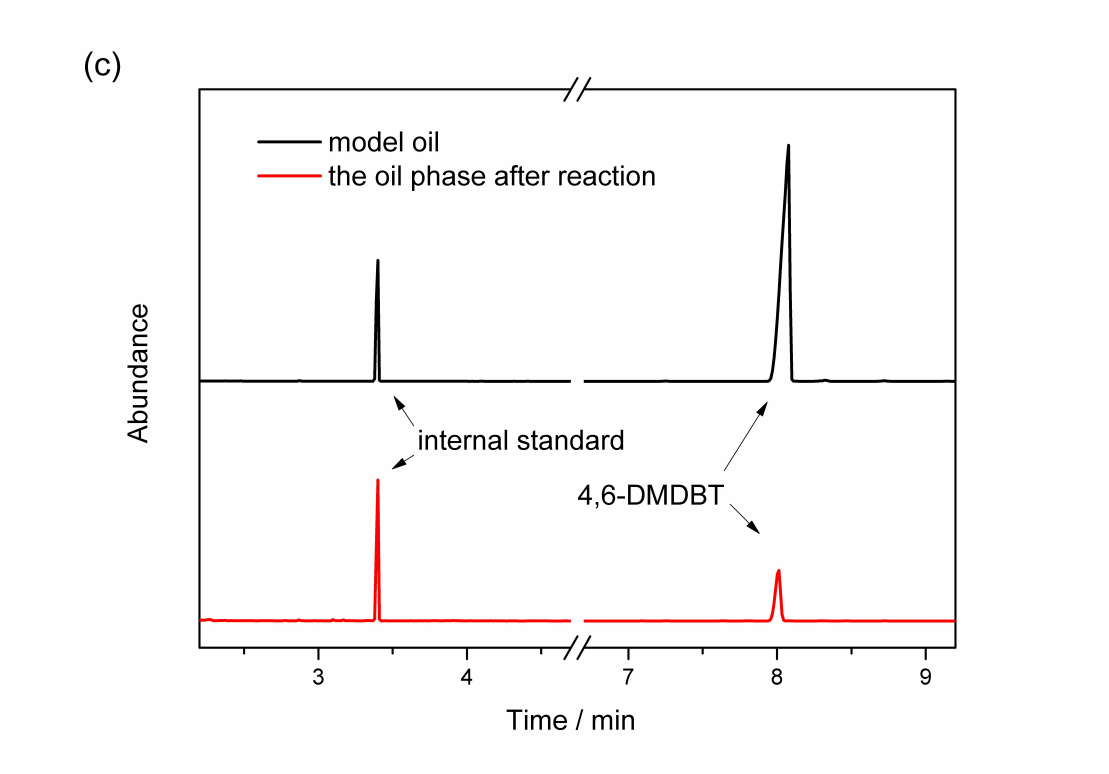
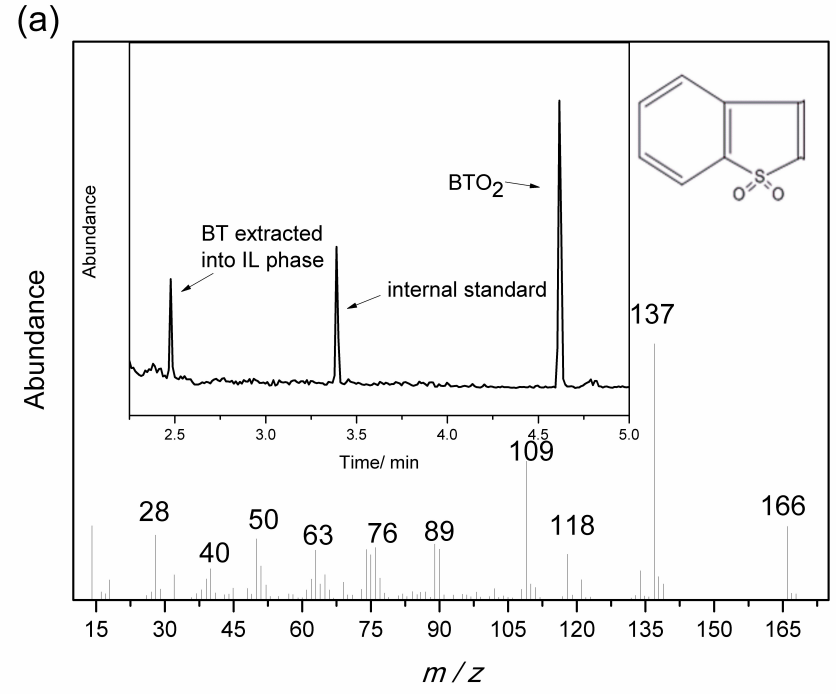
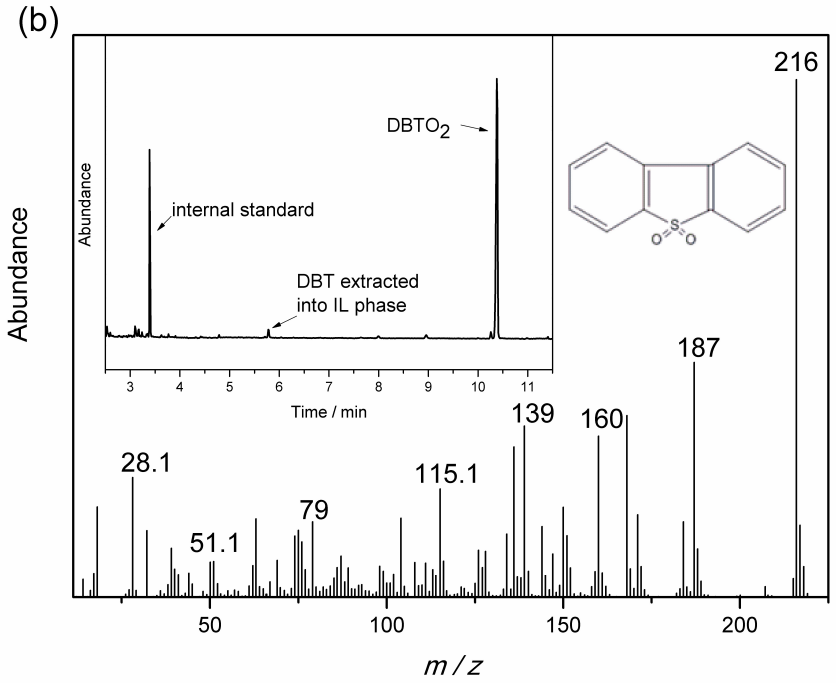


Fig. S2 TIC of model oil and the oxidized oil phase

(a)BT, (b)DBT, (c)4,6-DMDBT


(a)
Abundance
Abundance
BTO2
BT extracted
into IL phase
internal standard
2.5
3.0
3.5
4.0
4.5
5.0
Time/ min
137
109
28
40
50
63
76
89
118
166
15
30
45
60
75
90
105
120
135
150
165
m / z


(b)
Abundance
Abundance
DBTO2
internal standard
DBT extracted
into IL phase
3
4
5
6
7
8
9
10
11
Time / min
216
187
139
160
28.1
115.1
79
51.1
50
100
150
200
m / z

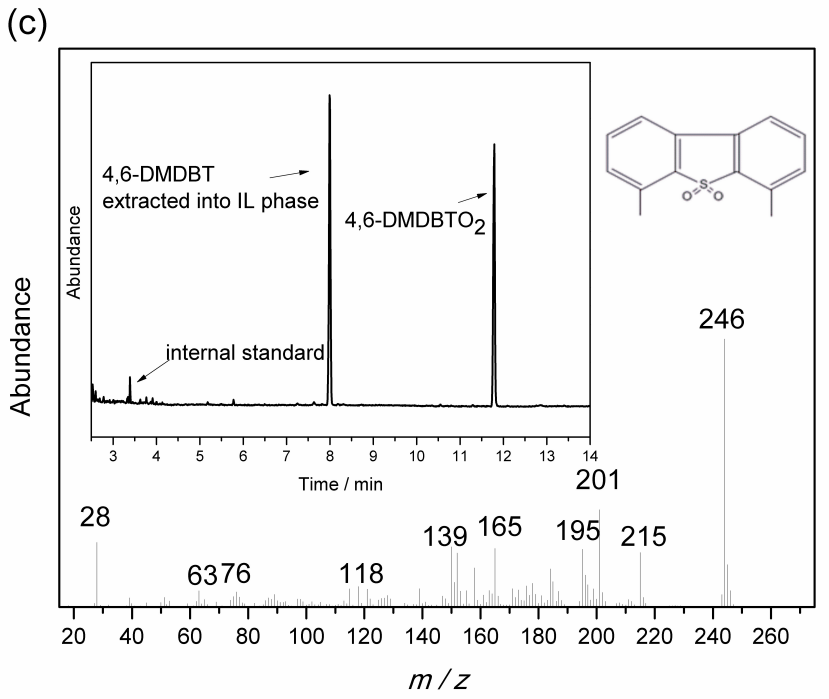


Fig. S3 GC-MS of the oxidation products of different substrate

(a) $DBTO_2$; (b) BTO_2; (c) 4,6-$DMDBTO_2$