Supporting Information

Controlled network structure and its correlation with physical properties of polycarboxyl octaphenylsilsesquioxanes-based inorganic-organic polymer nanocomposites

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Table 1S. LC-MS data of cleaved products of $COOH_{5.5}OPS$

LC/MS Peak/(min)	Assignment		(mol%)
	Cleaved products	Structure	
7.59	Phenol		30.8
13.53	Hydroxybenzoic acid		
			42.9
16.02	Hydroxybenzoic acid		4.3
22. 82, 24.23, 25.94, 27.85	Monobromo hydroxybenzoic acid		20.8
33.25, 33.78	Dibromo hydroxybenzoic acid		1.2

Table 2S. LC-MS data of cleaved products of $COOH_{7.0}OPS$

LC/MS Peak/(min)	Assignment		(mol%)
	Cleaved products	Structure	
7.64	Phenol		10.2
13.71	Hydroxybenzoic acid		
			47.4
16.33	Hydroxybenzoic acid		16.9
21. 31, 24.08, 24.35, 25.99	Monobromo hydroxybenzoic acid		20.7
31.74, 32.31 35.36, 36.52	Dibromo hydroxybenzoic acid		4.8

Fig. 1S FTIR of polybromo-OPS of (a) $Br_{6.4}OPS$, (b) $Br_{9.0}OPS$

(a)

(b)

1699

490

1110

3500 3000 2500 2000 1500 1000 500

Wavenumbers (cm^{-1})
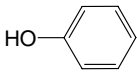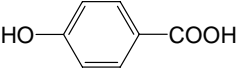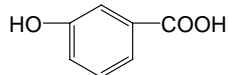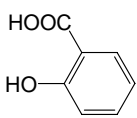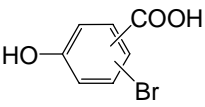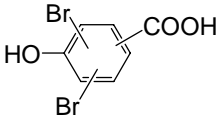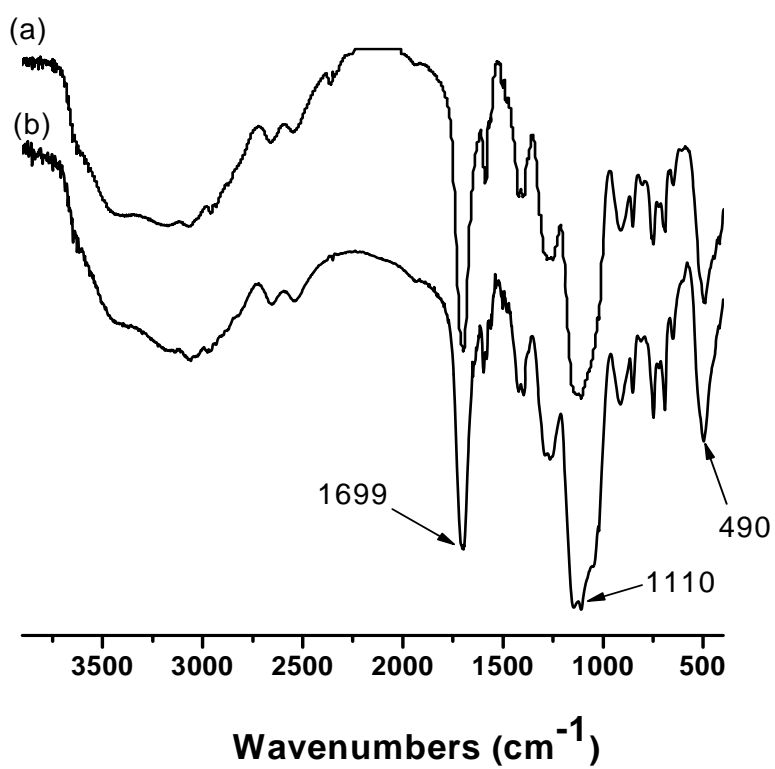
Fig. 2S FTIR of polycarboxyl-OPS of (a) COOH$_{5.5}$OPS, (b) COOH$_{7.0}$OPS
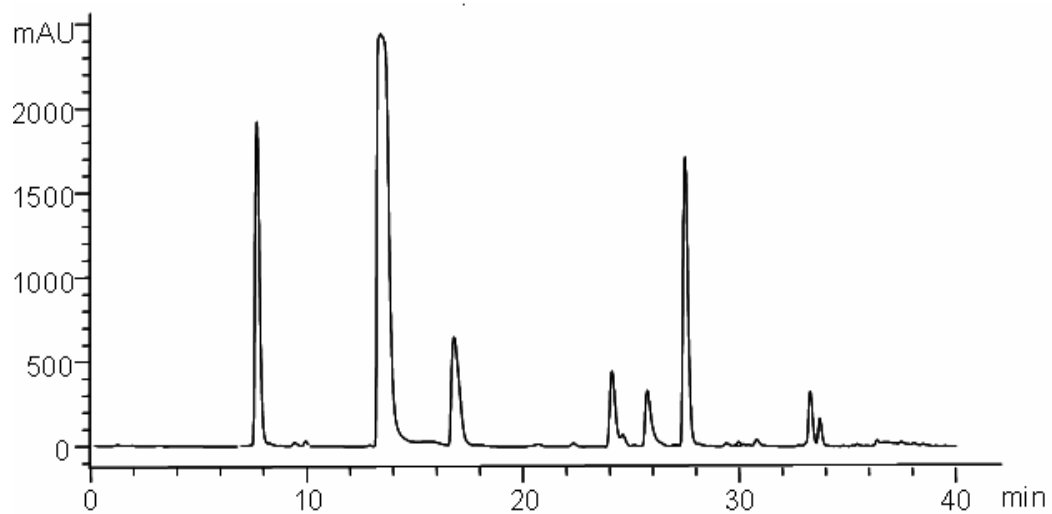
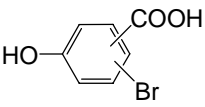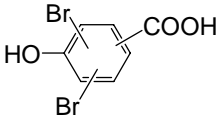**Fig. 3S** LC spectrum of cleaved products of $COOH_{5.5}OPS$
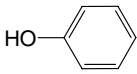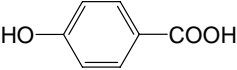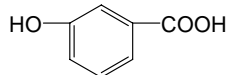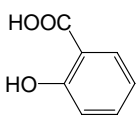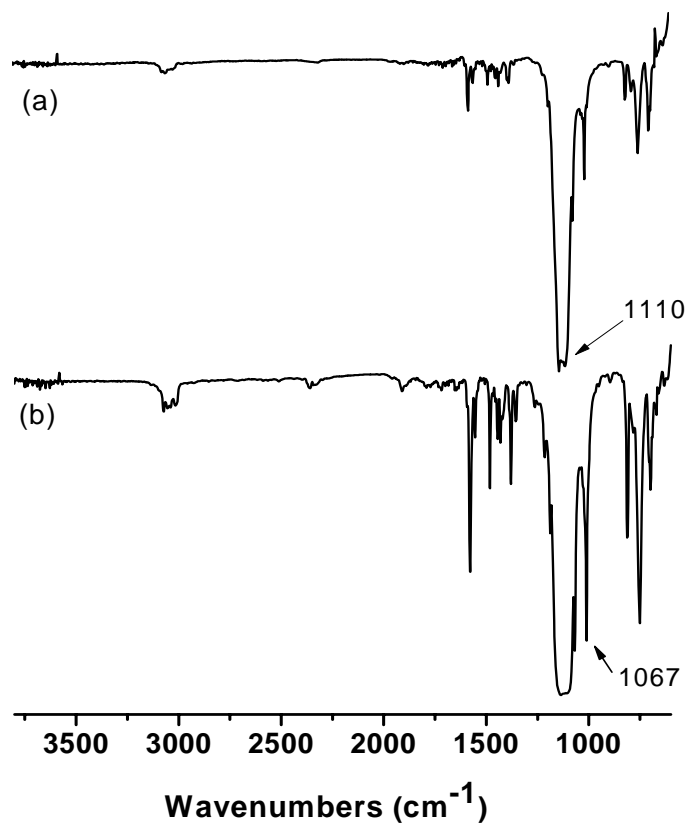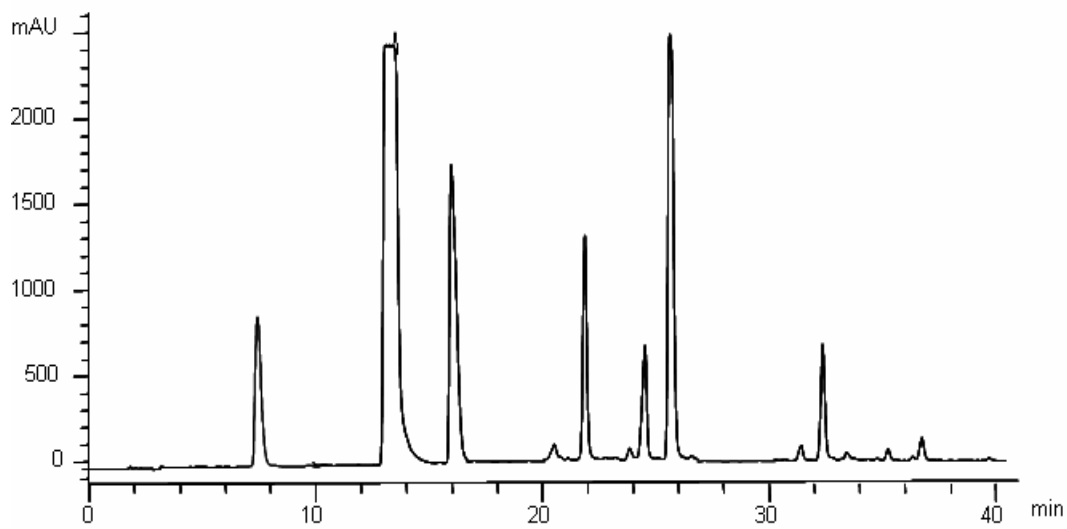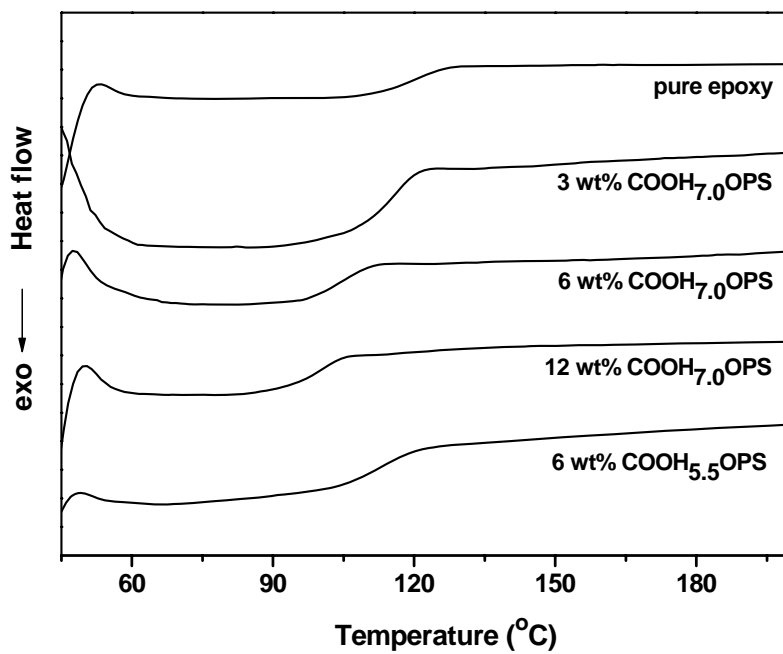
Fig. 4S   LC spectrum of cleaved products of $COOH_{5.5}OPS$

Fig. 5S DSC curves of epoxy resins with different content of polycarboxyl-OPS