Supporting Information

Dynamic covalent bonds and metal coordination bonds crosslinked silicone elastomers with excellent mechanical and aggregation-induced emission properties

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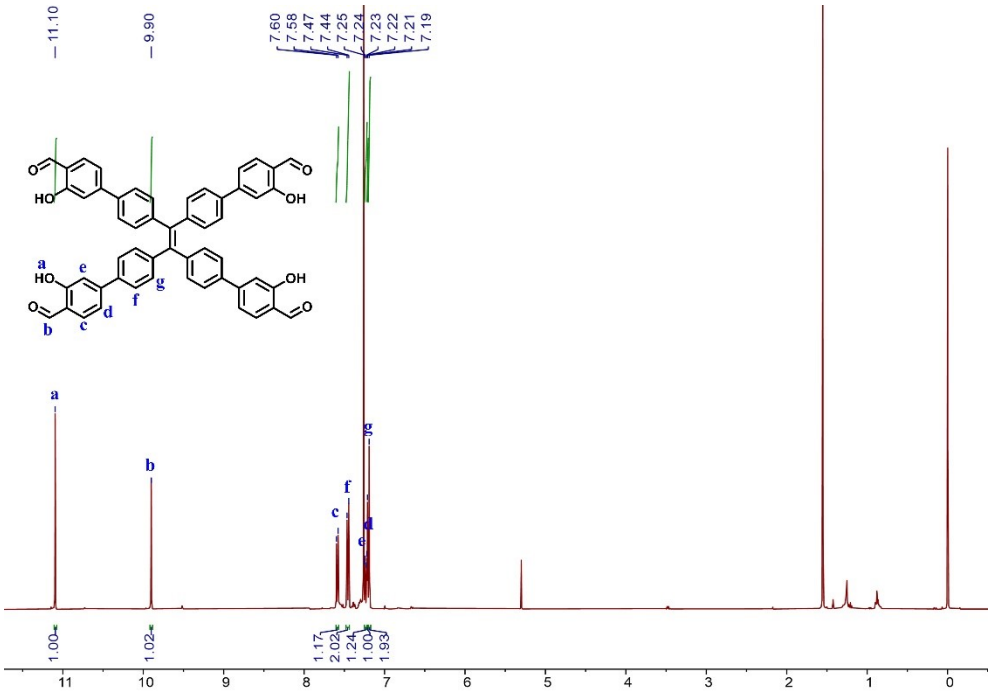

Figure S1. ^{1}H NMR spectrum (400 MHz, $CDCl_3$, 298 K) of **TPE-1**.

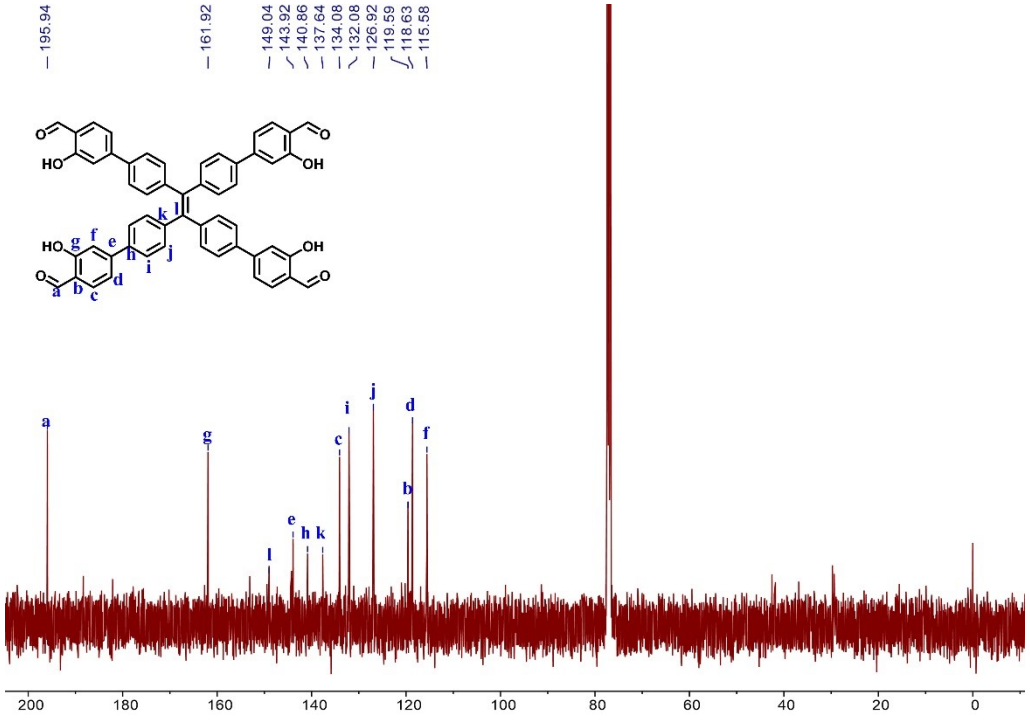

Figure S2. ^{13}C NMR spectrum (100 MHz, $CDCl_3$, 298 K) of **TPE-1**.

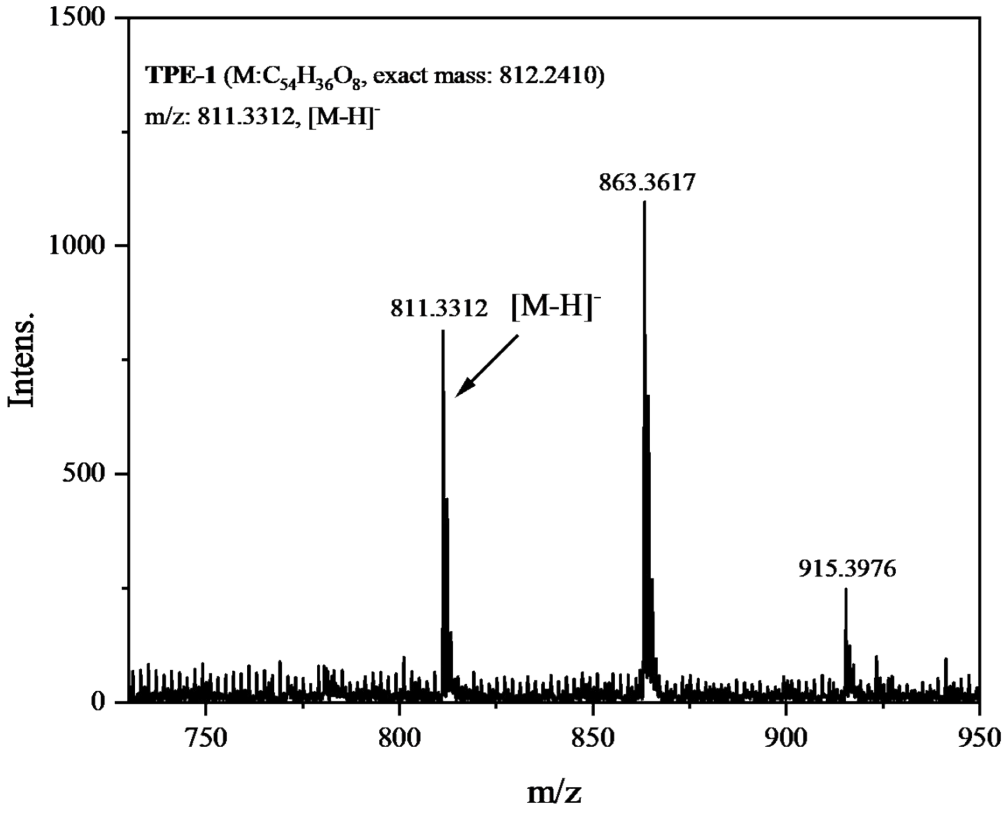

Figure S3. ESI-MS spectra of **TPE-1**.

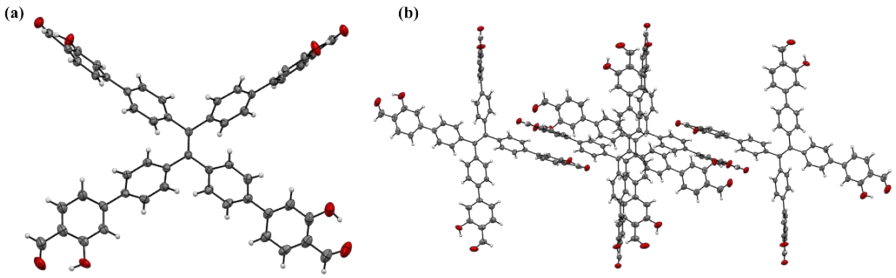

Figure S4. X-ray crystal structure (a) and the packing diagrams (b) of **TPE-1**.

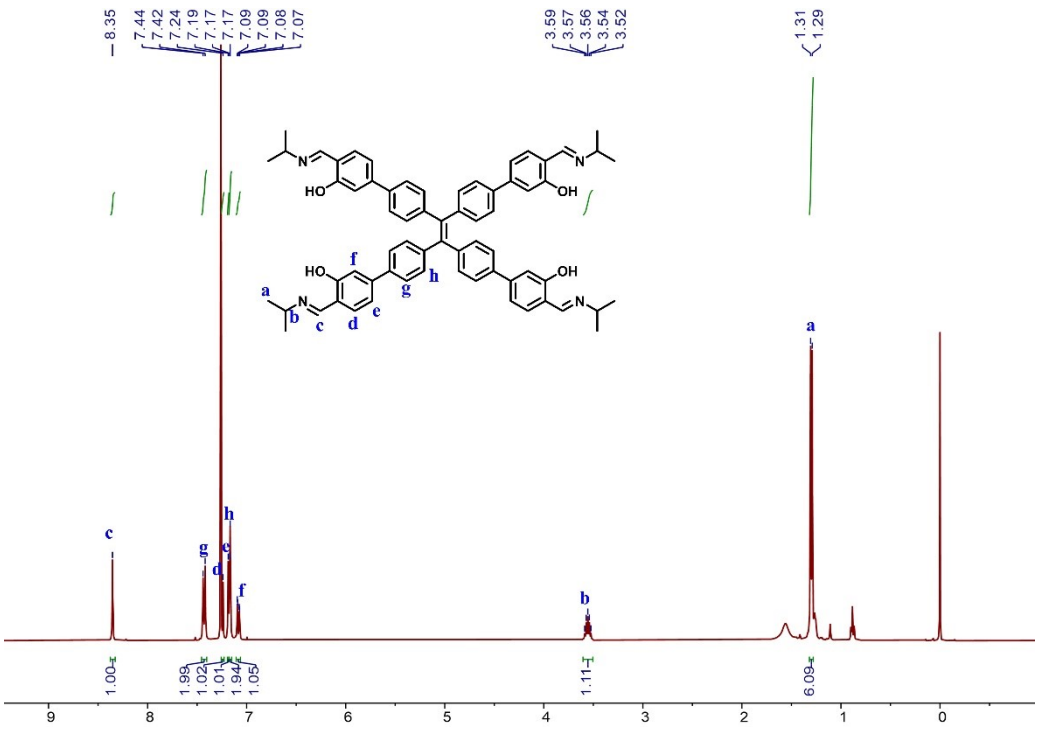

Figure S5. ^{1}H NMR spectrum (400 MHz, $CDCl_3$, 298 K) of **TPE-2**.

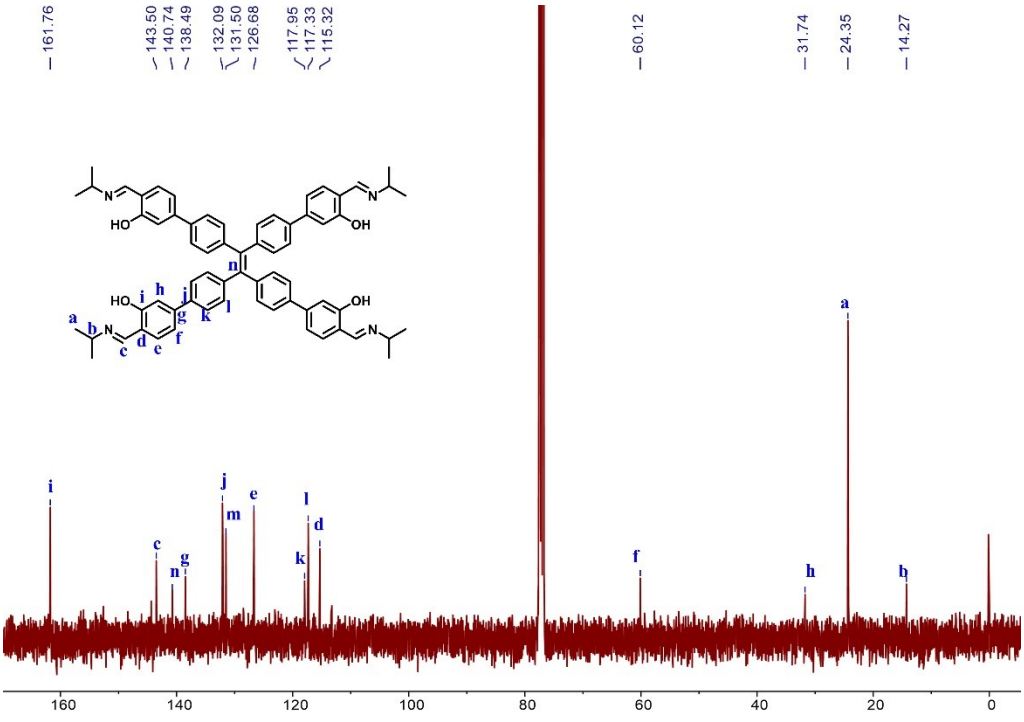

Figure S6. ^{13}C NMR spectrum (100 MHz, $CDCl_3$, 298 K) of **TPE-2**.

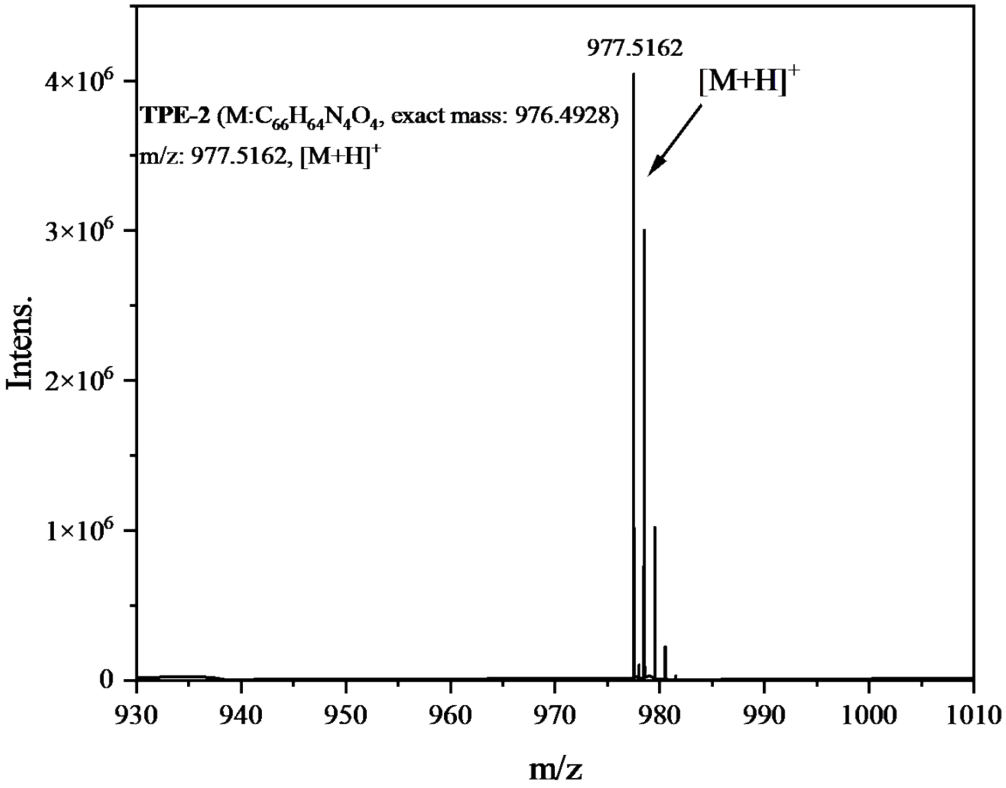

Figure S7. ESI-MS spectra of **TPE-2**.

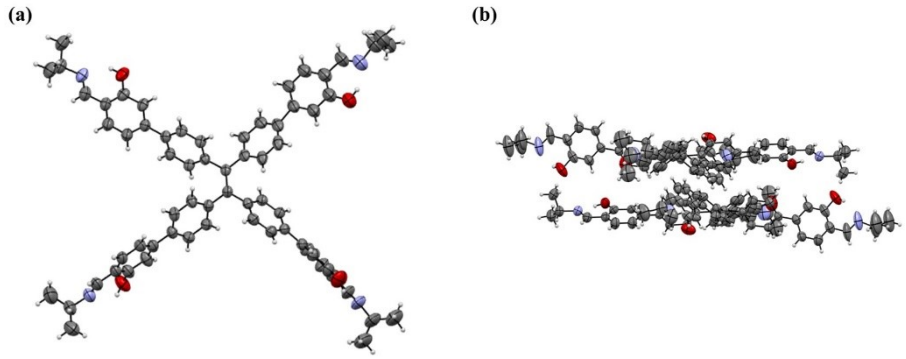

Figure S8. X-ray crystal structure (a) and the packing diagrams (b) of **TPE-2**.

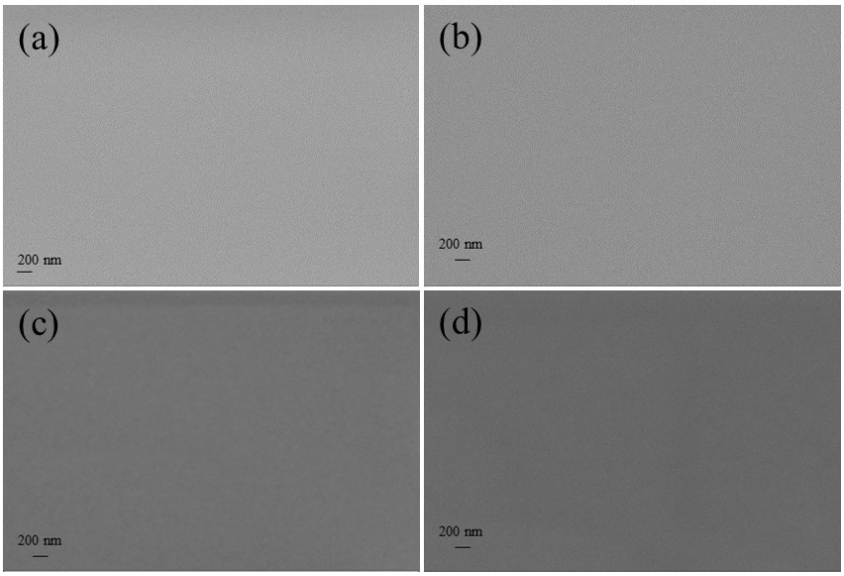

Figure S9. Selected SEM image of elastomer (a) **P-0**, (b) **P-Zn**, (c) **P-Cu**, (d) **P-Fe**.

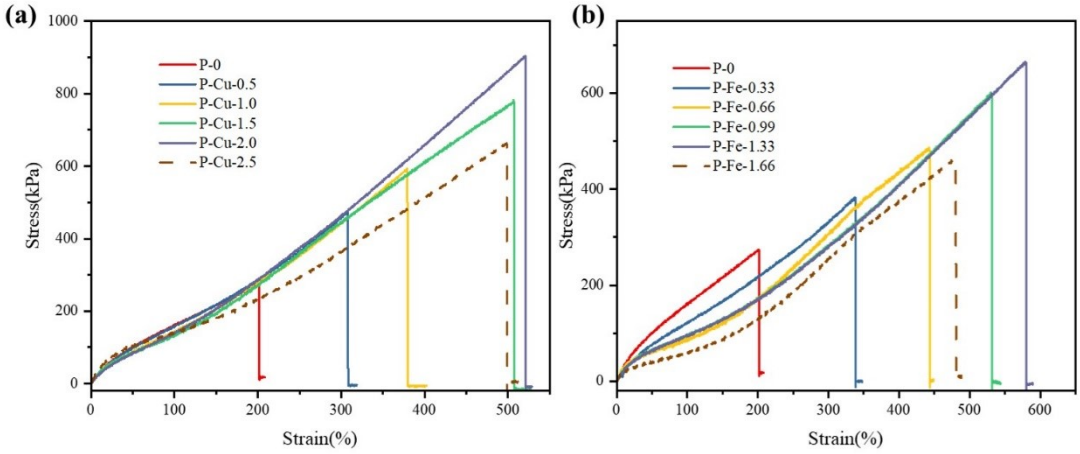

Figure S10. (a) Stress-strain curves of elastomers **P-Cu-x** with varying Cu^{2+}/**TPE-1** molar ratios; (b) Stress-strain curves of elastomers **P-Fe-x** with varying Fe^{3+}/**TPE-1** molar ratios.

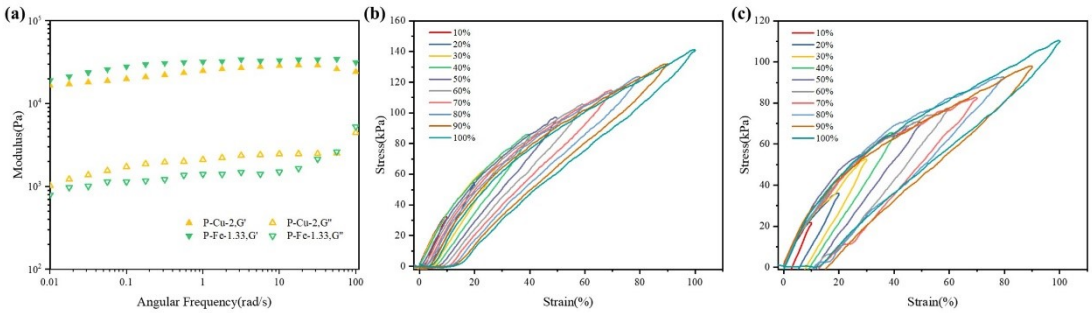

Figure S11. (a) G' and G'' of **P-Cu-2** and **P-Fe-1.33** at various frequencies.; (b) Consecutive cycling stress-strain curves for **P-Cu-2** from 10 to 100% without intervals; (c) Consecutive cycling stress-strain curves for **P-Fe-1.33** from 10 to 100% without intervals.

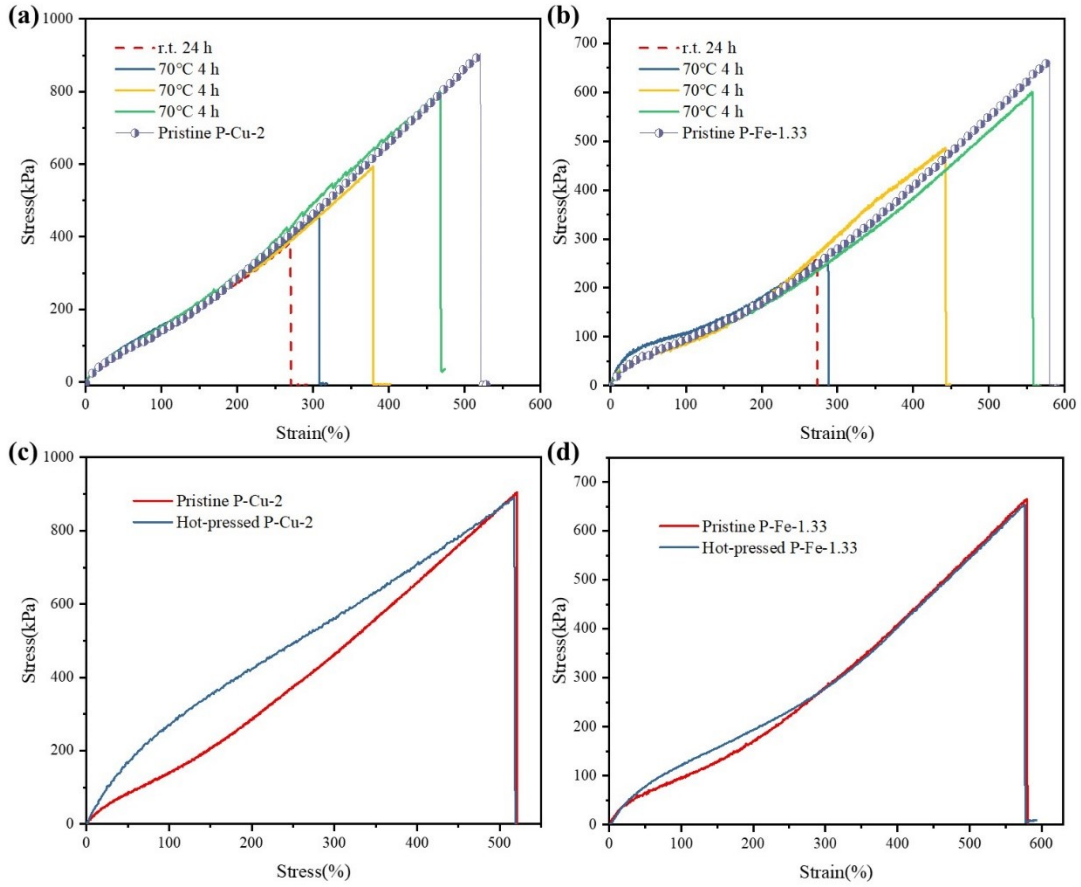

Figure S12. Tensile curves of **P-Cu-2** (a) and **P-Fe-1.33** (b) healed at room temperature and 70 °C for different times; Tensile stress tests of pristine and hot-pressed elastomers (c) **P-Cu-2** and (d) **P-Fe-1.33**.

Table S1. Crystallographic data$^{\alpha}$ for compounds **TPE-1** and **TPE-2.**

	TPE-1	**TPE-2**
formula	$C_{54}H_{36}O_8$	$C_{66}H_{64}N_4O_4$
FW	812.83	977.21
T, K	173	173
cryst. syst., space	Monoclinic	Triclinic
group	P1 21/n1	P -1
Z	4	2
a, Å	9.6319(7)	9.3439(11)
b, Å	26.669(2)	17.753(2)
c, Å	18.8824(15)	18.6225(18)

α, °	90	83.662(5)
β, °	94.412(3)	76.429(5)
γ, °	90	87.119(5)
V, Å^3	4835.9(6)	2983.5(6)
d_{calc}, g/cm^3	1.116	1.088
μ, mm^{-1}	0.605	0.528
F (000)	1696.0	1040.0
GOF on F^2	1.118	1.337
R1(ωR_2),% [I>2sigma(I)]^b	0.0974 (0.3085)	0.1073(0.3772)