

## **Supplementary information**

### **Catalysis of silver and bismuth in various epoxy resins**

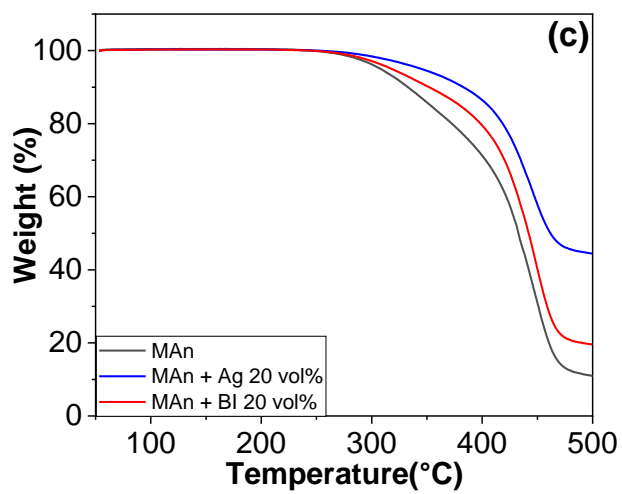
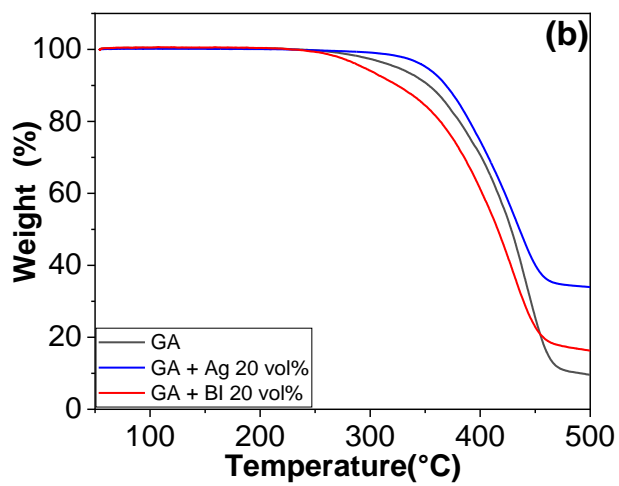
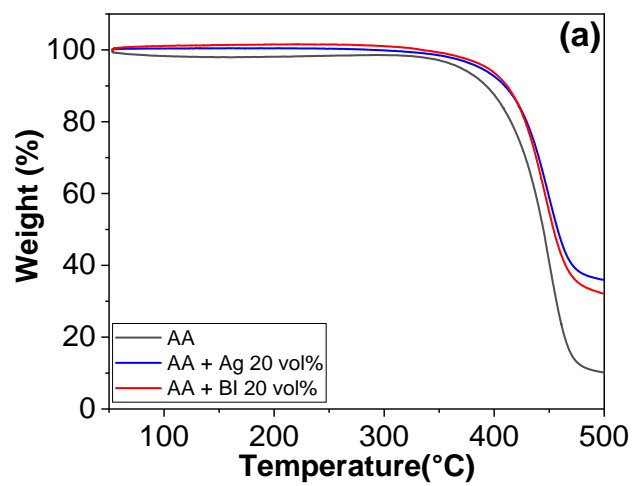
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Table S1. Mass of uncured and cured (150 °C) DGEBA-MAn with different Ag and Bi loadings

Curing time	0 min (g)	1 h (g)	24 h (g)
Pristine epoxy	2.359	2.355	2.351
Bi 5 vol%	2.403	2.391	2.388
Bi 20 vol%	2.590	2.512	2.491
Ag 5 vol%	2.421	2.413	2.381
Ag 20 vol%	2.411	2.409	2.406



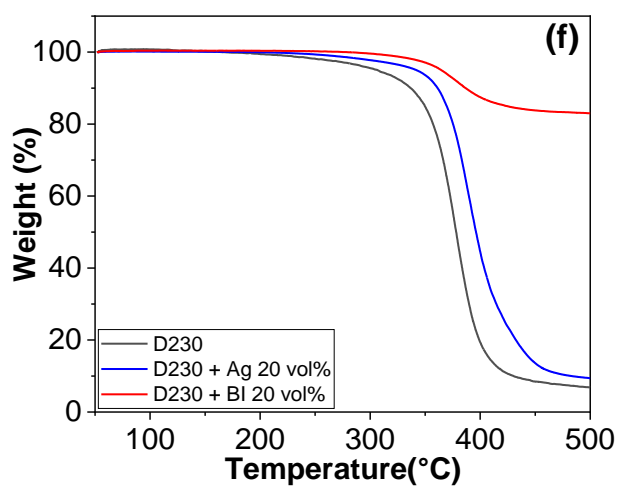
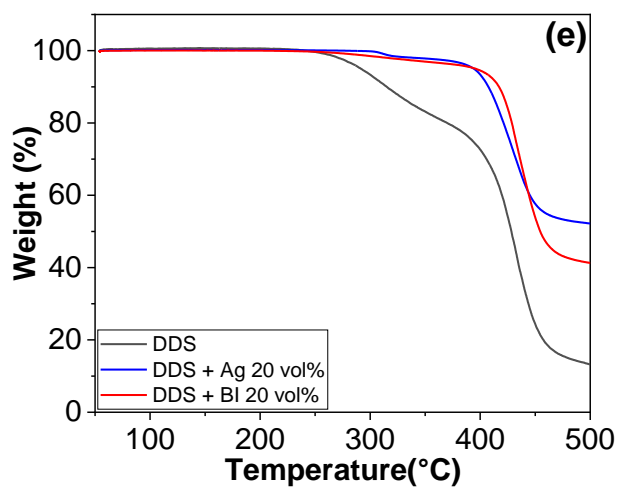
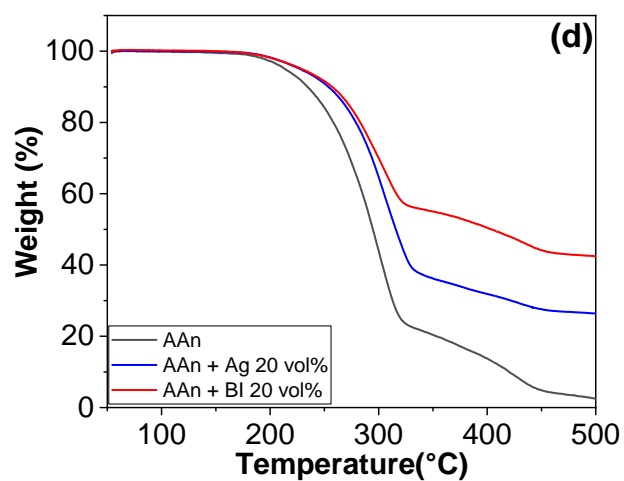
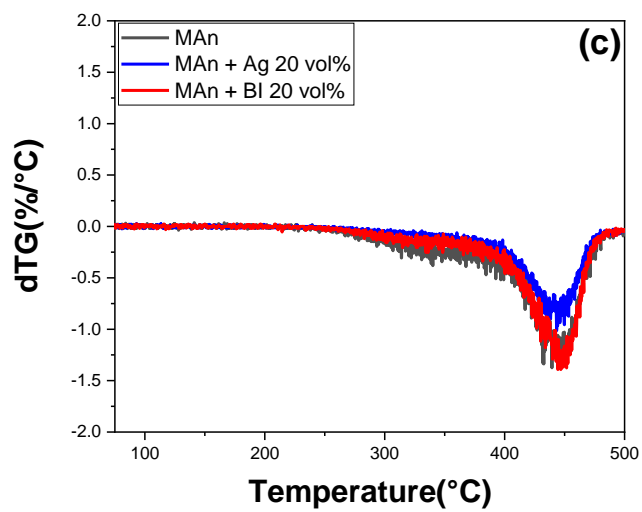
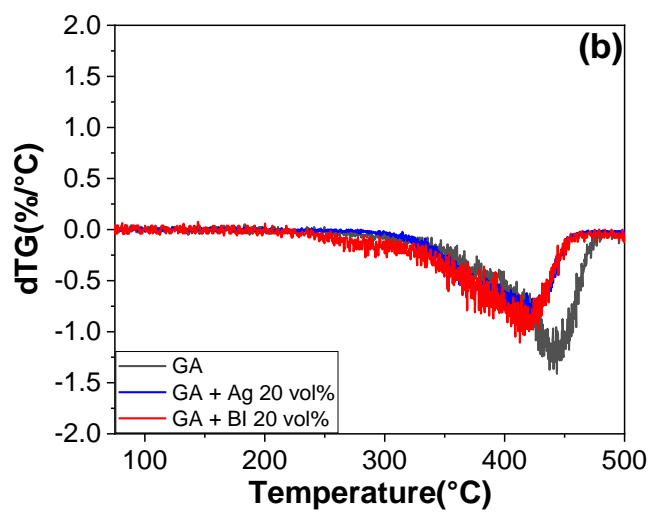
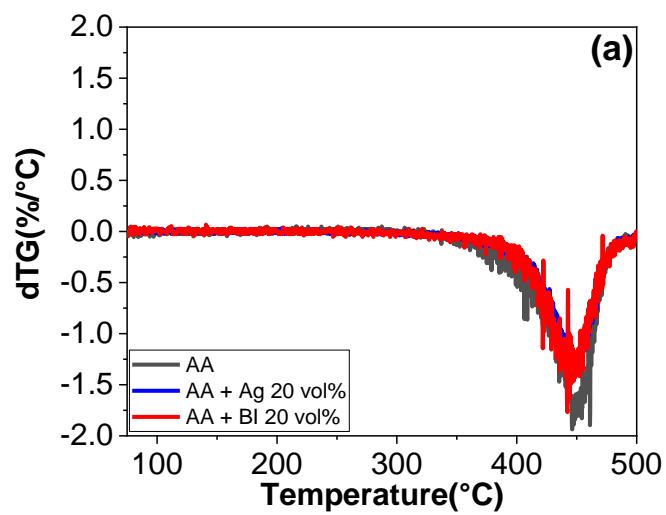


Figure S1. TGA graphs of pristine and metal-embedded cured epoxy resins with different curing agents: (a) AA, (b) GA, (c) MAn, (d) ACA, (e) DDS, and (c) D230.



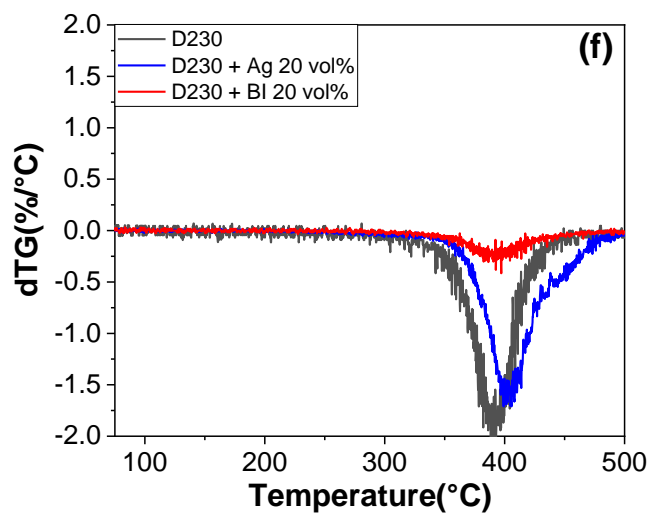
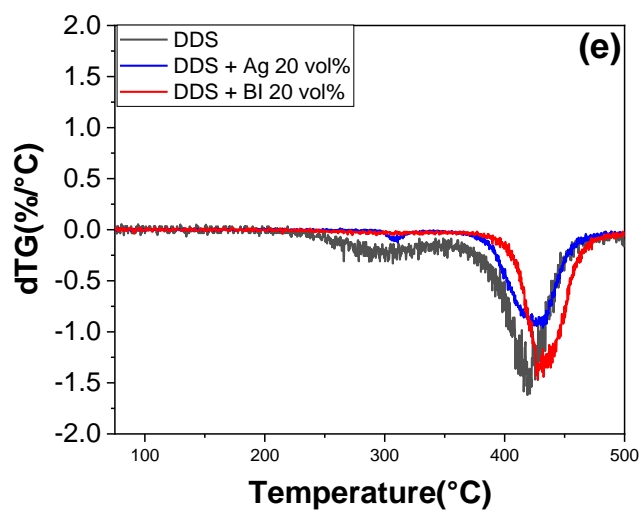
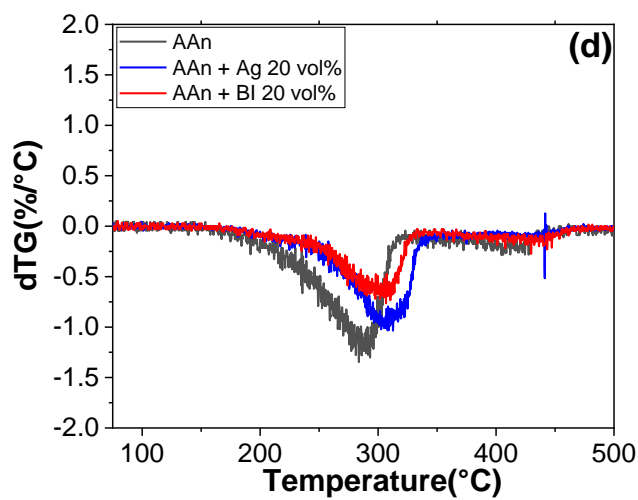


Figure S2. dTG graphs of pristine and metal-embedded cured epoxy resins with different curing agents: (a) AA, (b) GA, (c) MAn, (d) ACA, (e) DDS, and (c) D230.

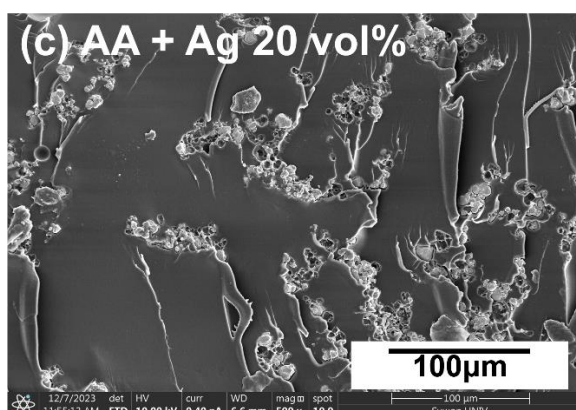
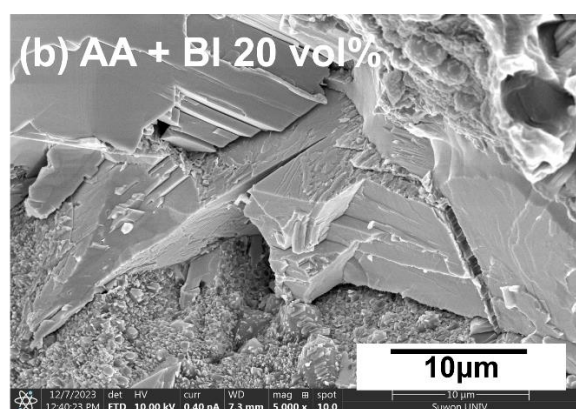
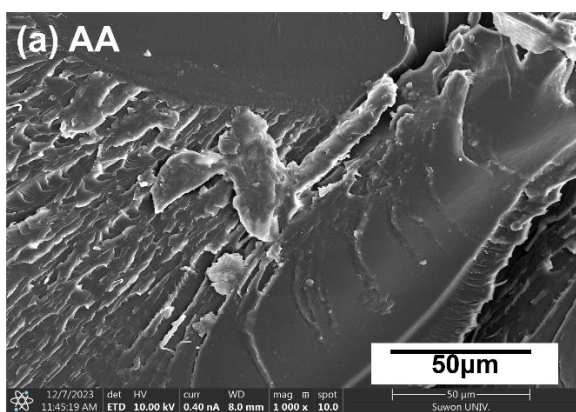


Figure S3. SEM images of fractured surfaces of DGEBA-AA systems with different metals: (a) None, (b) 20 vol% Bi, and (c) 20 vol% Ag.

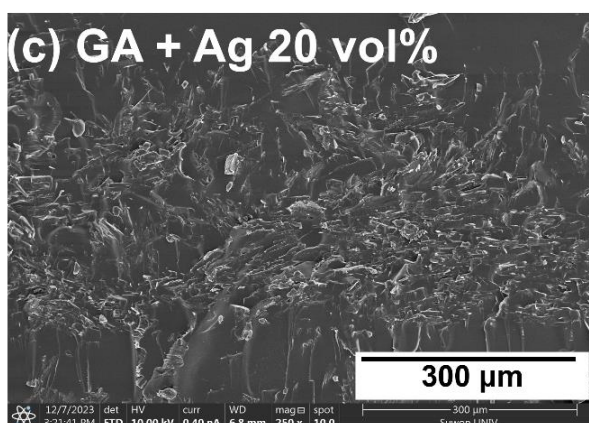
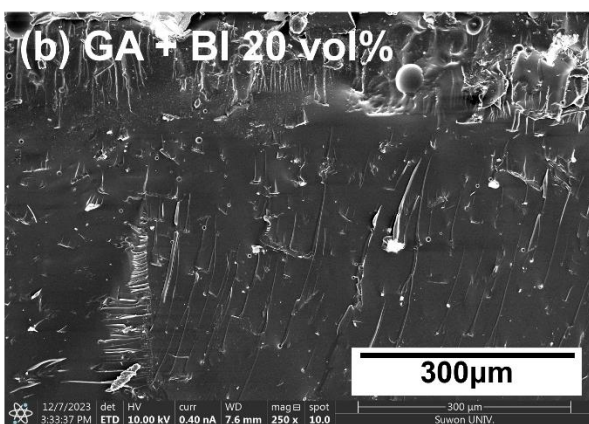
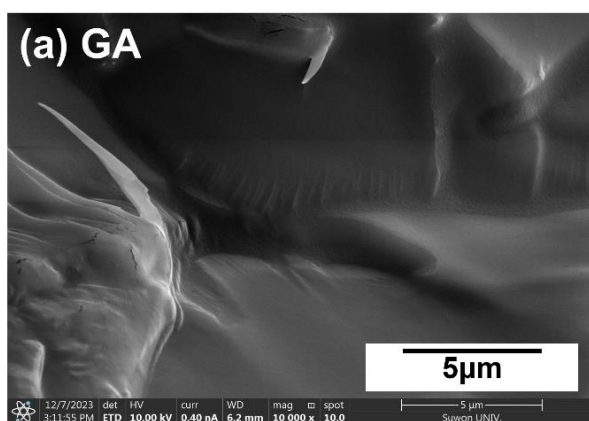


Figure S4. SEM images of fractured surfaces of DGEBA-GA systems with different metals: (a) None, (b) 20 vol% Bi, and (c) 20 vol% Ag.



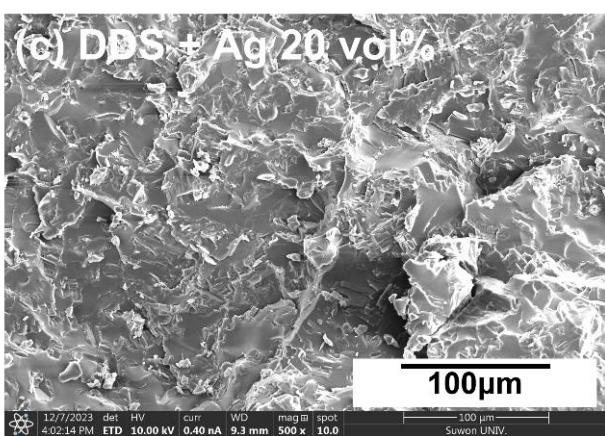
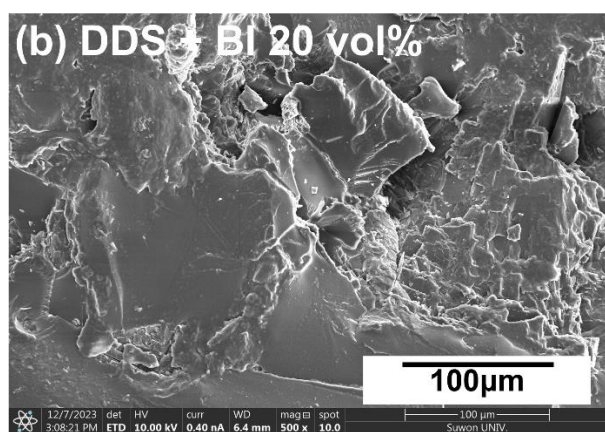
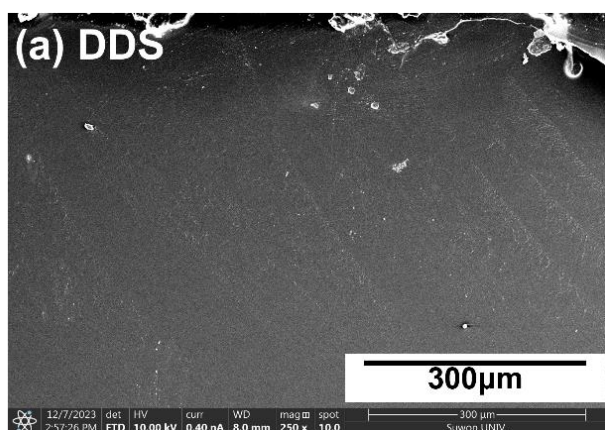


Figure S5. SEM images of fractured surfaces of DGEBA-DDS systems with different metals: (a) None, (b) 20 vol% Bi, and (c) 20 vol% Ag.

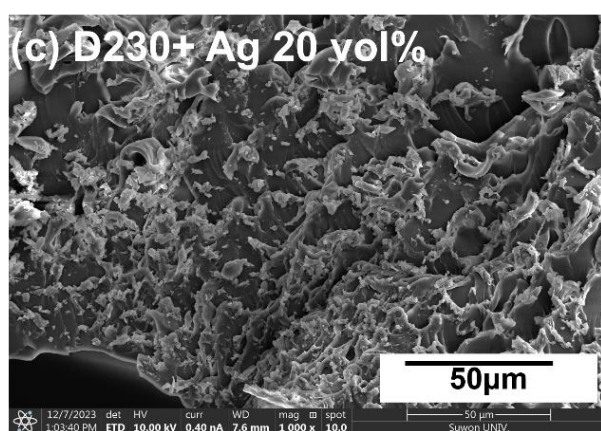
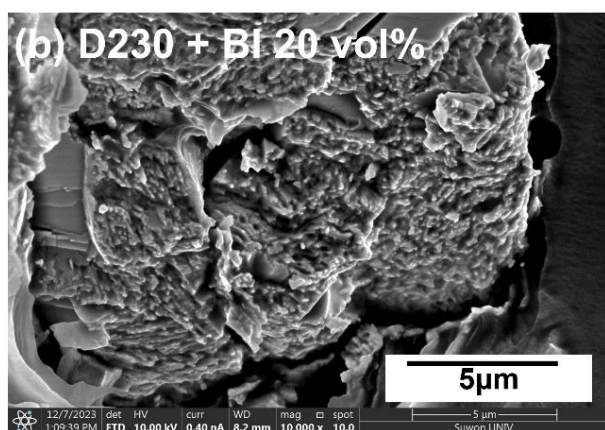
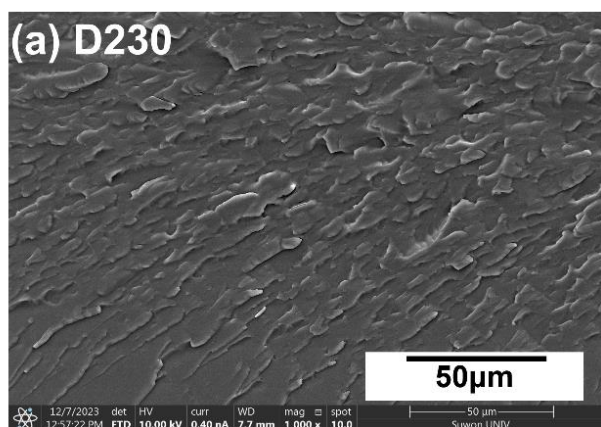


Figure S6. SEM images of fractured surfaces of DGEBA-D230 systems with different metals: (a) None, (b) 20 vol% Bi, and (c) 20 vol% Ag.

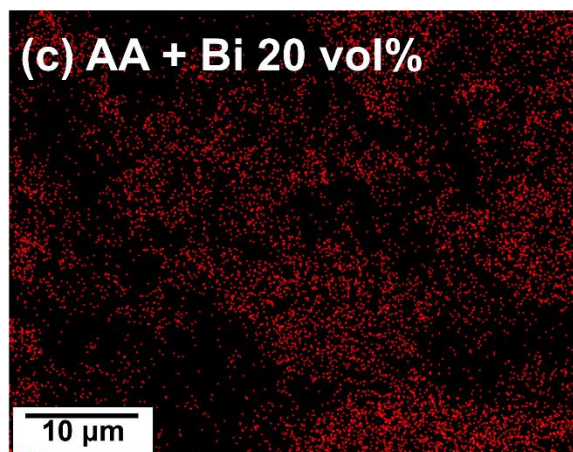
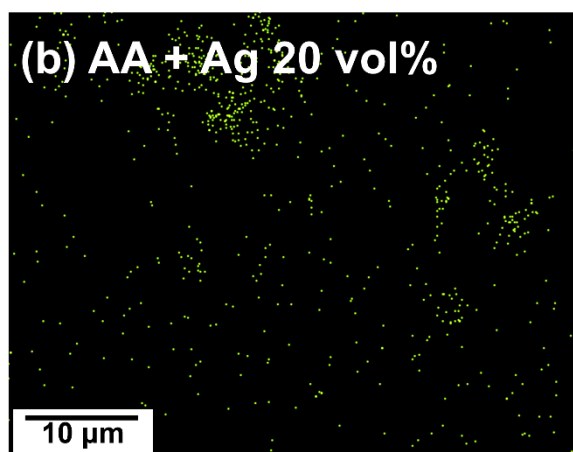
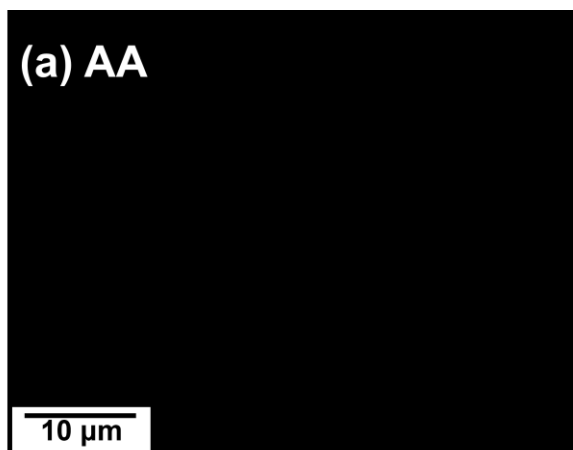


Figure S7. SEM-EDS images of fractured surfaces of DGEBA-AA systems with different metals: (a) None, (b) 20 vol% Bi, and (c) 20 vol% Ag.

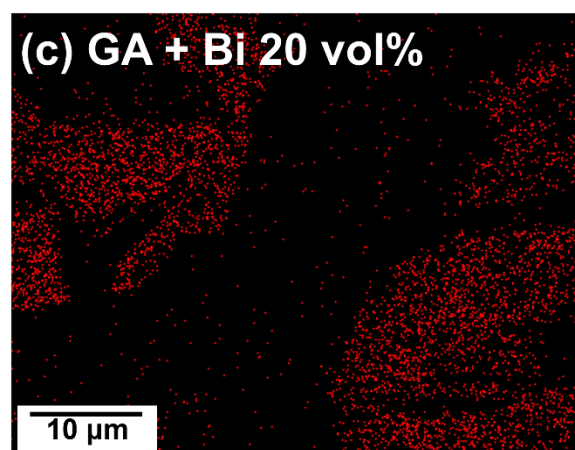
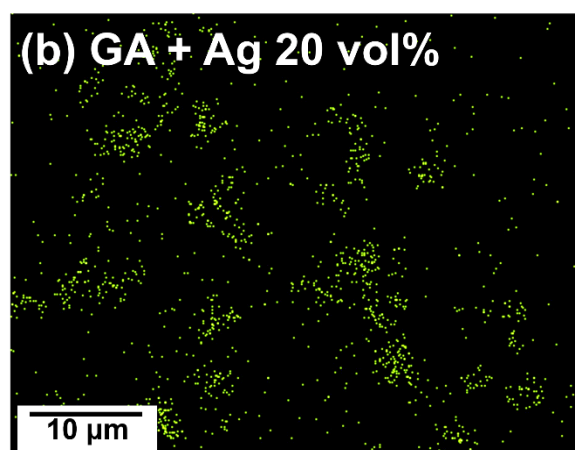
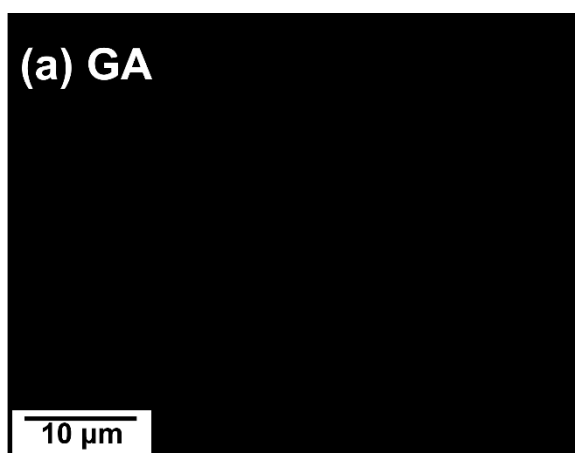


Figure S8. SEM-EDS images of fractured surfaces of DGEBA-GA systems with different metals: (a) None, (b) 20 vol% Bi, and (c) 20 vol% Ag.

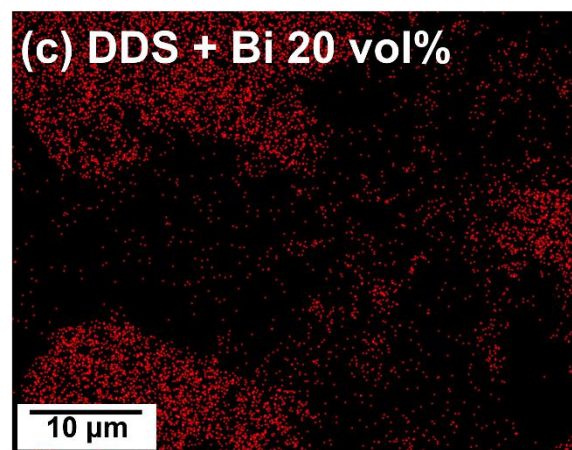
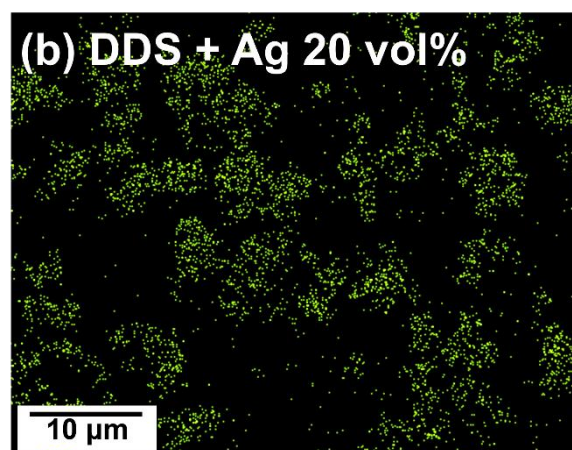
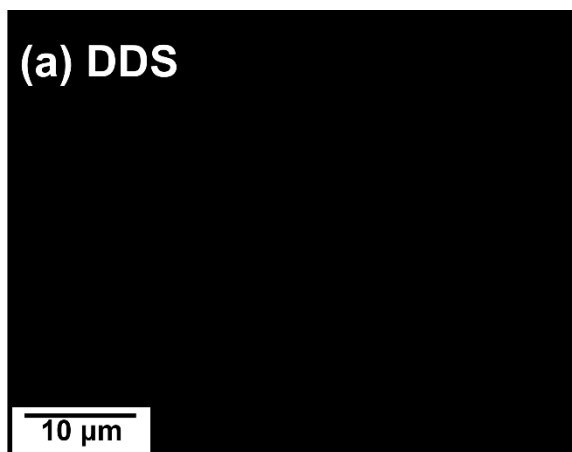


Figure S9. SEM-EDS images of fractured surfaces of DGEBA-DDS systems with different metals: (a) None, (b) 20 vol% Bi, and (c) 20 vol% Ag.



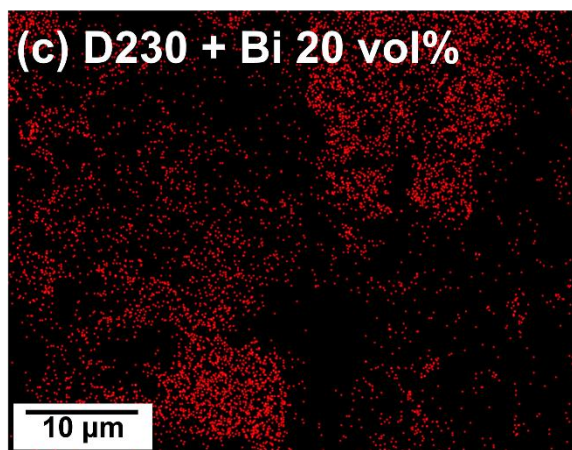
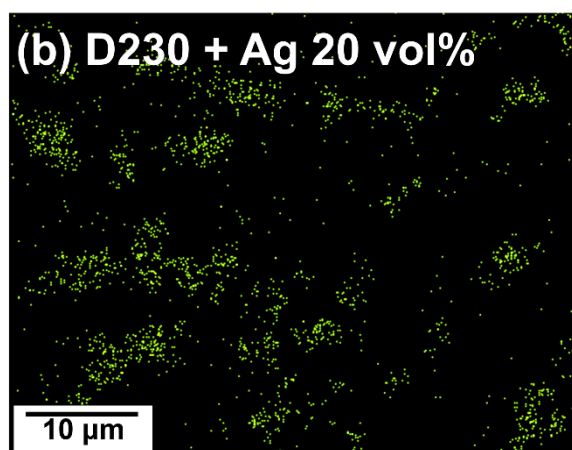
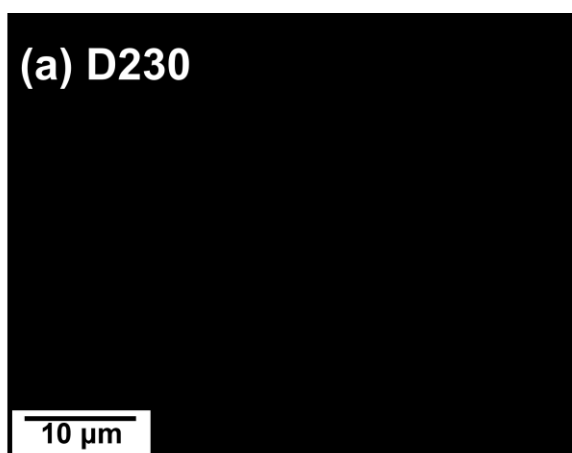


Figure S10. SEM-EDS images of fractured surfaces of DGEBA-D230 systems with different metals: (a) None, (b) 20 vol% Bi, and (c) 20 vol% Ag.

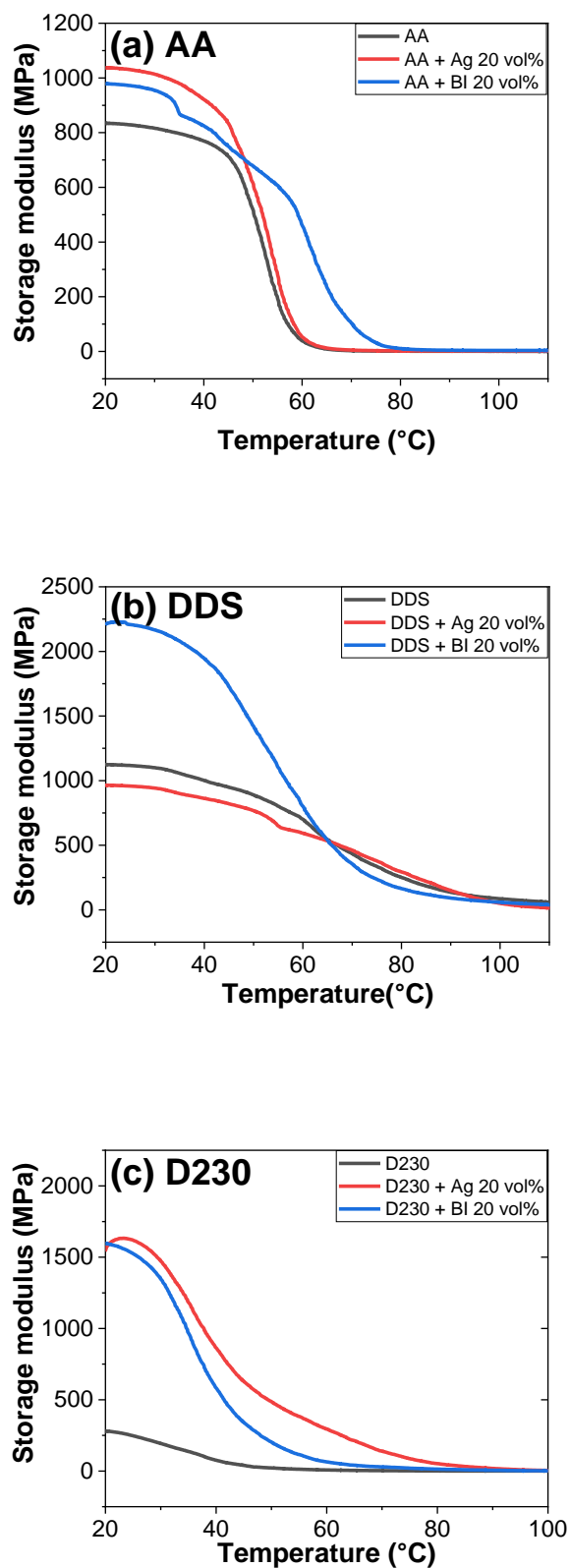


Figure S11. Storage moduli of DGEBA-hardener systems with 20 vol% metal and different hardeners, measured by DMA: (a) AA, (b) DDS, and (c) D230.

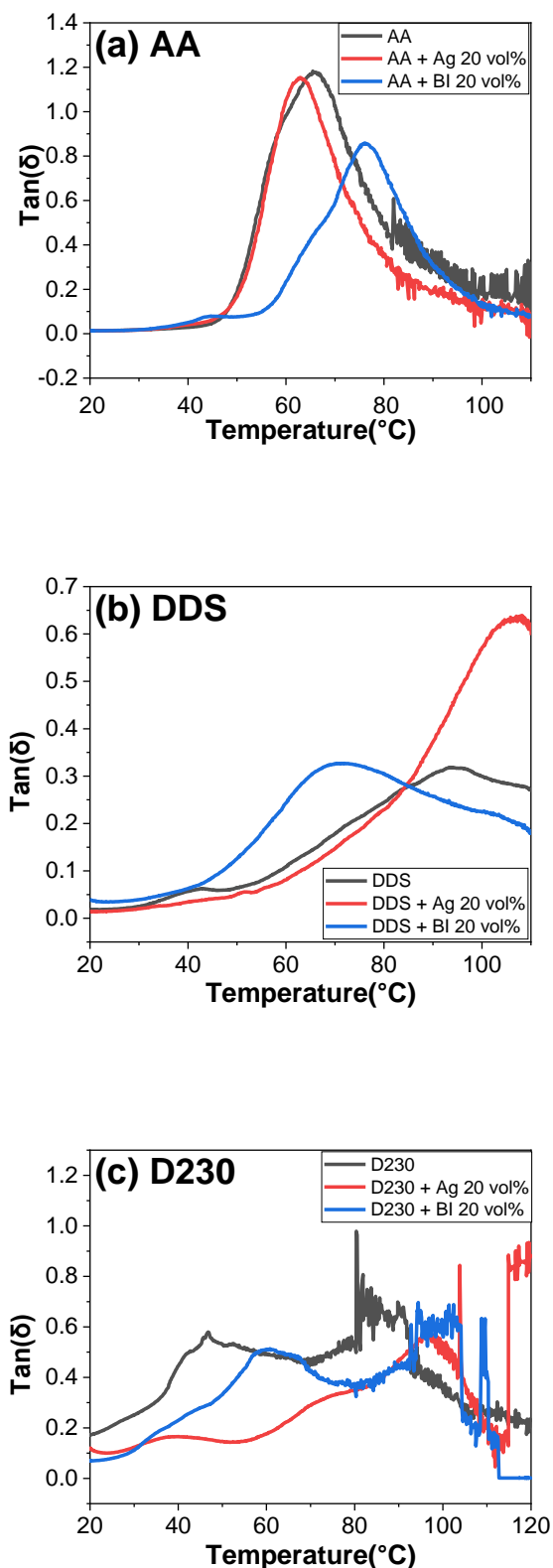


Figure S12. Tan  $\delta$  of DGEBA-hardener systems with 20 vol% metal and different hardeners, measured by DMA: (a) AA, (b) DDS, and (c) D230.