Supplementary information

Polyoxometalate-Ionic Liquids (POM-ILs) - a new type of ionic liquids for lubricants

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Supplementary information

1- Friction evolution of the different lubricant blends

1.1 - DPG

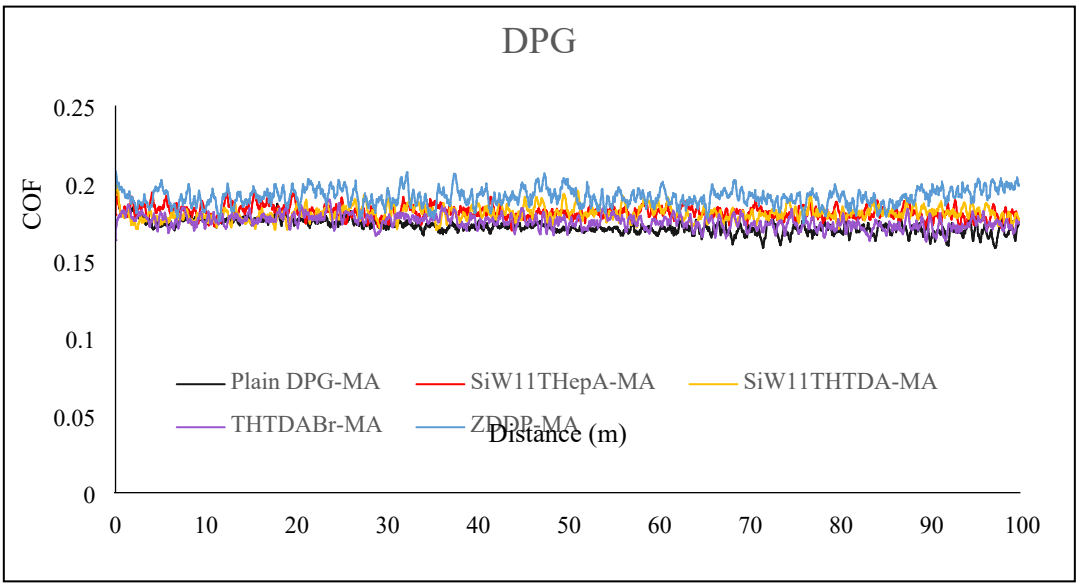


Figure S1. Friction evolution behaviour of different additives in DPG as well as plain DPG.

1.2 - DEG

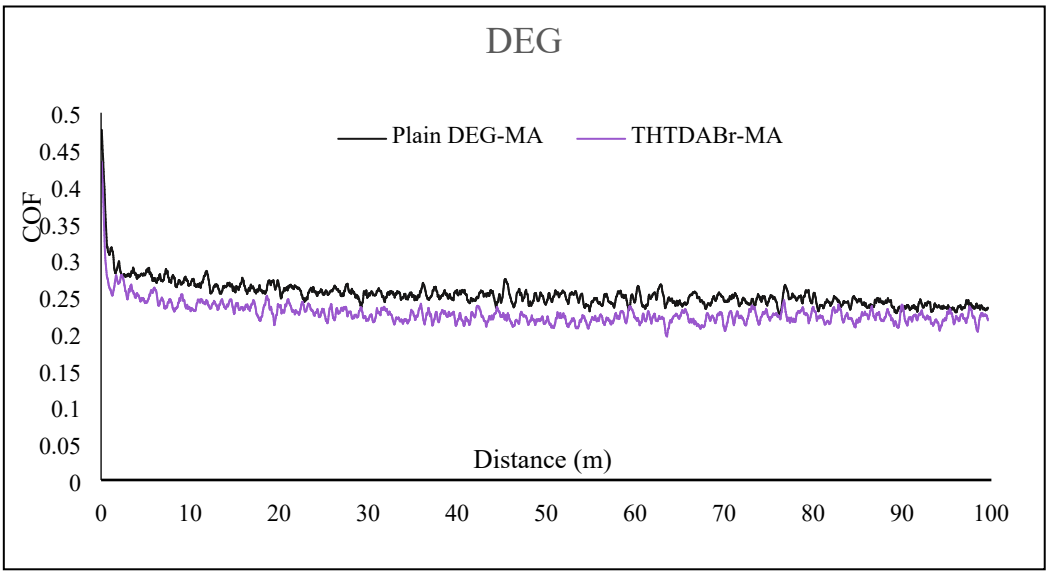


Figure S2. Friction evolution behaviour of different additives in DEG as well as plain DEG.

Supplementary information

1.3 - DhL 4016

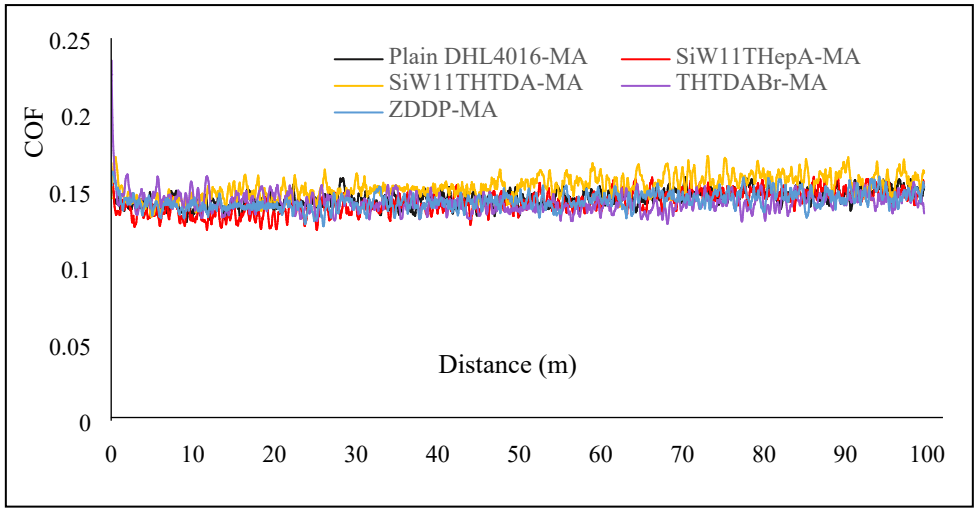


Figure S3. Friction evolution behaviour of different additives in DhL 4016 as well as plain DhL 4016.

1.4 - DhL 4018

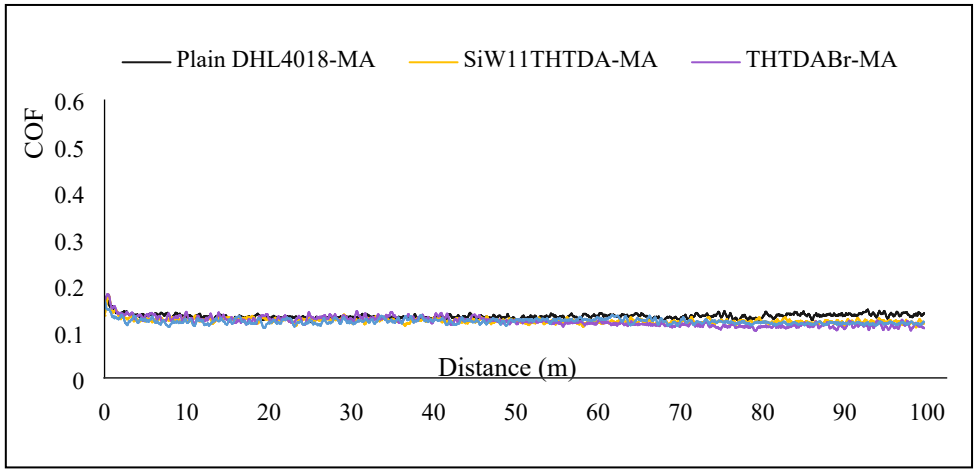


Figure S4. Friction evolution behaviour of different additives in DhL 4018 as well as plain DhL 4018.

1.5 - PAO 8

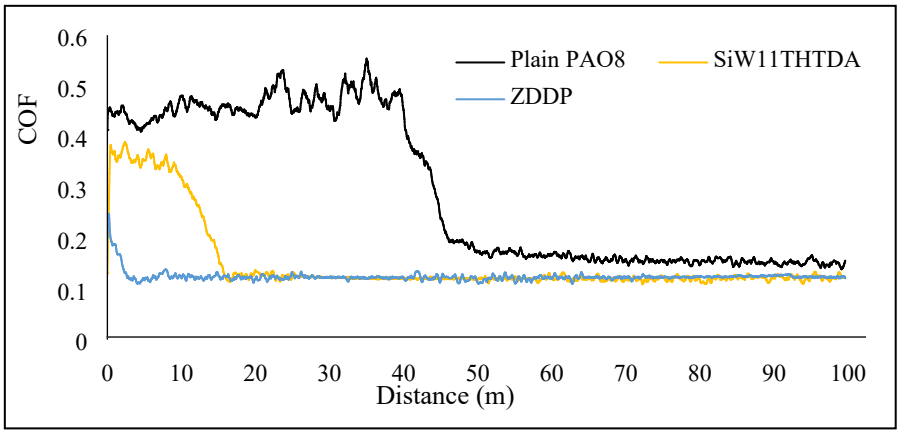
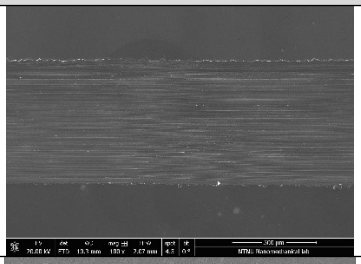
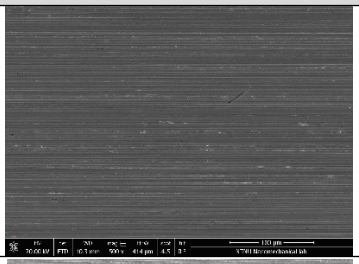
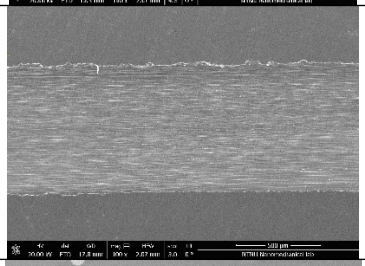
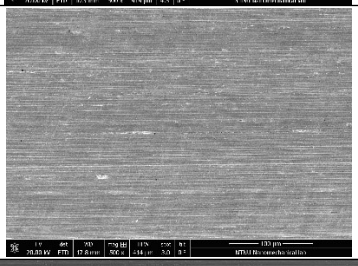
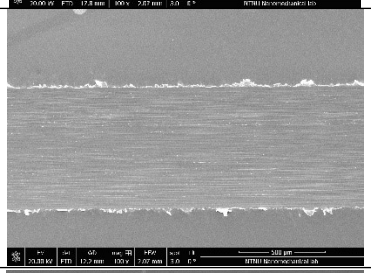
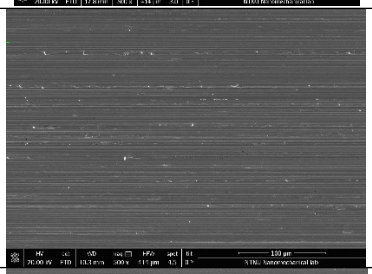
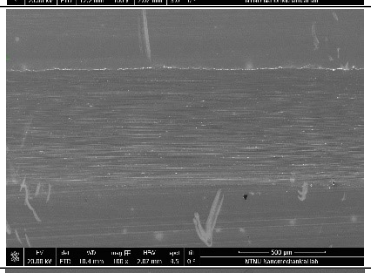
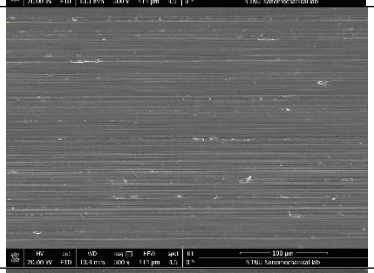
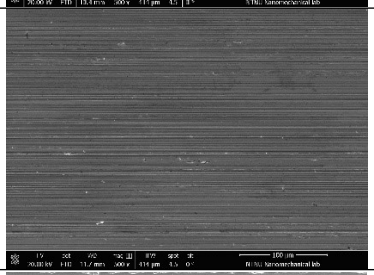
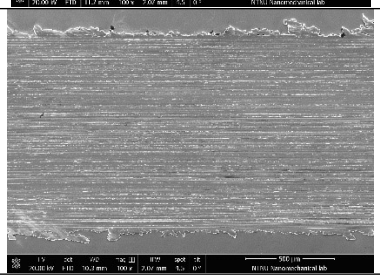
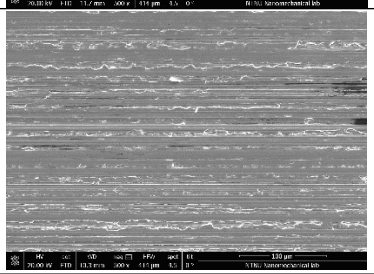


Figure S5. Friction evolution behaviour of different additives in PAO 8 as well as plain PAO 8.

Supplementary information

2- Top view SEM images the different blends tested on AISI 316L

Table S1. SEM images of the wear track surface on the AISI 316L stainless steel discs for all the different lubricant blends tested at both 100 and 500 magnification.

Lubricant blend	x100	x500
SiW11THTDA in DPG		
SiW11ThepA in DPG		
THTDABr in DPG		
ZDDP in DPG		
Plain DPG		
THTDABr in DEG		

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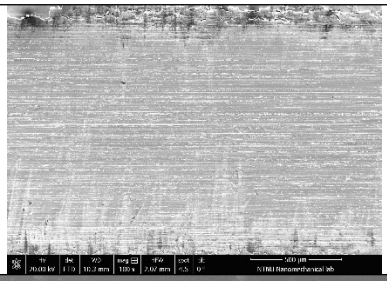
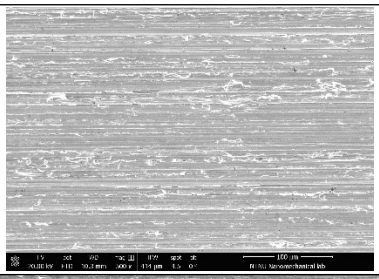
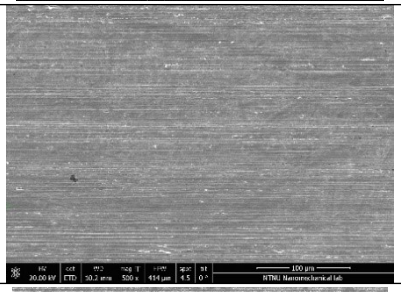
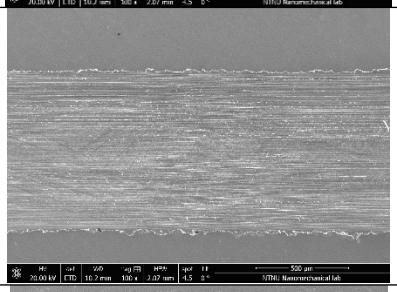
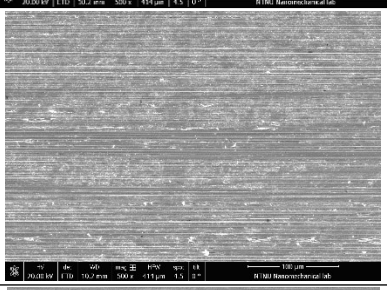
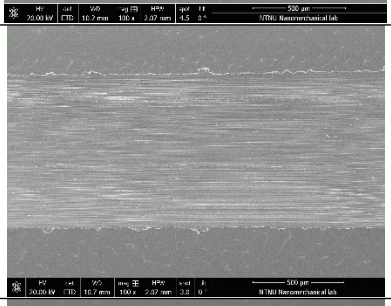
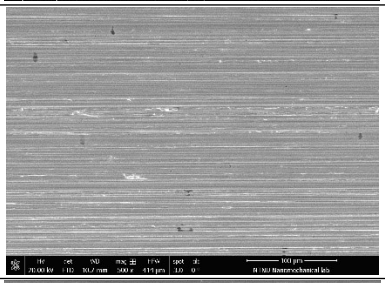
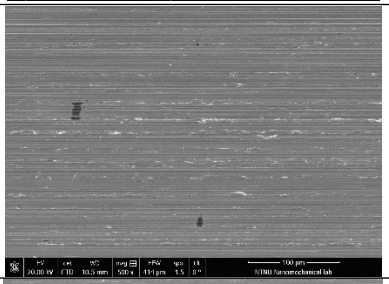
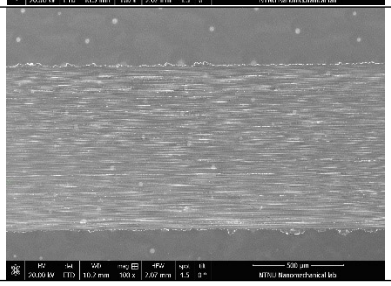
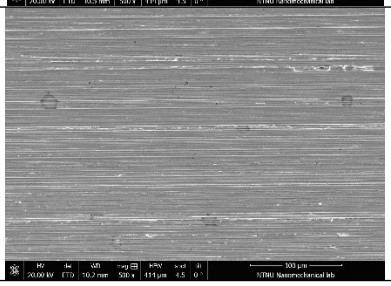
Plain DEG		
SiW11THTDA in DhL4016		
SiW11ThepA in DhL4016		
THTDABr in DhL4016		
ZDDP in DhL4016		
Plain DhL4016		

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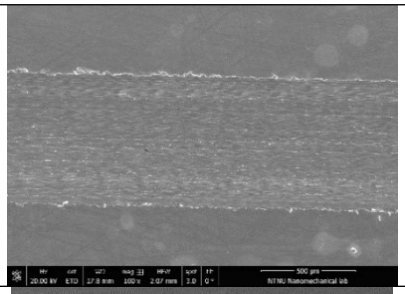
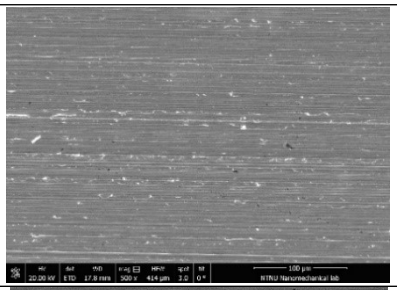
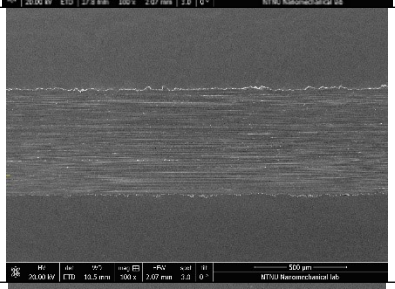
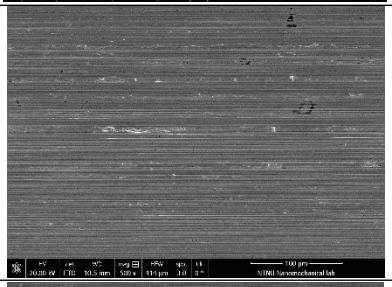
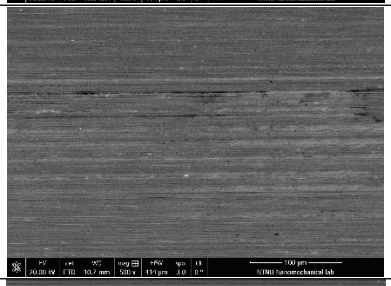
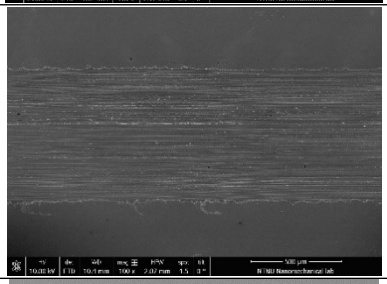
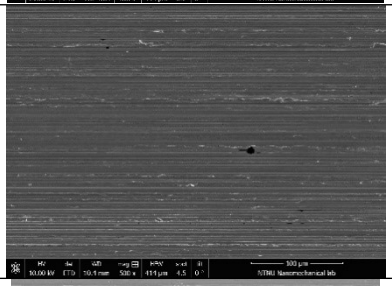
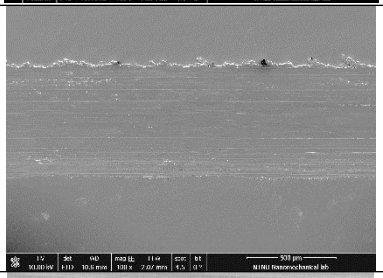
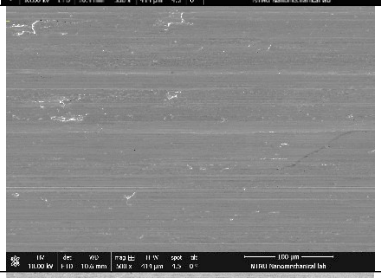
SiW11THTDA in DhL4018		
THTDABr in DhL4018		
ZDDP in DhL4018		
Plain DhL4018		
SiW11THTDA in PAO8		
ZDDP in PAO8		

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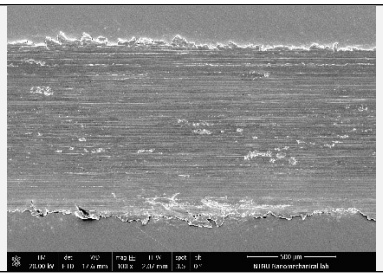
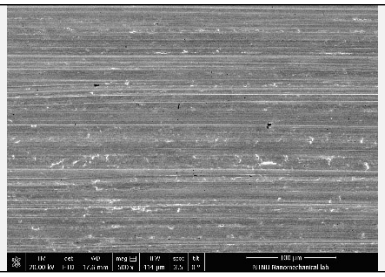
Plain PAO8		

Supplementary information

All EDS mapping

1- SiW11THTDA at 1% in PAO8

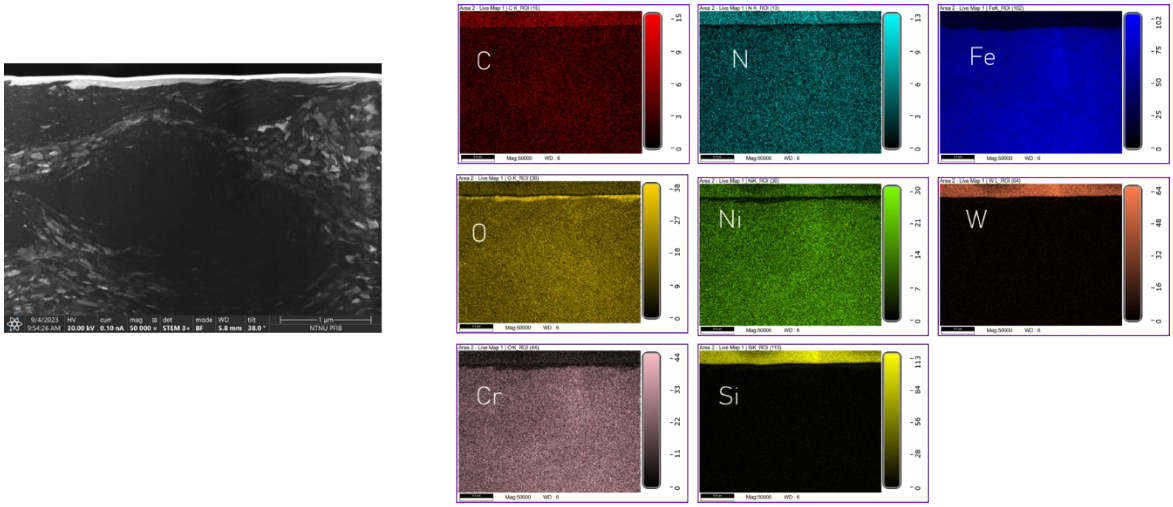


Figure S6. EDS mapping for different elements.

2- ZDDP at 1% in PAO8

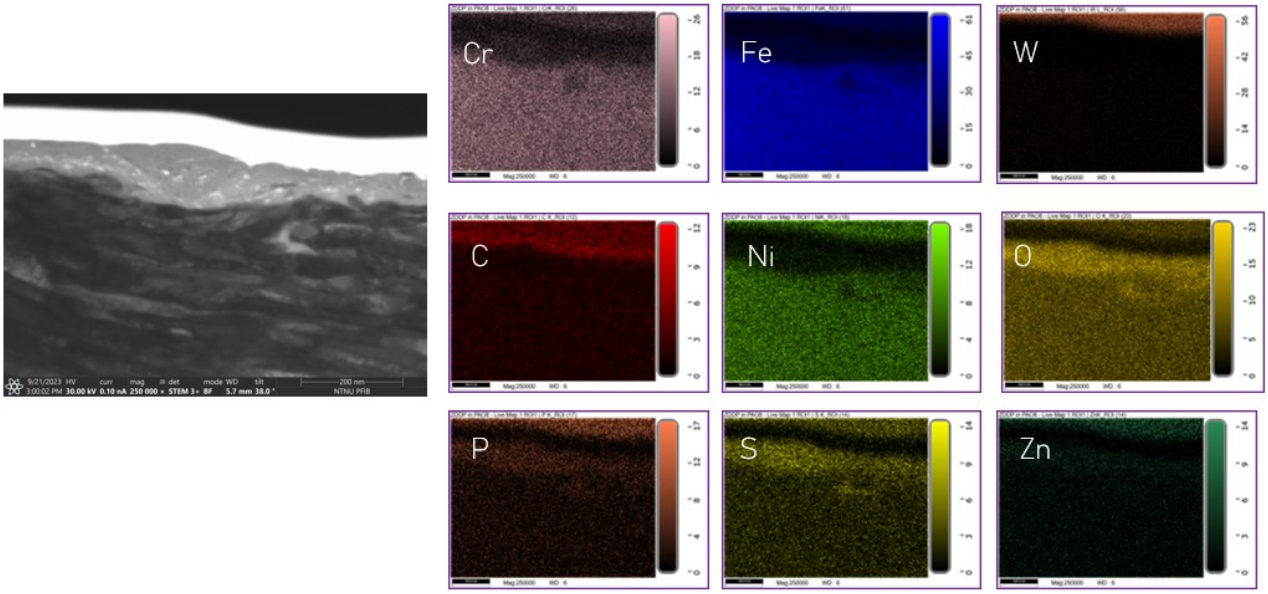


Figure S7. EDS mapping for different elements.

Supplementary information

TGA:

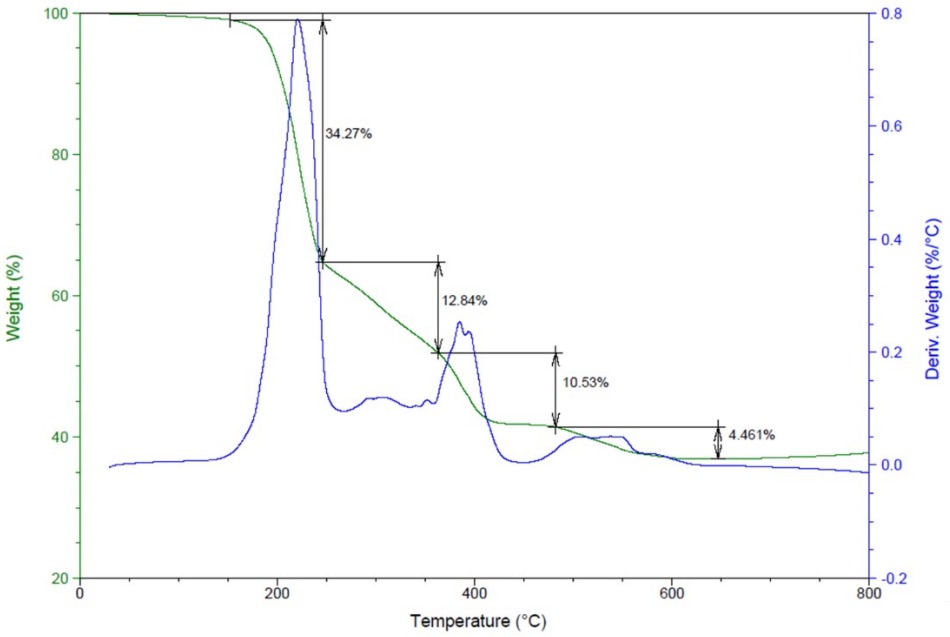


Figure S8. TGA analysis of SiW_{11}THTDA