

Electronic Supporting Information

Ready-to-use Graphene Related Materials added multi-grade oils: Characterization and performance in car engine working conditions

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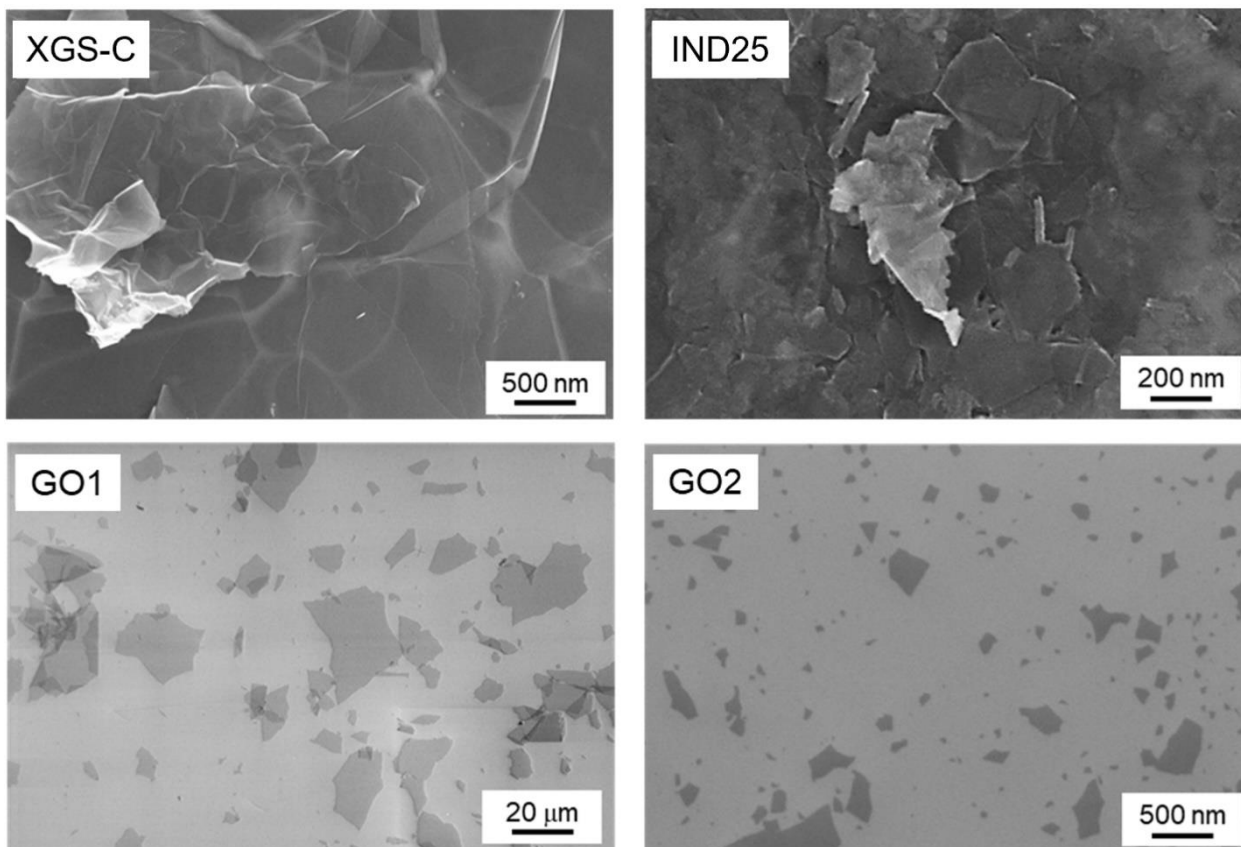


Figure S1. SEM images of GRM samples deposited on silicon wafers.

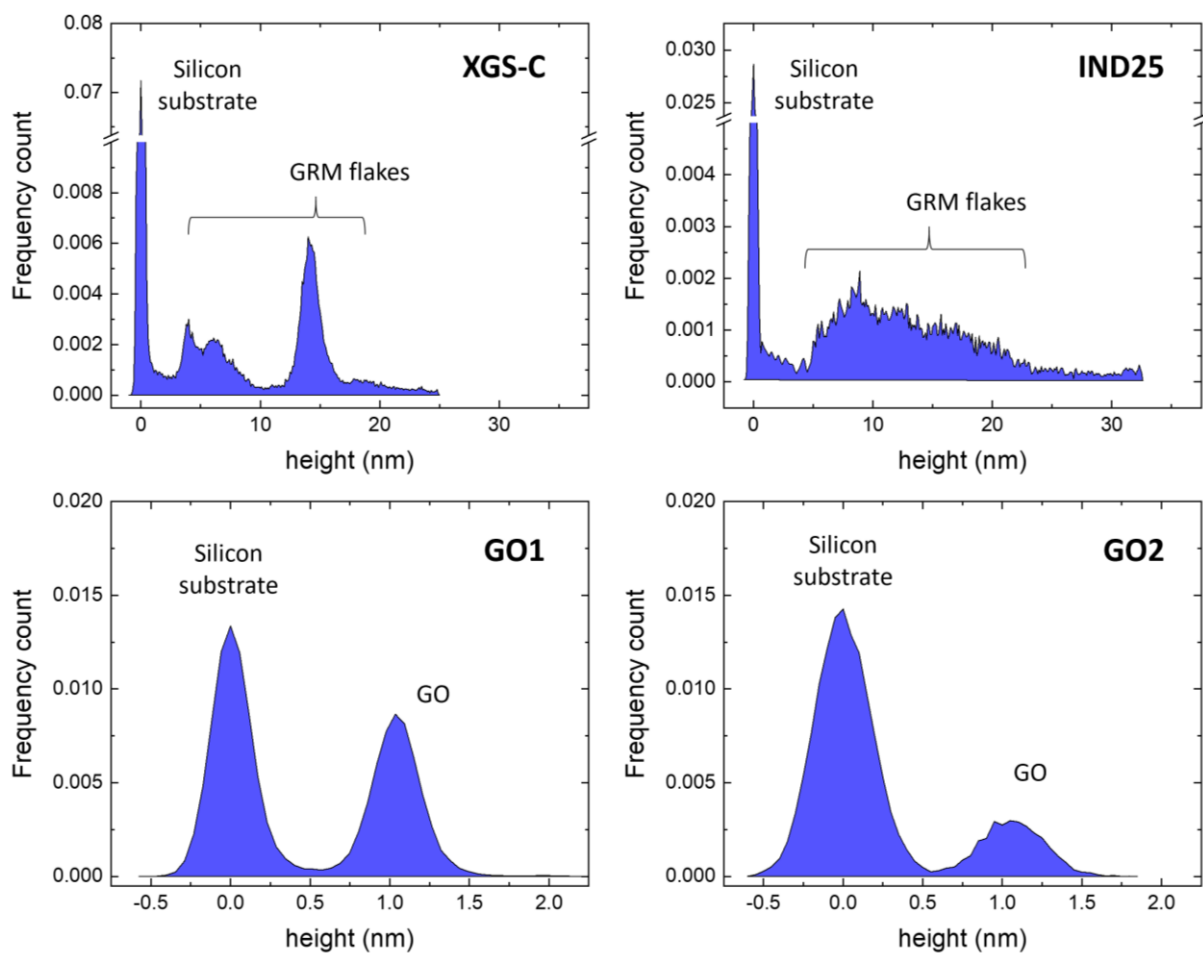


Figure S2. Height histogram distribution of the corresponding AFM images reported in the figure 1 of the main text.

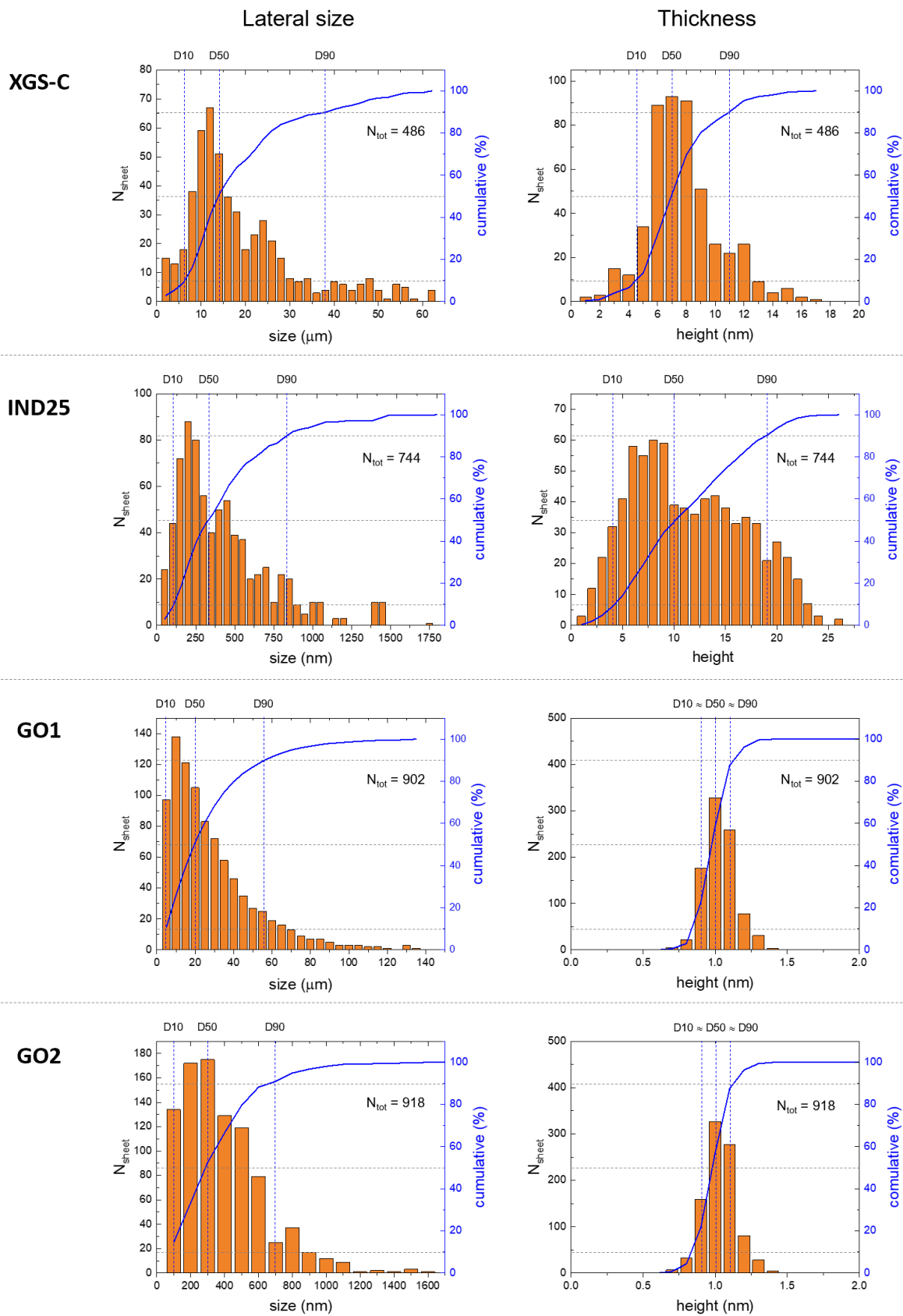


Figure S3. Lateral size and height distributions of the four GRMs (orange bar), corresponding cumulative curves (blue lines) and percentiles.

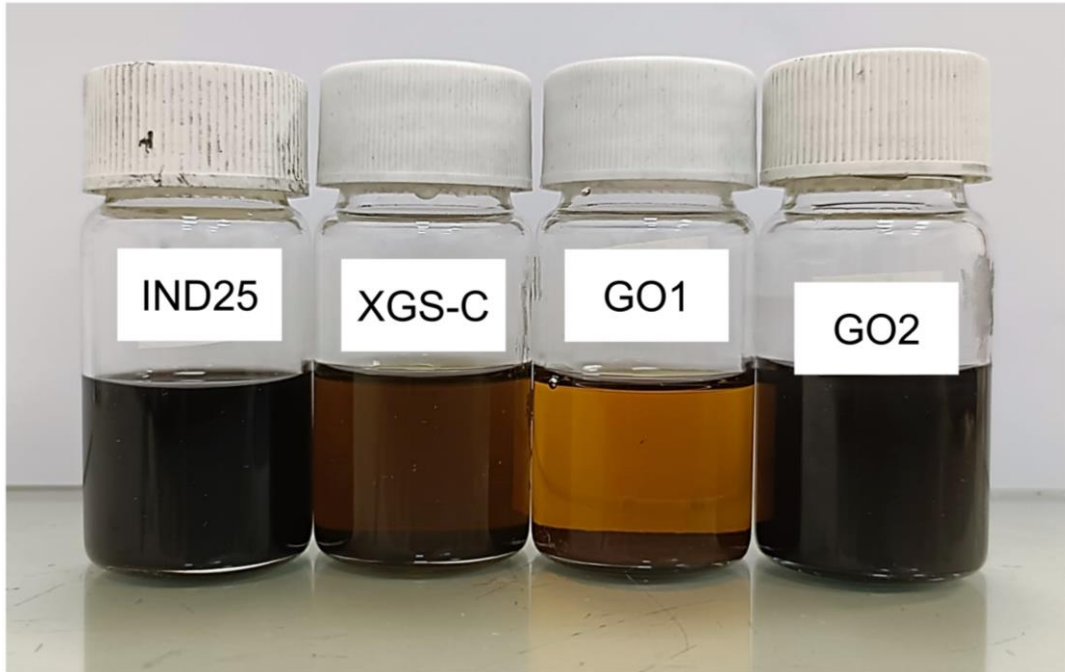


Figure S4. Picture of the 5W-40 oil:dispersant:GRM blend suspension after 9 months of preservation.

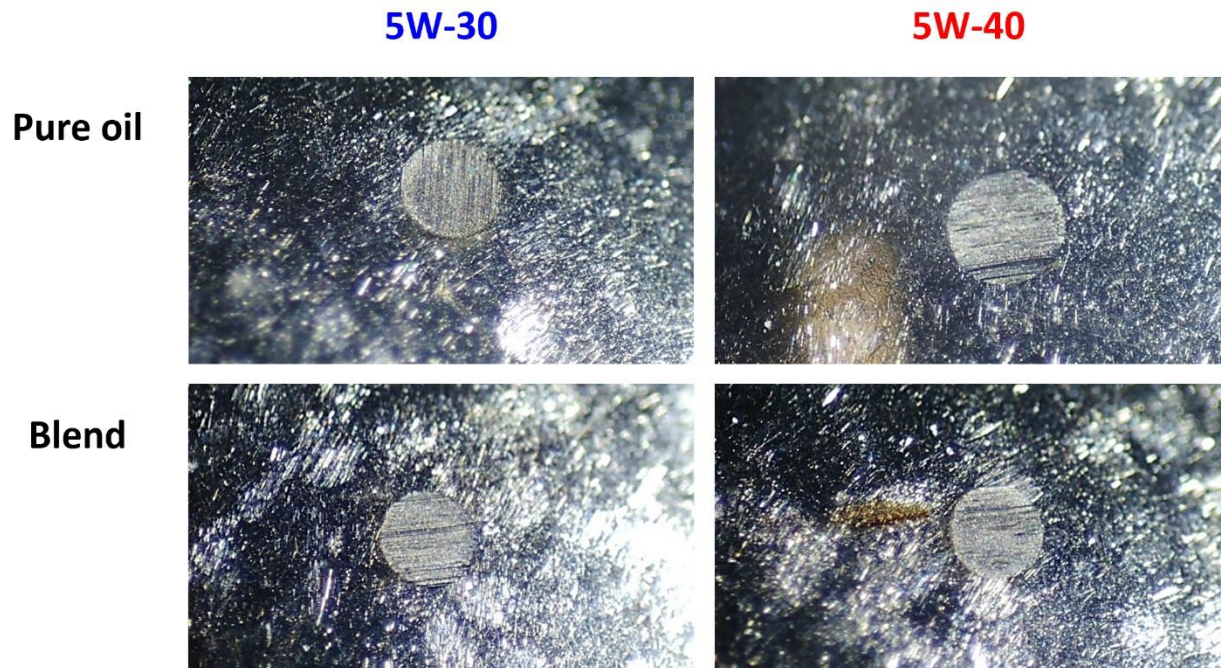


Figure S5. Optical images of wear diameter scar after four ball tests.

Table S1. Measured wear diameter scar

	5W-30	5W-40
Pure oil	470±20 μm	500±10 μm
Blend	440±20 μm	460±10 μm

Table S2. Experimental conditions of 4-ball test setup in comparison with ASTM D2266 method

	ASTM D2266	4 BALL setupP
Ball diameter	12.7 mm	14 mm
Steel	AISI E-52100	AISI E-52100
Temperature	75 °C	65-85
Rotation speed	1200±60 rpm	1850±10 rpm
Load	147 N or 392 N	345 N
Time	60 minutes	40 minutes

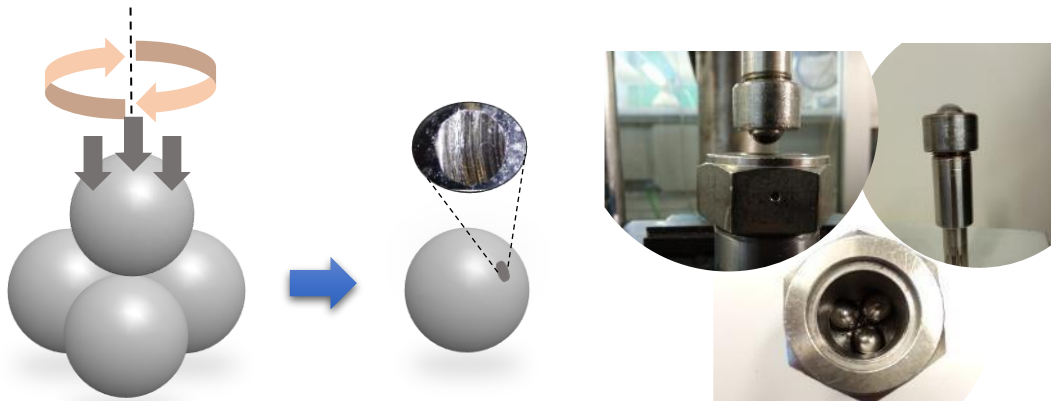


Figure S6. Scheme and pictures of the four ball test setup.