



### Comparison of the Chemical, Physical and Wear Properties of Commercial Diamond Like Coatings

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The complex nature of diamond like carbon (DLC) coatings demands the use of many complementary techniques to increase the understanding of their physical properties and chemistry.

Several commercial diamond like carbon coatings have been analysed using:

- reciprocating sliding wear testing
- profilometry of the wear scars
- x-ray photoelectron spectroscopy
- Raman spectroscopy (uv only shown)

SEM (combined with energy dispersive x-ray spectroscopy), AFM and nano-indentation have also been applied (not shown).

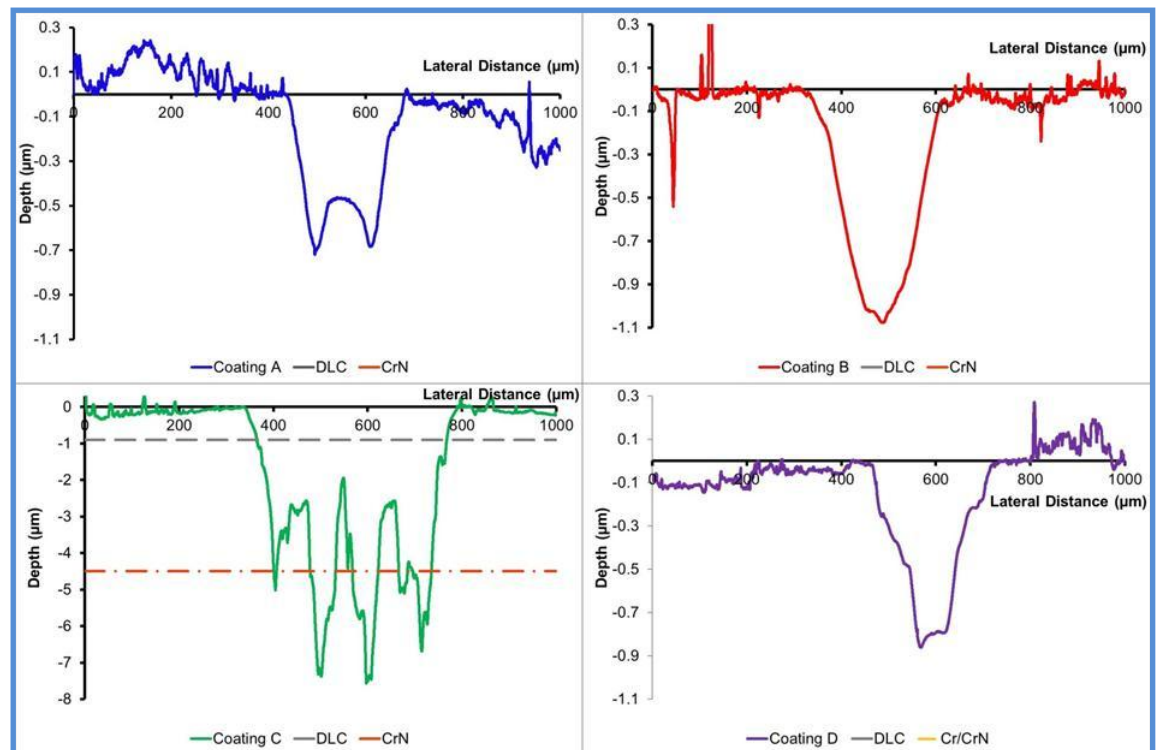


Figure 1 Reciprocating-sliding wear testing. Profiles of wear scars illustrating the different wear modes.

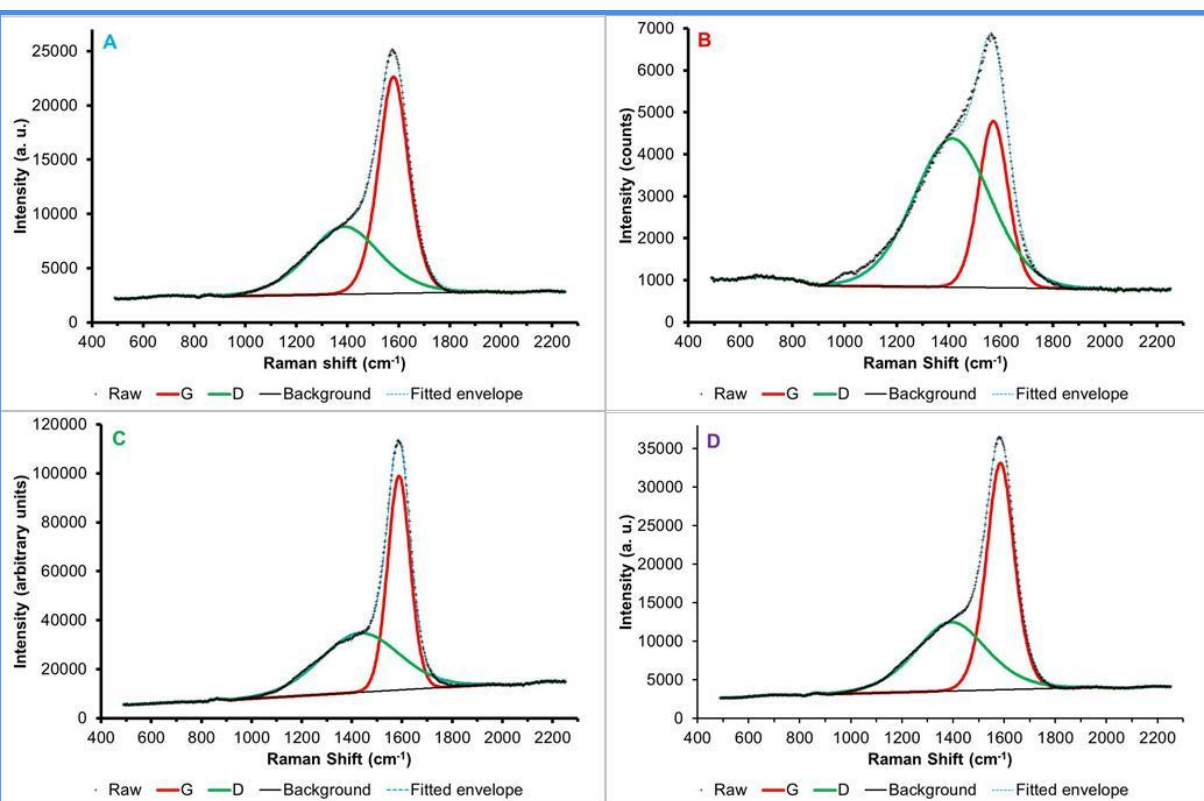


Figure 3 Raman spectroscopy of DLC coatings (using uv (325 nm) laser).

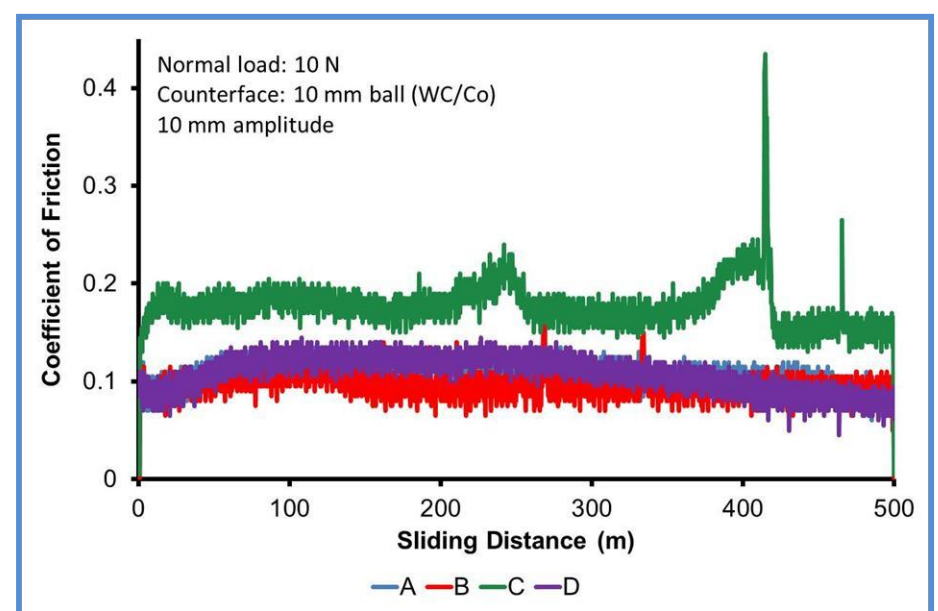


Figure 2 Reciprocating-sliding wear testing. Coefficient of friction vs sliding distance.

#### Acknowledgements:

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This work illustrates some of the techniques that have been used to characterise diamond like carbon coatings. (The coatings are not named due to commercial confidentiality.)