

# PCS Instruments

LEADERS IN TRIBOLOGY TEST EQUIPMENT

## Wet Clutch Screening on the MTM

PCS Instruments are pleased to offer a new type of test specimen for the popular Mini Traction Machine (MTM). This new class of specimen consists of a friction material coated steel disc, which is designed for the accurate screening of lubricants in a wet clutch type contact.

This new test configuration, which has been successfully used at Imperial College London, UK (1) and Powertrib, Oxford UK (2), utilises the pin-on-disc mode in the MTM, to provide a pure sliding contact at pressures similar to that of a wet clutch. This can be used for the accurate screening of additives and in-depth investigation of the wet clutch friction behaviour.

The figure below exhibits a set of results obtained with this test configuration. The friction against sliding speed characteristics of a friction modifier (FM), a dispersant (Disp) and a detergent (Det) are shown.

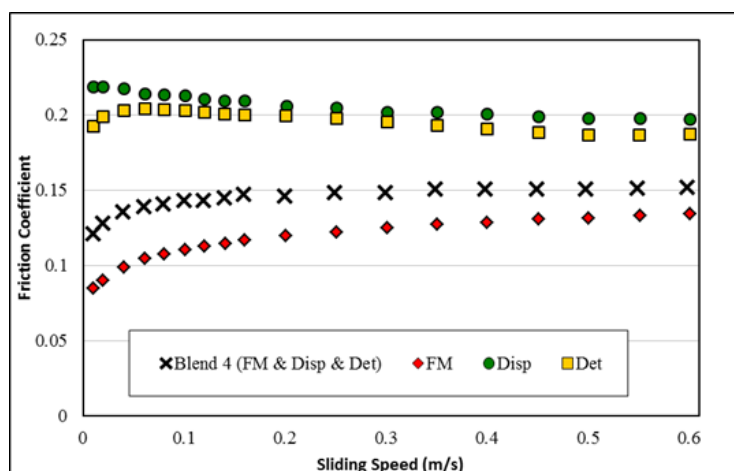


Figure 1: Example results from the MTM wet clutch screener. Showing the friction behaviour of different additives.

Table 1: Possible MTM Wet Clutch Test Specifications

|                         |   |
|-------------------------|---|
| Configuration           | Steel ball on friction material coated disc<br>Pure sliding (sliding/rolling also possible) |
| Applied Load            | Standard Load Beam: 3 - 75 N (4.4 - 13 MPa)<br>Low Load Beam: 1 - 8 N (1.4 - 6.1 MPa)       |
| Sliding Speed           | 0.01 - 4 m/s  |
| Temperature             | Ambient - 150 °C<br>Below ambient with optional oil cooler                                  |
| Lubricant Sample Volume | 35 ml (10 ml with optional pot filler)  |

### References:

- (1) Tribology Transactions, 54: 145-153, 2011
- (2) [www.powertrib.com](http://www.powertrib.com)

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