



A fully automatic laboratory instrument for evaluating the scuffing load resistance of diesel (middle distillate) fuel according to ASTM D6078.

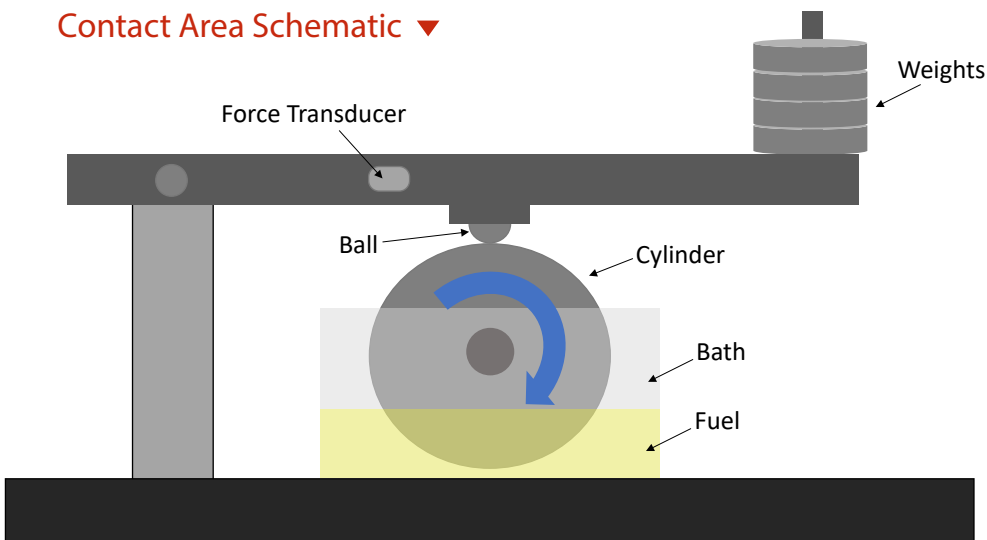
automatic

The PCS Instruments ABSSL (Automated BOCLE System - Scuffing Load) is a fully automatic laboratory instrument for carrying out lubricity testing of diesel (middle distillate) fuel. It fully conforms to the requirements of ASTM D-6078 "Standard Test Method for Evaluating Lubricity of Diesel Fuels by the Scuffing Load Ball-on-Cylinder Lubricity Evaluator (SLBOCLE)".

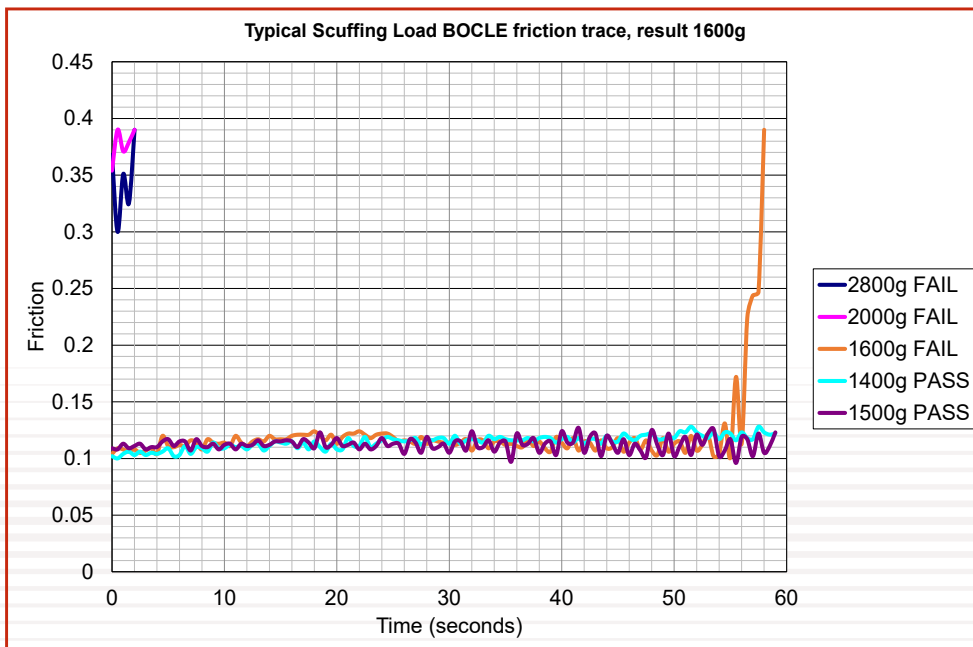
The instrument can also perform tests according to ASTM D-5001 "Measurement of lubricity of aviation turbine fuels". An existing PCS ABS (Automated BOCLE System) instrument can be easily modified to allow the SL-BOCLE tests to be carried out. Alternatively, the ABSSL instrument can be supplied as new.

Comprised of a single, compact, bench top unit, all that is required on site for operation of the ABSSL is mains power and compressed air to ASTM D-6078 specification.

Contact Area Schematic ▼



Example Test Data ▼



Test Method:

To minimise the number of tests required to determine the scuffing load, the load sequence follows a tree like iteration pattern, where the load increment is halved after each test.

If the friction coefficient remains below 0.175 during the 60 second test duration, the fuel has passed the test. The graph shown on the left illustrates a typical test pattern.

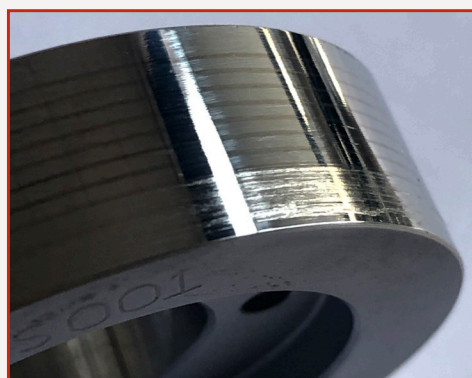
The first two tests at loads of 2800 grams and 2000 grams fail almost immediately. The 3rd test at a load of 1600 grams fails just before the 60 second time limit and the 4th and 5th test at loads of 1400 grams and 1500 grams pass the test, so the scuffing load for this sample would be 1600 grams.

Principle

The instrument uses a flooded, ball on cylinder contact geometry. In order to detect the sudden rise in friction coefficient which characterises scuffing, a load cell is incorporated into the load arm assembly. This is able to measure the tangential friction force between the rotating disc and stationary ball.

To determine the scuffing resistance of a fuel, a number of tests are carried out on the fluid sample using a stepwise series of loads. The load sequence is followed until the maximum load which can be applied without causing scuffing has been determined. The higher the SL-BOCLE load rating a fuel has, the more resistant it is to scuffing.

Test specimen with visible scuffing ▼



ABSSL Options

The capabilities of the ABSSL can be further enhanced through the addition of a variety of extra add-ons and options, which include:

ABS Zero Air Supply (including compressor + dryer)

- A modular oil free compressor and zero air generator which has been specifically designed to remove hydrocarbons via a process of oxidative catalysis. This ensures that the air contains less than 0.1 parts per million (PPM) of total hydrocarbons, meeting the stringent air requirements specified in ASTM D5001 and D6078.

ABS Relative Humidity Probe Calibration Kit

- A humidity probe chamber and capsule system which generates a precise environment for humidity meter probe checking. Each kit is supplied with sealed ampoules of salt solution including a calibration certificate for traceability and accuracy of the relevant standard.

Calibrated ABS Air Flow Test Kit

- Two calibrated flow meters which can be used to check that the fluid pre-treatment and test air flow levels are within those specified by the ASTM standard. Supplied with a 5 point, UKAS traceable calibration certificate.

Features & Benefits:

Microprocessor control of all instrument functions.

Can perform both ASTM D-5001 and ASTM D-6078, with both test sequences pre-loaded into the microprocessor controller.

Simple user interface.

Automatic control of whole test sequence, flow controllers for moist and dry air and their flow rate, all vastly reduce operator induced variability in test results.

Optional PC-based control and data logging software. Allows alternative test programmes to be downloaded into the instrument and test parameters to be recorded as a permanent record.

Interchangeable humidity and temperature probes.

Single source of supply for both the test rings and test equipment.

Technical Specification

A fully automatic laboratory instrument for carrying out lubricity testing of diesel (middle distillate) fuel according to ASTM D6078.

TEST PARAMETERS

Load	500 - 6500 g (1000 to 13000 g applied load)
Speed	525 rpm
Temperature	25 °C
Test Sample Volume	50 ml

CONTROL SYSTEM

PC	Custom software running on Windows 10
Safety Checks	Power on self-test checks all system functions, safety pressure sensor
Power Supply	100-230 V, 50/60 Hz, 750 VA

DIMENSIONS & WEIGHT

Weight	36 kg/79 lb
Dimensions (h x w x d)	350mm/14" x 520mm/20" x 520mm/20"

Industries



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