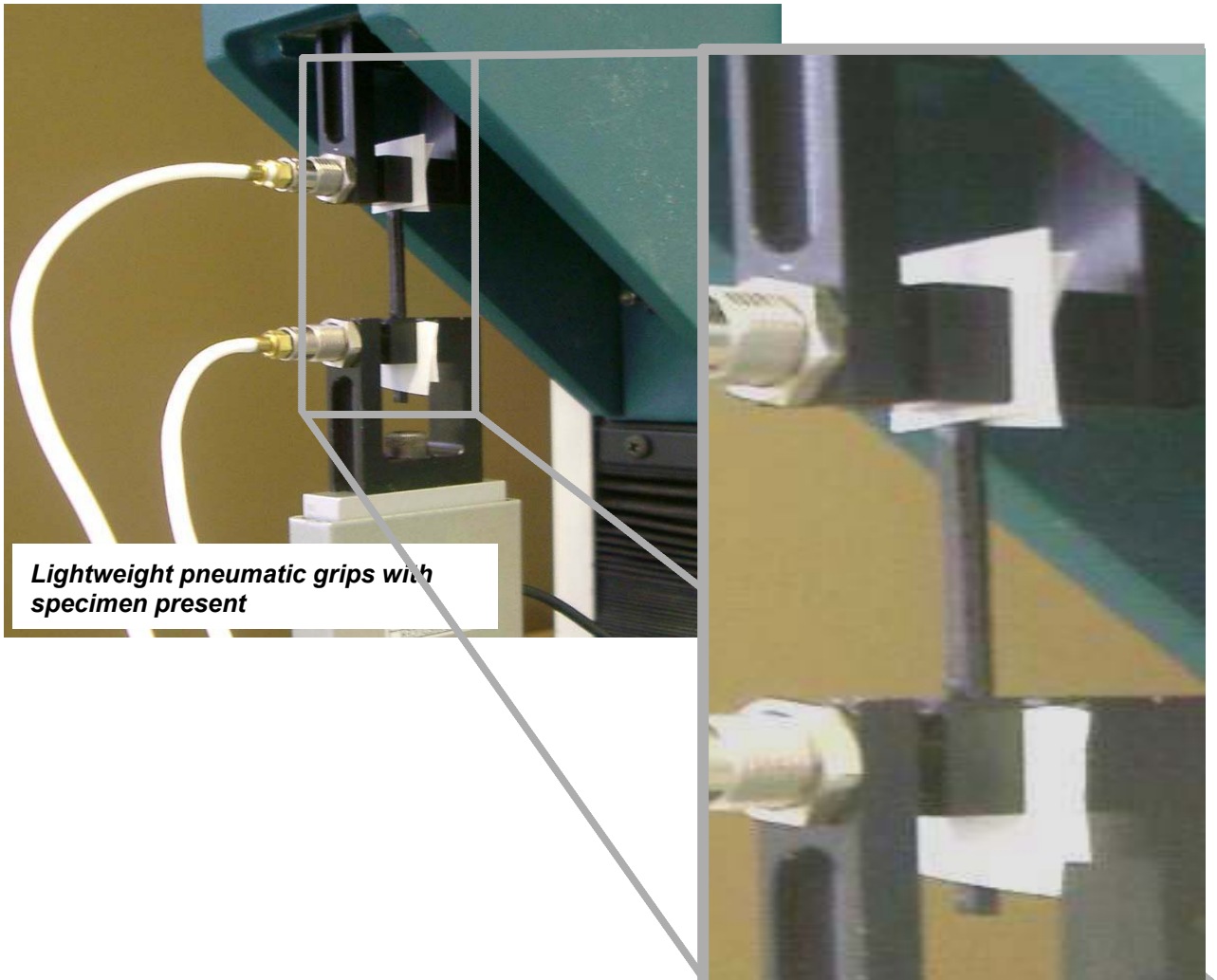




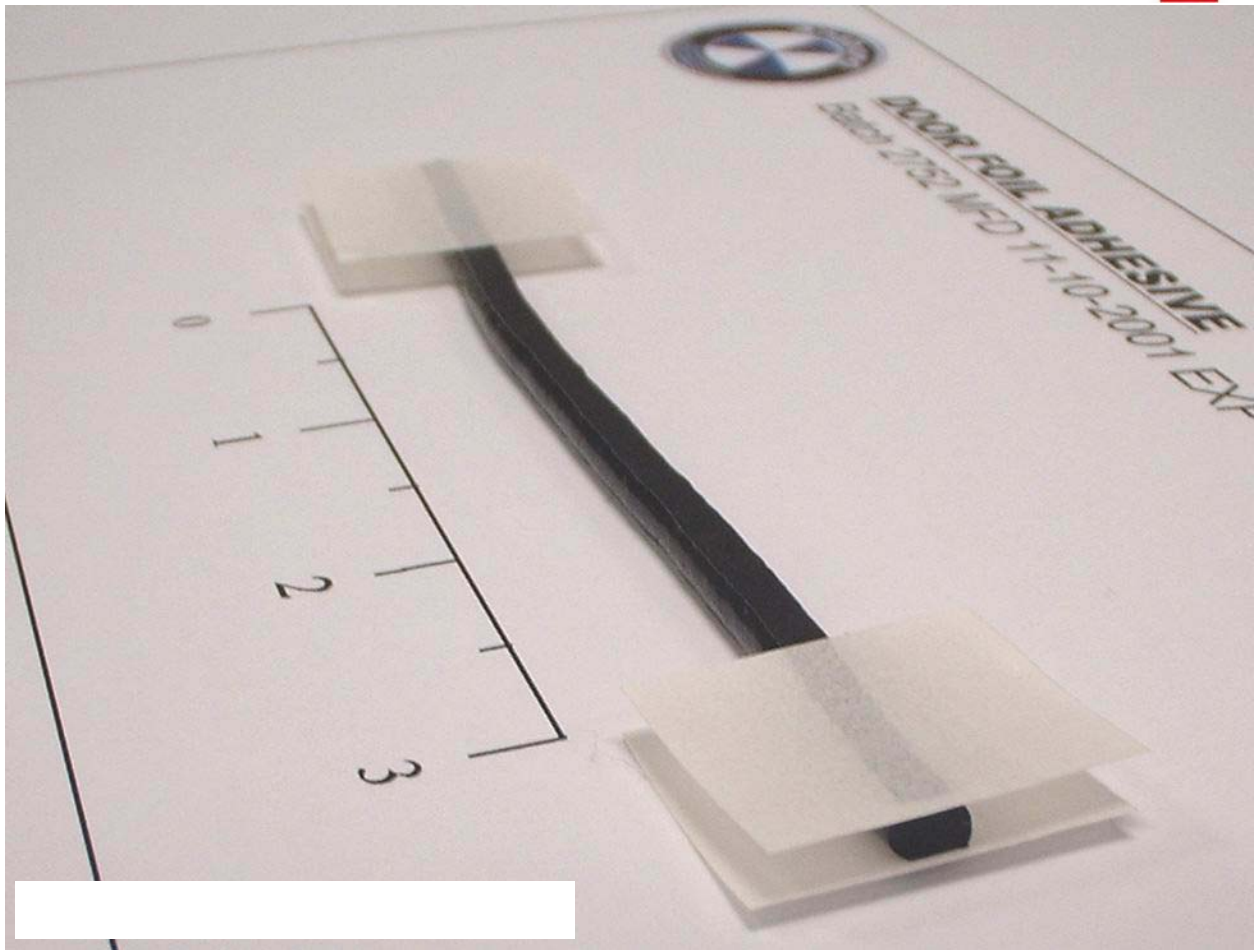
ANABOND DOOR FOIL ADHESIVE

Tests were carried out using a Tinius Olsen H5KS machine with bottom loadcell modification to allow the loadcell to be attached at base of the machine. The loadcell is mounted at the bottom of the machine to reduce vibration/noise picked up by the loadcell when the test is being performed. The loadcell used for the tests had a capacity of 10N, however, a 5N loadcell was found as the optimum choice for testing this material.

The gauge length of the material was chosen as 30mm, and two speeds were selected to perform the tests. The first speed was selected as the maximum required (500mm/min) and the second at 10mm/min. The H5KS system is capable of testing in the range from 0.001mm/min to 1000mm/min and therefore can easily cope with the specification (0.2mm to 500mm/min).



Lightweight pneumatic grips with specimen present

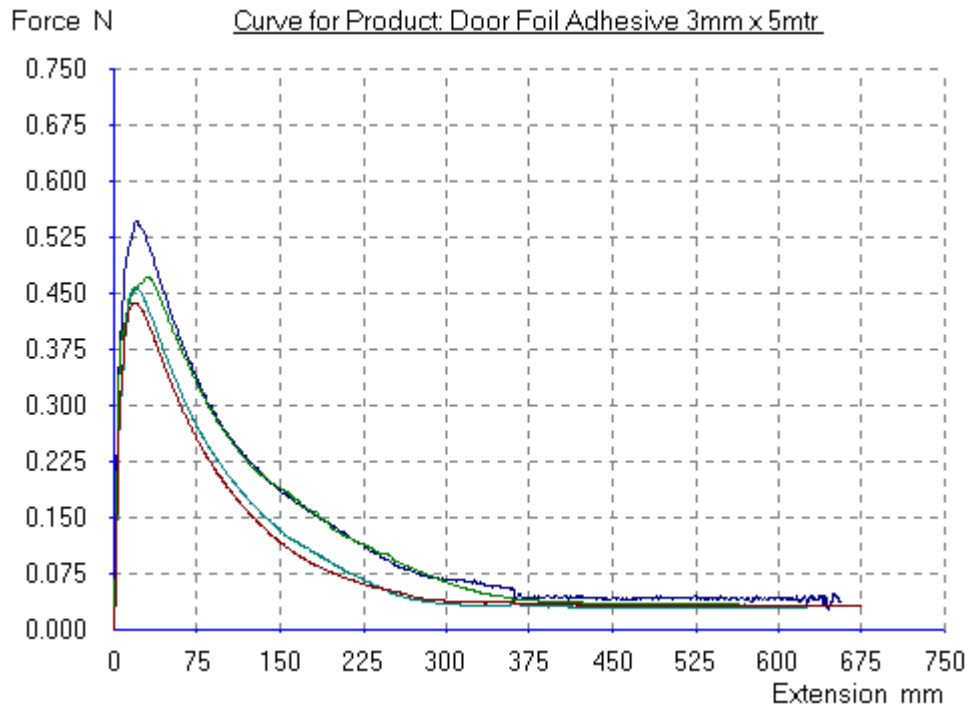


Due to the nature and properties of the specimens, it was found more beneficial to test the product with the gripped parts of the specimen sandwiched between two small squares of the non-slip backing roll the sample was supplied on. Using this method it was found that the specimens were more easily handled and the results were more consistent as the gripping force was spread more widely over the gripped area. A 30mm (3cm) gauge length was used to perform the tests.

Conclusion

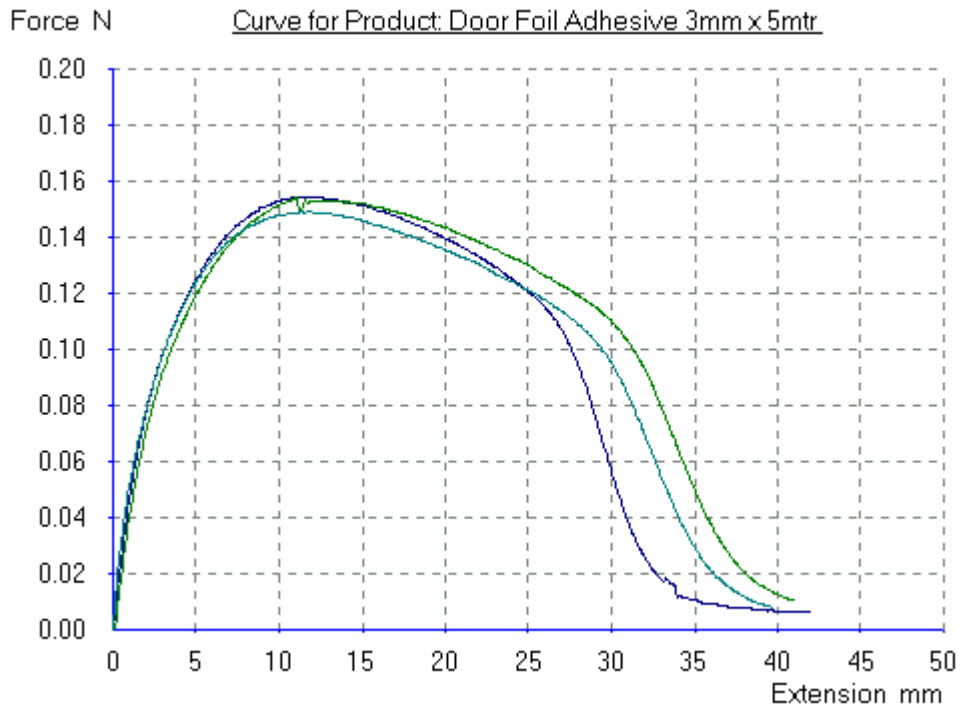
From comparing the results, it is evident to see that the Tinius Olsen system works well and that the specific material properties of the 'door foil adhesive' vary greatly depending upon the speed of test. It was found that if the test speed was higher then the material 'flowed' and high extension readings and forces were obtained (see test 1, page 3), however, if the extension speed is low (see test 2, page 4, the material quickly 'necks' and from then on all extension occurs from the necking point. This explains the differences when looking at the two set of graphs overlaid on page 5.

TEST 1 (4 specimens tested) – 500mm/min



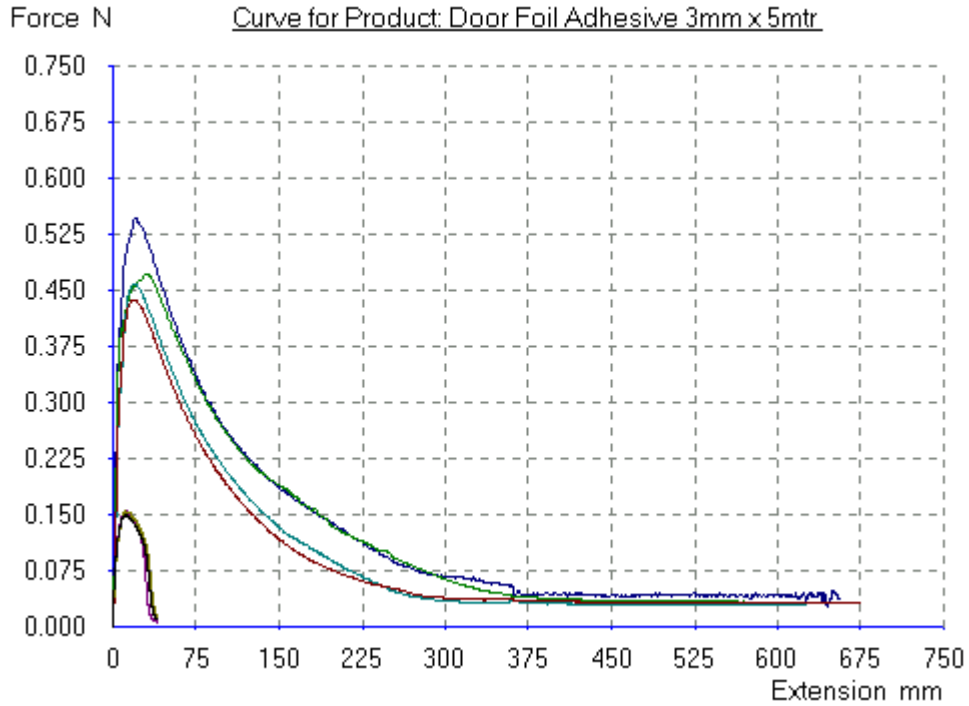
Batch	Max Force N	Elong at Max %	Elongation %
2752 dtd 11-10-2001 - 1	0.546	65	2188
2752 dtd 11-10-2001 - 2	0.472	95	2148
2752 dtd 11-10-2001 - 3	0.4585	60	2093
2752 dtd 11-10-2001 - 4	0.4375	57.5	2253
n	4	4	4
Mean	0.4785	69.38	2170
Std. Dev.	0.0472	17.366	67.392

TEST 2 (3 specimens tested) – 10mm/min



Batch	Max Force N	Elong at Max %	Elongation %
2752 dtd 11-10-01 - 1	0.1544	37.67	140
2752 dtd 11-10-01 - 2	0.1544	36.67	137
2752 dtd 11-10-01 - 3	0.149	37.33	132.7
n	3	3	3
Mean	0.1526	37.22	136.56
Std. Dev.	0.0031	0.5093	3.6868

Overlay – Test1 & Test2 (combined on same axis)



Test	Batch	Max Force N	Elong at Max %	Elongation %
1	2752 dtd 11-10-2001 - 1	0.546	65	2188
1	2752 dtd 11-10-2001 - 2	0.472	95	2148
1	2752 dtd 11-10-2001 - 3	0.4585	60	2093
1	2752 dtd 11-10-2001 - 4	0.4375	57.5	2253
2	2752 dtd 11-10-01 - 1	0.1544	37.7	140
2	2752 dtd 11-10-01 - 2	0.1544	36.7	137
2	2752 dtd 11-10-01 - 3	0.149	37.3	133
	n	7	7	7
	Mean	0.3388	55.6	1298.5
	Std. Dev.	0.1774	21.124	1088

Recommended System

- **H5KS Materials Testing Machine**, maximum capacity 5KN, LCD screen with graphical mode. Alpha numeric keyboard, RS232 interface, parallel printer port.
- **5N Load cell** (calibrated range 0.1% to 100% of rated capacity)
- **Lightweight Pneumatic Grip including regulated pneumatic control unit (PCU)**
- **Electronic Filter kit**
- **QMAT Pro Software**, Windows based software supplied on CD ROM including:-
 - QMAT Test Zone
 - QMAT File Examination
 - QMAT Test Generator
 Results and Statistical Analysis, Statistical Process Control (SPC), Report Wizard and over 1400 test routines written in accordance with relevant international and industrial testing standards (ISO, ASTM, DIN, BS etc)

Additional Requirements (which can be supplied)

- PC – min requirements (Pentium II, 32MB RAM, 1GB HD, RS 232 serial connection 9 pin, Win95 operating system)
- Pneumatic Air Supply (5.5-8.0 bar)

Other Options

- Additional load cells for performing other tests
- Additional grips/attachments for other tests (typical tests would include, peel / adhesion tests, shear strength, Delamination tests, friction, any many others.....)