

Effect of multiple freeze thaw cycles on cartilage unconfined compression

Cartilage unconfined compression test.

1. Sample frozen after every test.
2. Ramp load unload before and after preconditioning.
3. cartilage strip thawed 4 times before this set.
4. Full test with 30 min hold.
5. PBS used.
6. Used 300 micron buffer space to capture entire loading. Preconditioning and stress relaxation protocols adjusted accordingly. (incorrectly put 200 micron instead of 300 micron in first test of the set, carried that throughout the set instead of discarding the data, the max strain are therefore lower, does not affect the analysis)

day 1: oks00TR6-TBC-MCXX-05-01: thickness:2.12 mm; 01 positions: 21.351,21.505. (not included in analysis) – 300 micron buffer was not used.

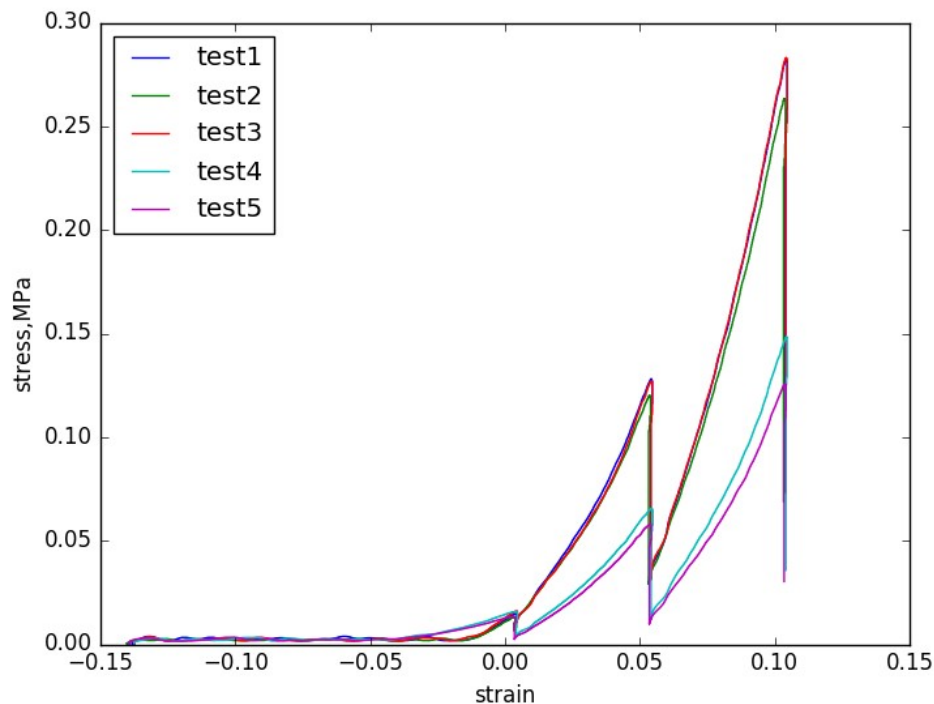
day 2: oks00TR6-TBC-MCXX-05-02: thickness: 2.17 mm; 02 indenter positions: 21.9795, 22.133.

day 3: oks00TR6-TBC-MCXX-05-03: thickness: 2.14 mm; 03 indenter positions: 32.199,32.353

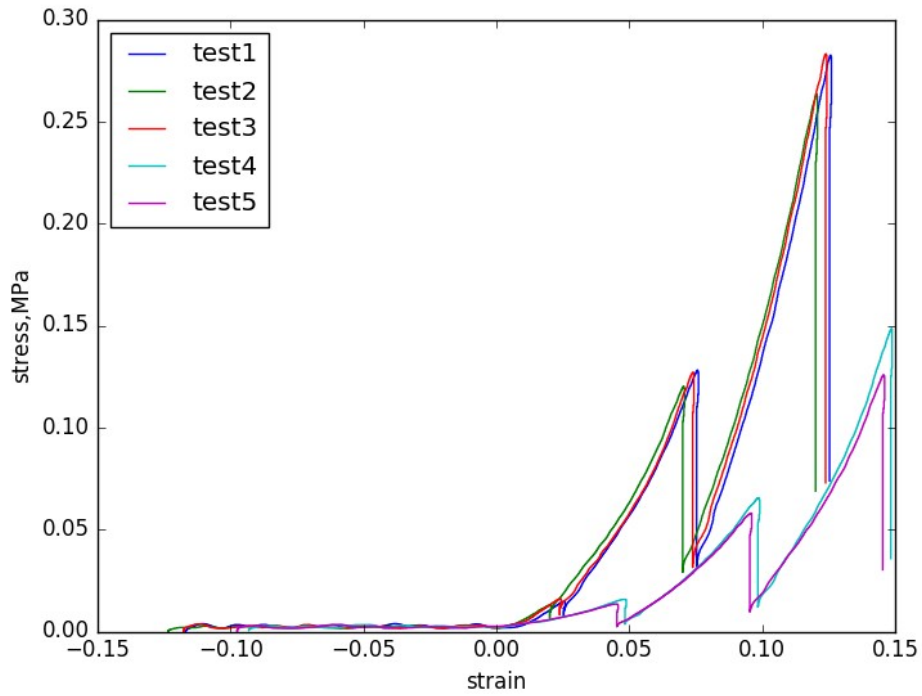
day 4: oks00TR6-TBC-MCXX-05-04: thickness: 2.18 mm; 04 indenter positions: 42.098,42.2585.

day 5: oks00TR6-TBC-MCXX-05-05: thickness: 2.18 mm; 05 indenter positions: 46.183, 46.2415

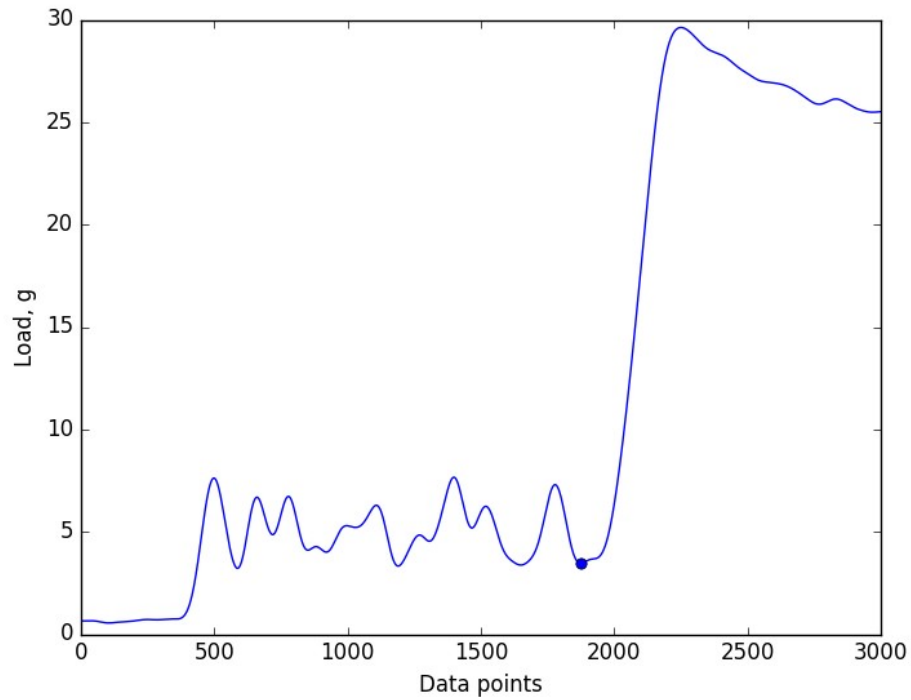
day 6: oks00TR6-TBC-MCXX-05-06: thickness: 2.15 mm; 06 indenter positions: 51.967,51.996.



10g force location used as starting position



Adjusted to actual zero force-displacement



Example of finding inflection point in first ramp of stress relaxation. The force data is smoothed, the data before the inflection point is when the indenter was moving but has not made contact with the sample.