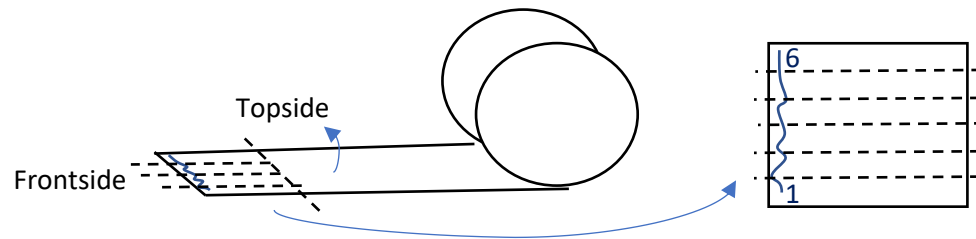


Notes on friction tests

Cutting convention from prepreg roll:



Specimen lay-up: Frontside at the clamps. First outer ply with topside faced on the table. Middle or central ply with topside faced upwards. Second outer ply's topside faces upwards. Plies held together using paperclips. Material from edges (loc 1 and 6) neglected.

Date: 26-5-2023

Intrinsic stiffness or cumulative normal force offset of 23.2 N (when platens in close proximity). C/PEEK3 flow curve at 385 degC and 15 kPa (thus $23.2 + 15e-3 \times (50 \times 50) = 60.7$ N in LabVIEW) for range of sliding rates. Temperature control via PC, loads and displacement logging via laptop. Contact length 65 mm and 5 min waiting/dwell time.

34-1	1 mm/min, T ok, not perfectly aligned
34-2	1 mm/min, T ok, data lost
34-3	1 mm/min, T ok, better aligned
34-4	1 mm/min, T ok
34-5	5 mm/min, T ok
34-6	5 mm/min, T ok
34-7	5 mm/min, T ok
34-8	25 mm/min, T ok
34-9	25 mm/min, T ok
34-10	25 mm/min, T ok
34-11	125 mm/min, T ok
34-12	125 mm/min, T ok
34-13	125 mm/min, T ok, error: problem getting sp in and slip in clamp
34-14	125 mm/min, T ok
34-15	2 mm/min, T ok, problem getting specimen in. Not correct.
34-16	3 mm/min, T ok, again problem getting specimen in. Adjusted springs at back (no change in 'intrinsic/internal stiffness' or cumulative normal force offset)
34-17	10 mm/min, T ok
34-18	15 mm/min, T ok
34-19	40 mm/min, T ok
34-20	55 mm/min, T ok
34-21	75 mm/min, T ok
34-22	200 mm/min, T ok, alignment not perfect.
34-23	2 mm/min, T ok
34-24	200 mm/min, T ok, combined location 2 and 3 for specimen.

Date: 1-6-2023

Changed springs at back to increase distance between pressure platens when opened (to ease specimen mounting). No change in internal/intrinsic stiffness or cumulative normal force offset. C/LM-PAEK (benchmark material) flow curve at 385 degC and 15 kPa (thus $23.2+15e-3 \times (50 \times 50) = 60.7$ N in LabVIEW) for range of sliding rates. Same specimen preparation as before. Temperature control via PC, loads and displacement logging via laptop. Contact length 65 mm and 5 min waiting time.

35-1	1 mm/min, T ok (363-364 degC). First adjusted alignment of whole setup (upper clamp rotation and translation within clamp). Added displacement sensor (solatron) below bottom clamp.
35-2	1 mm/min, T ok (paperclips not removed while pressurized, immediately removed paperclips and reapplied pressure; seems not to have affected the subsequent friction test).
35-3	1 mm/min, T ok (363-364 degC)
35-4	5 mm/min, T ok
35-5	5 mm/min, T ok
35-6	5 mm/min, T ok
35-7	25 mm/min, T ok
35-8	25 mm/min, T ok
35-9	25 mm/min, T ok (364 degC)
35-10	125 mm/min, T ok
35-11	125 mm/min, T ok
35-12	125 mm/min, T ok (363-364 degC)
35-13	2 mm/min, T ok (363-364 degC). Observed quite a peak (sharp) in cumulative normal force, but no peak in pull force.
35-14	3 mm/min, T ok
35-15	10 mm/min, T ok
35-16	15 mm/min, T ok
35-17	40 mm/min, T ok
35-18	55 mm/min, T ok
35-19	75 mm/min, T ok (363-364 degC)
35-20	200 mm/min, T ok
35-21	125 mm/min, T ok, 5 kPa (thus applied 35.7 N in LabVIEW)
35-22	125 mm/min, T ok, 5 kPa, quite high T overshoot (towards 378 degC), later T ok
35-23	125 mm/min, T ok, 5 kPa, same overshoot in T as previous test
35-24	125 mm/min, T ok (364 degC), 45 kPa (thus applied 137.5 N in LabVIEW)