

This is an Open Access document downloaded from ORCA, Cardiff University's institutional repository:<https://orca.cardiff.ac.uk/id/eprint/127130/>

This is the author's version of a work that was submitted to / accepted for publication.

Citation for final published version:

Almudaihesh, Faisel, Holford, Karen , Pullin, Rhys and Eaton, Mark 2020. The influence of water absorption on unidirectional and 2D woven CFRP composites and their mechanical performance. Composites Part B: Engineering 182 , 107626. 10.1016/j.compositesb.2019.107626

Publishers page: <http://dx.doi.org/10.1016/j.compositesb.2019.10762...>

Please note:

Changes made as a result of publishing processes such as copy-editing, formatting and page numbers may not be reflected in this version. For the definitive version of this publication, please refer to the published source. You are advised to consult the publisher's version if you wish to cite this paper.

This version is being made available in accordance with publisher policies. See <http://orca.cf.ac.uk/policies.html> for usage policies. Copyright and moral rights for publications made available in ORCA are retained by the copyright holders.



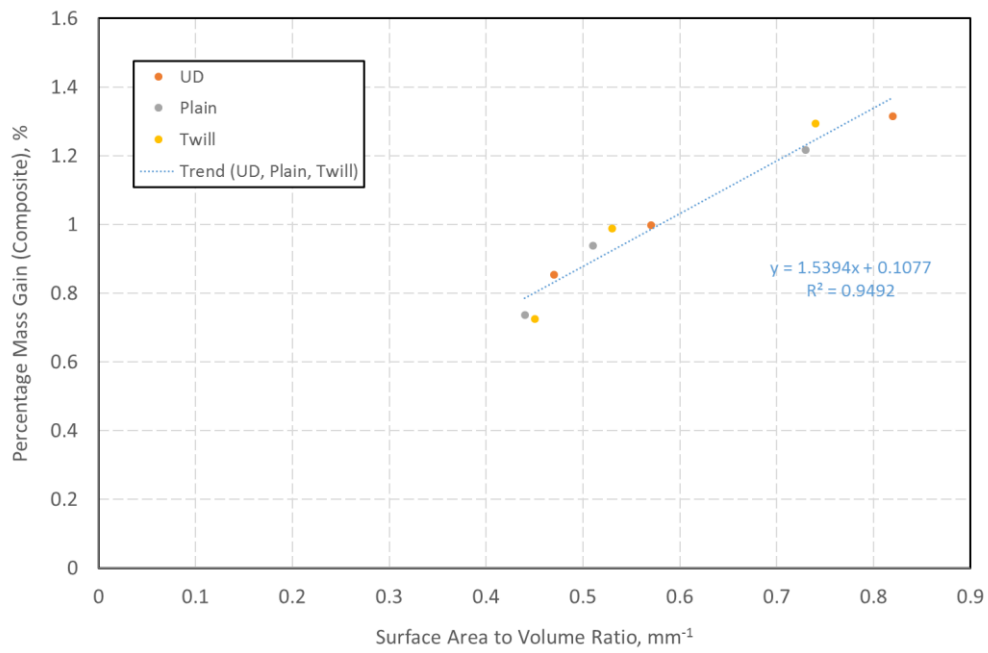


Fig. S1. Mass gain versus surface to volume ratio (composite).

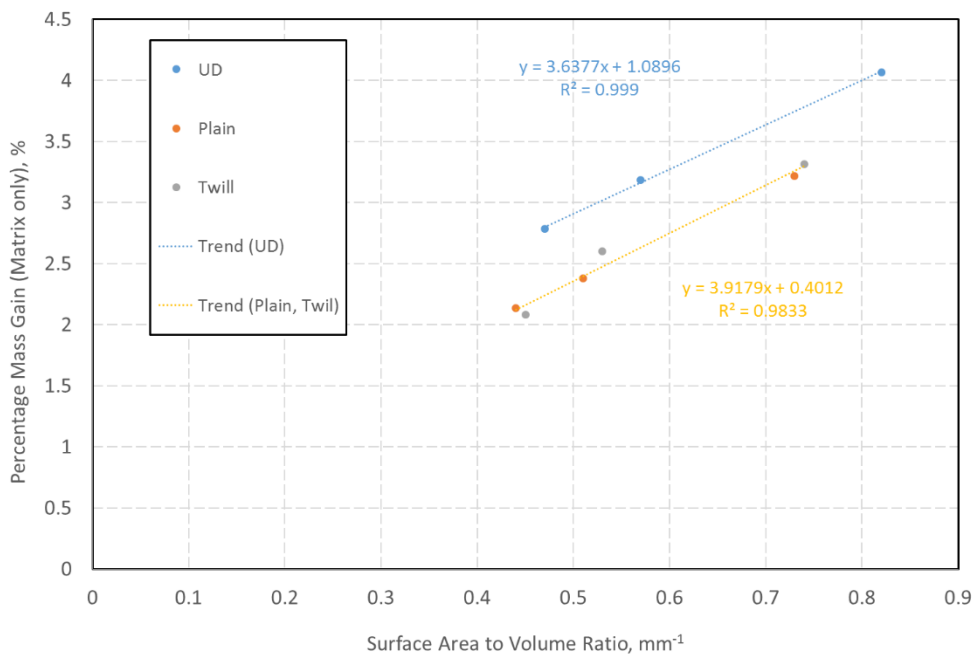


Fig. 2. Mass gain versus surface to volume ratio (matrix).

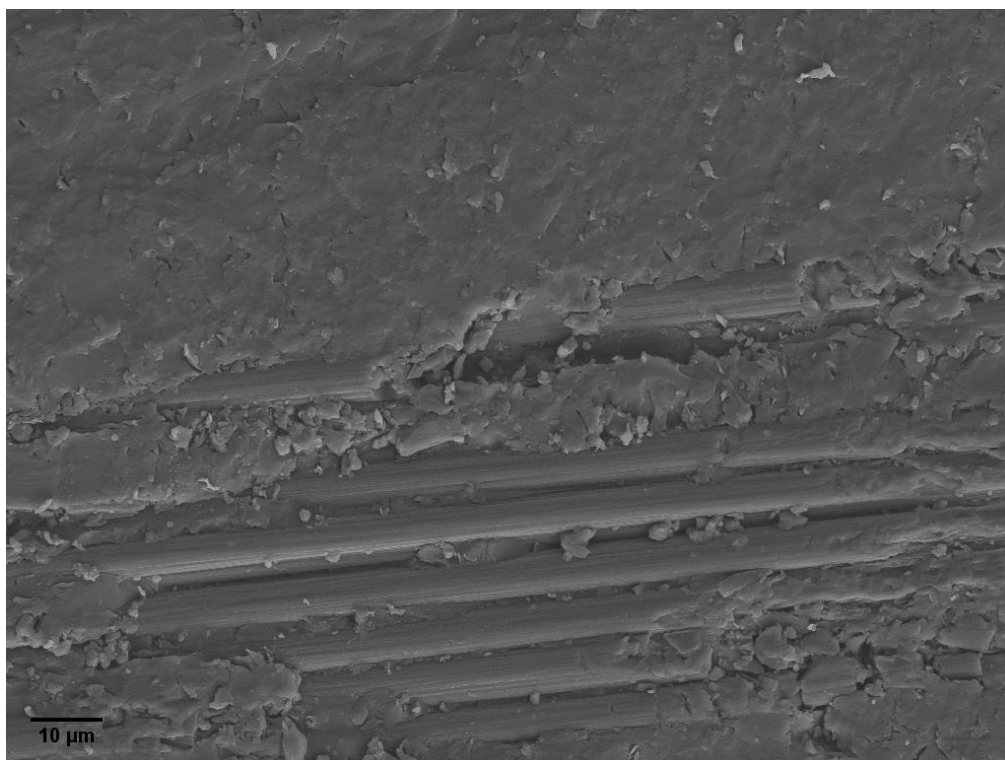


Fig. S3. SEM micrographs of un-aged plain weave surface.

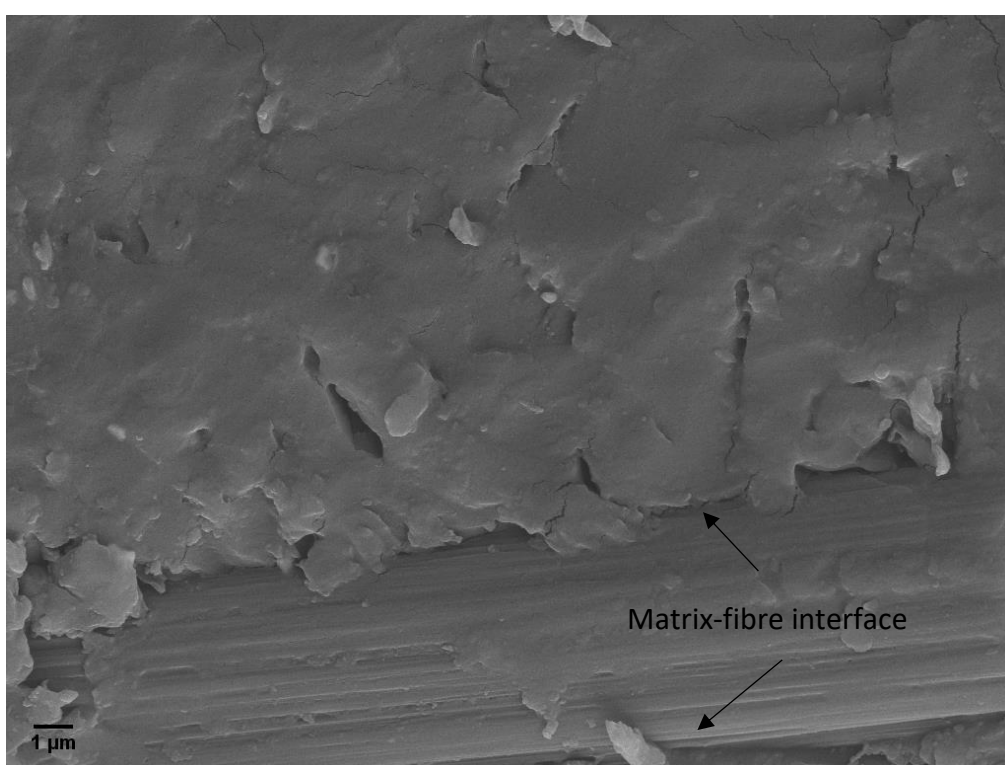


Fig. S4. SEM micrographs of un-aged plain weave surface.

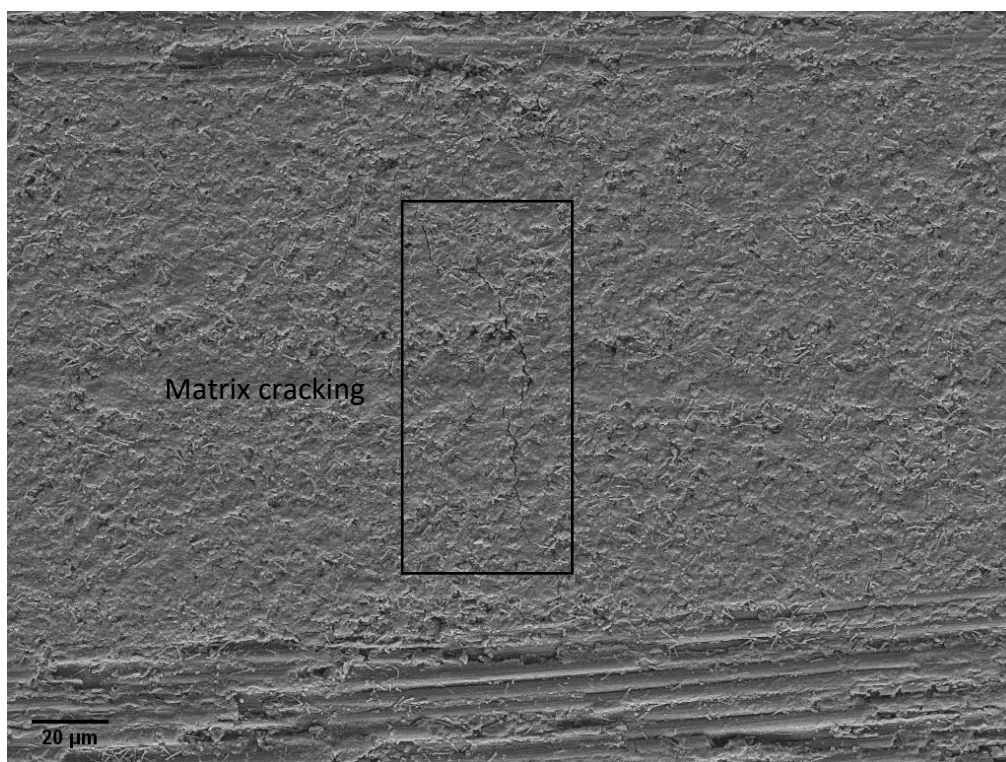


Fig. S5. SEM micrographs of aged plain weave surface.

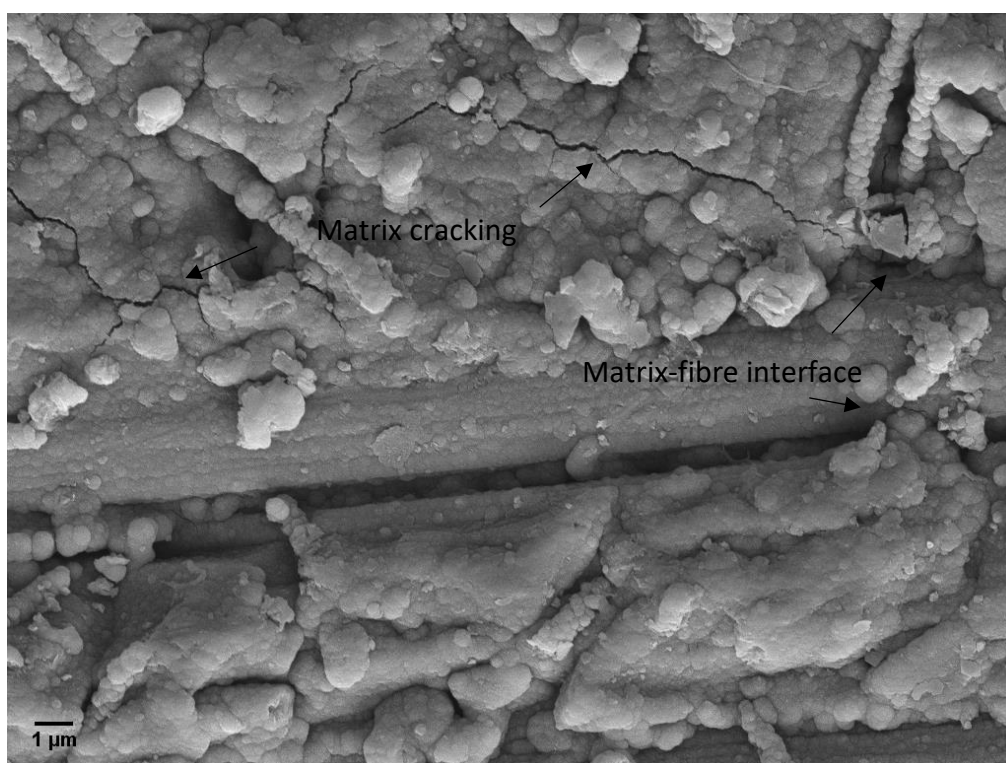


Fig. S6. SEM micrographs of aged plain weave surface.

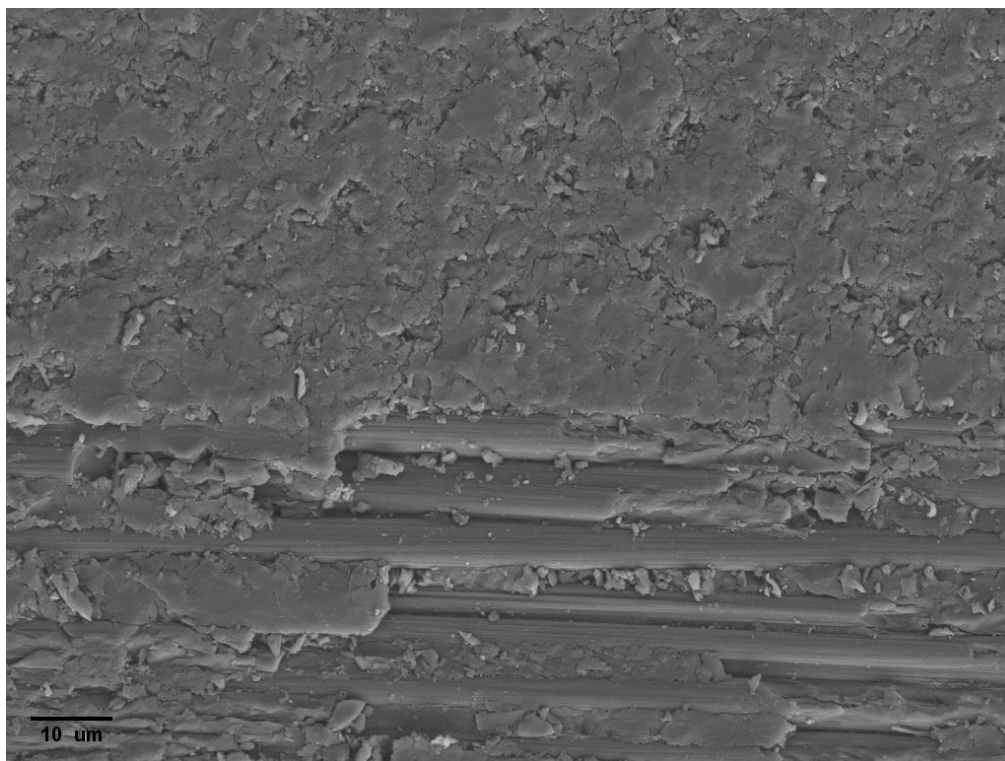


Fig. S7. SEM micrographs of un-aged twill weave surface.

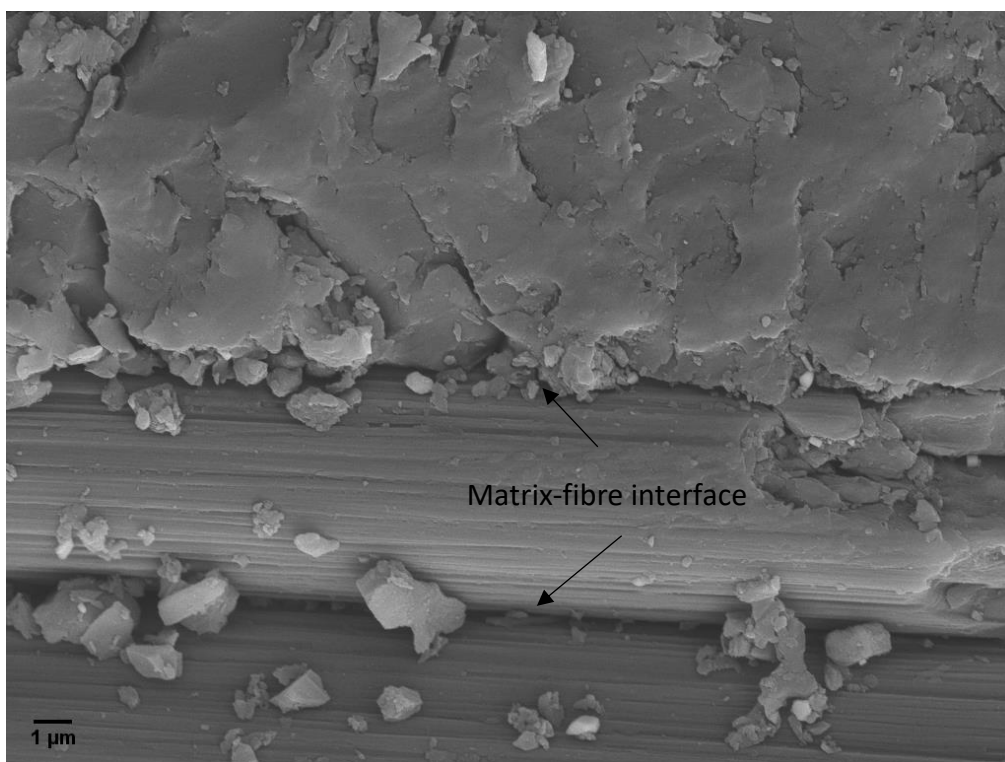


Fig. S8. SEM micrographs of un-aged twill weave surface.

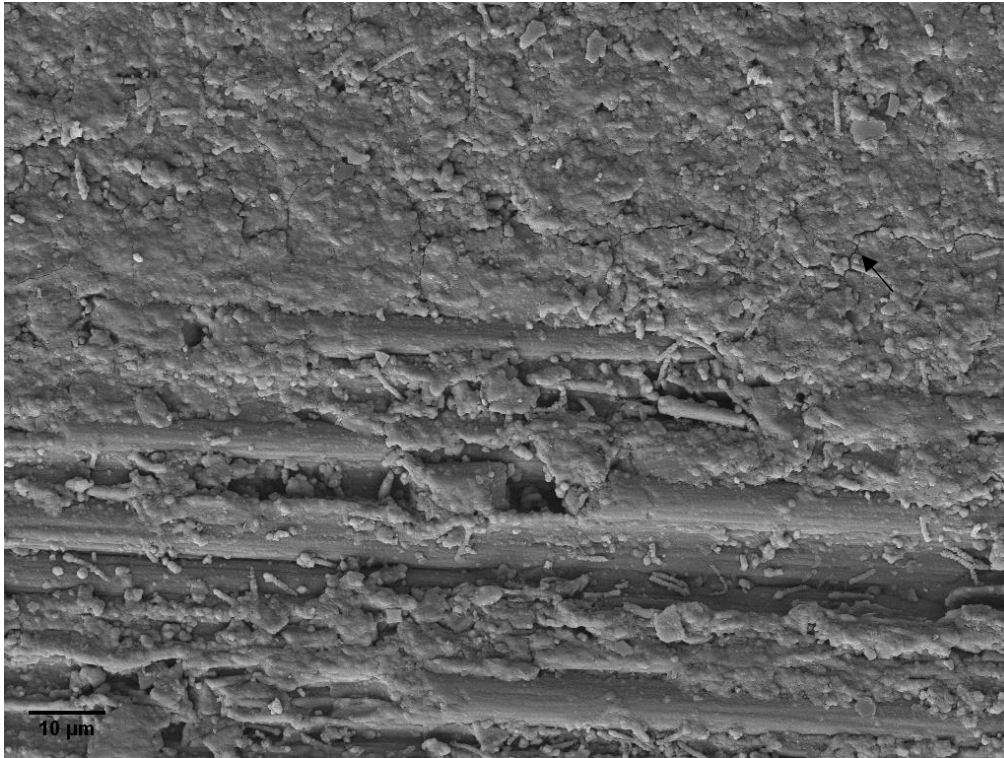


Fig. S9. SEM micrographs of aged twill weave surface.

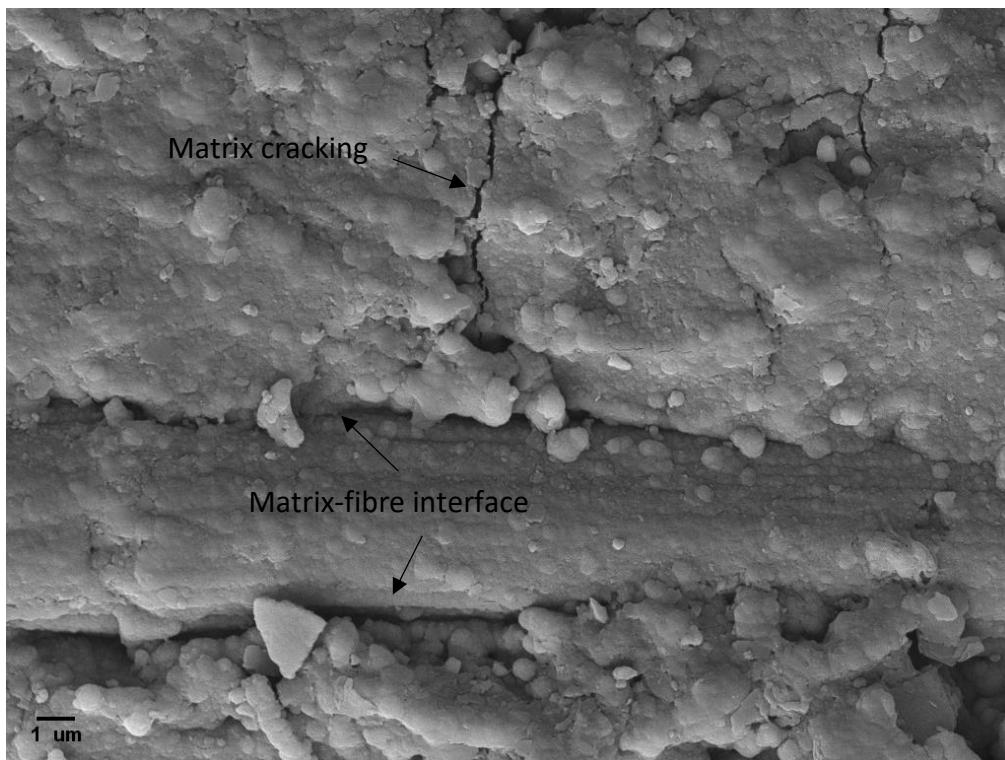


Fig. S10. SEM micrographs of aged twill weave surface.

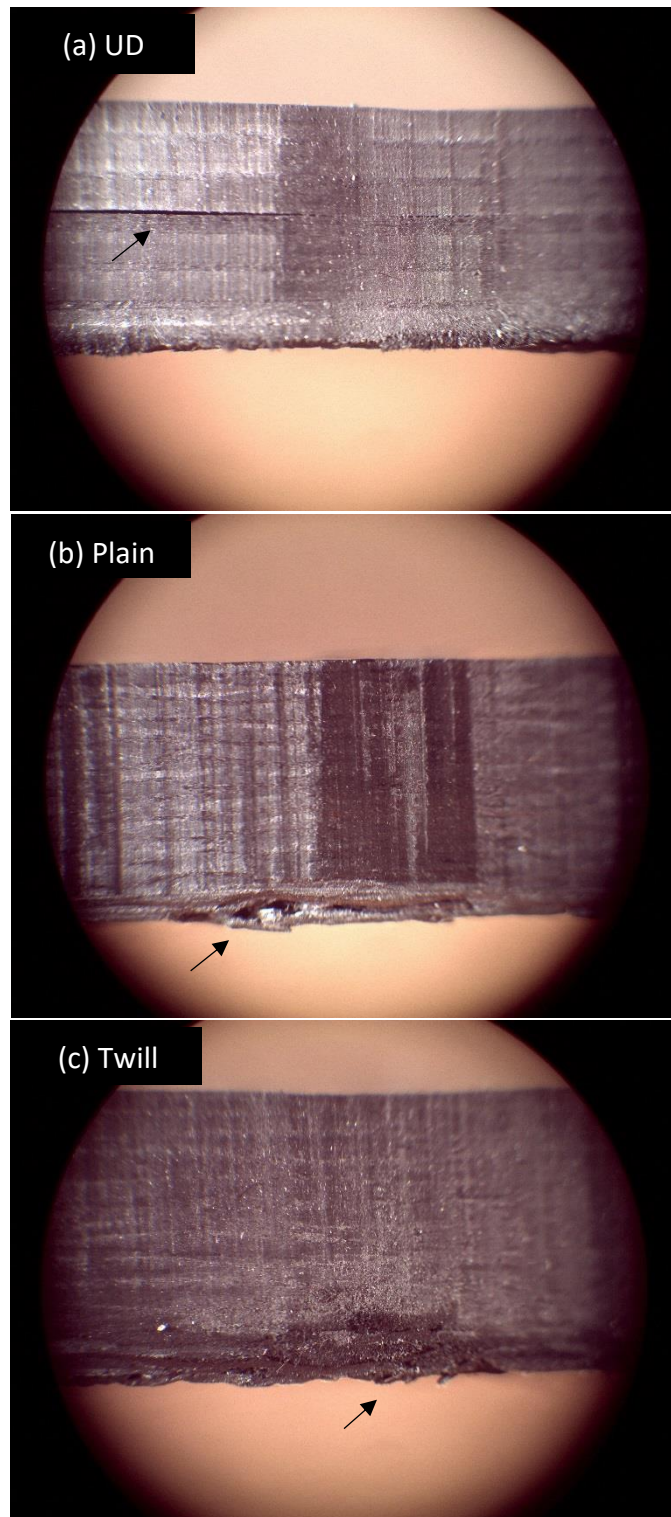


Fig. S11. IDR specimens after 20J impact; images are showing a length of 12mm (± 0.25 mm) of the middle section of the specimen's impact damage area.

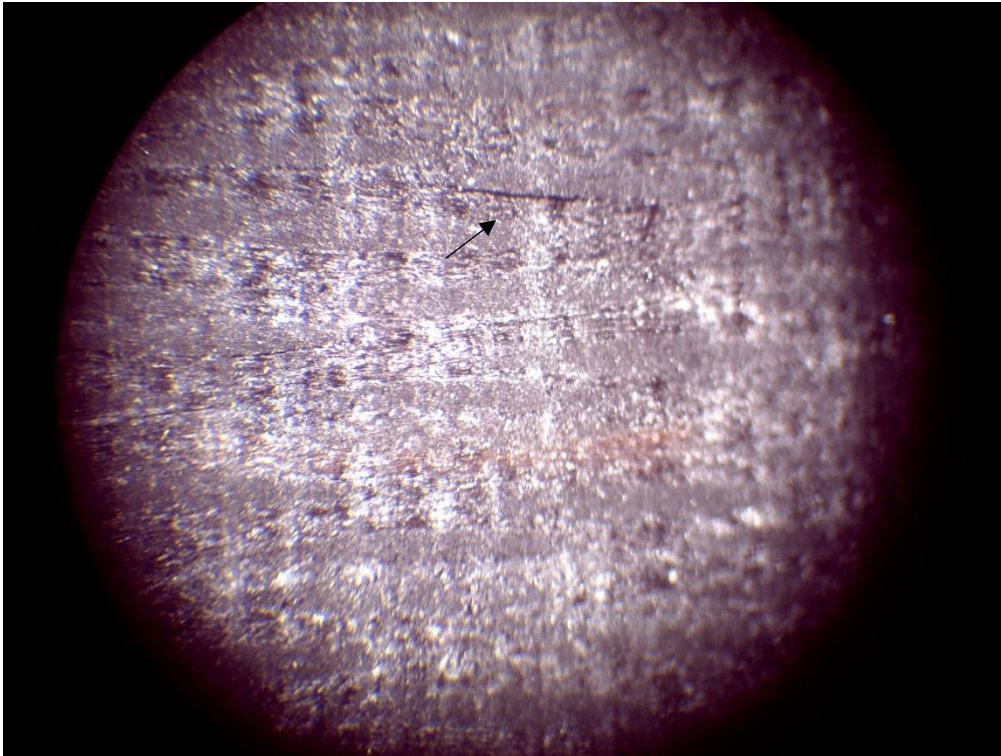


Fig. S12. Single delamination failure mode observed for 3PB un-aged plain specimens.

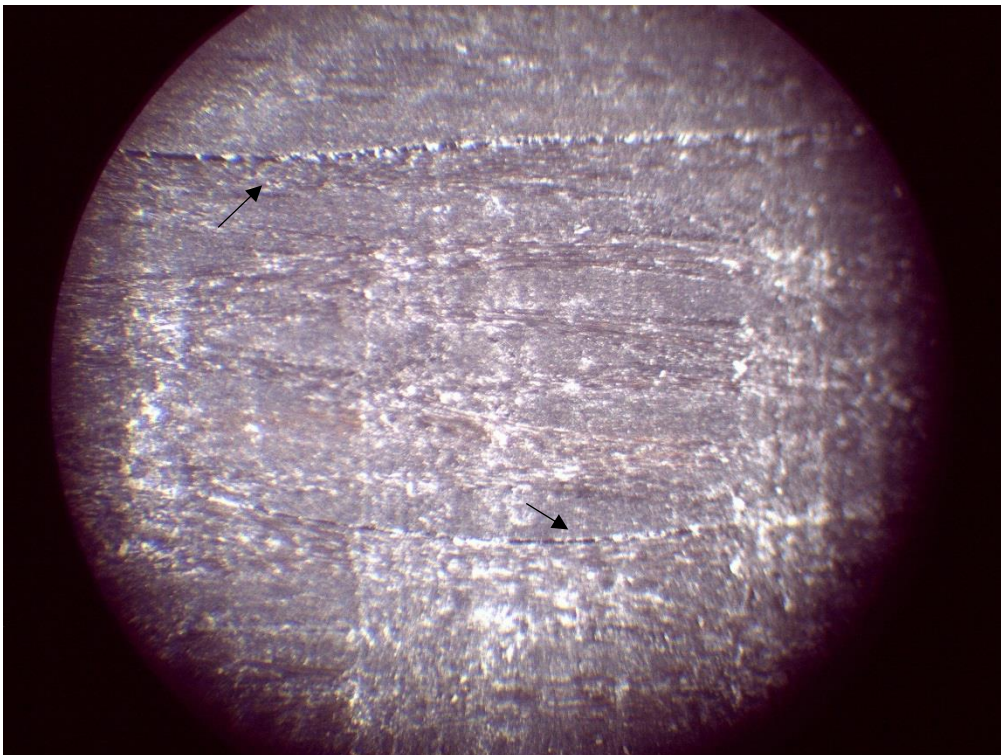


Fig. S13. Multiple delaminations failure mode observed for 3PB aged plain specimens.

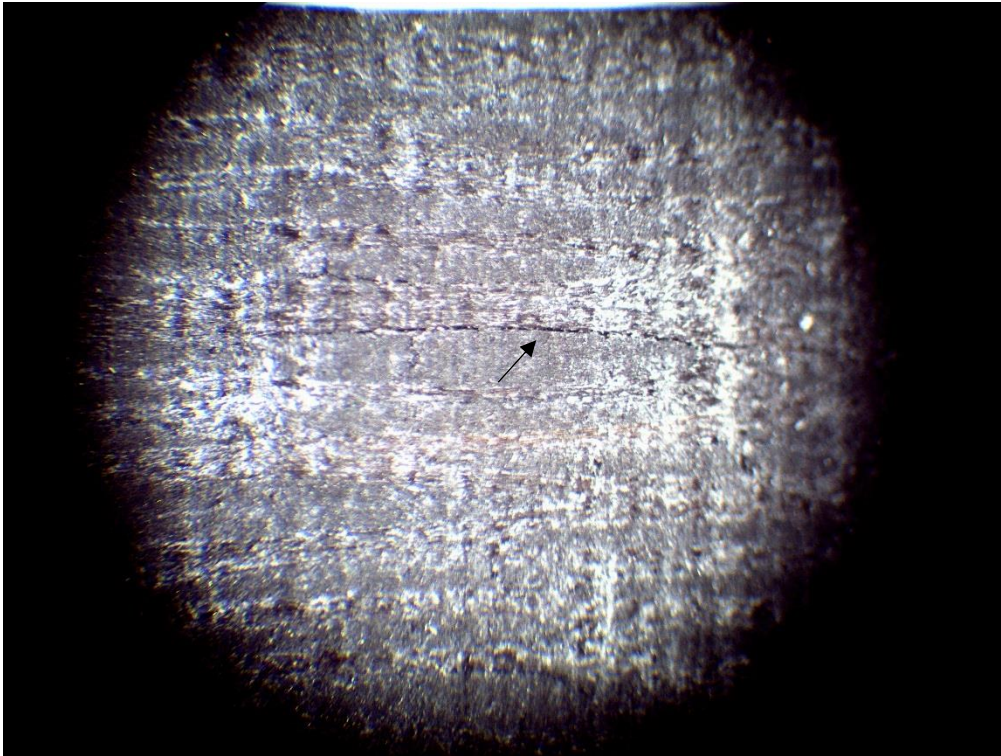


Fig. 14. *Single delamination failure mode observed for 3PB un-aged twill specimens.*

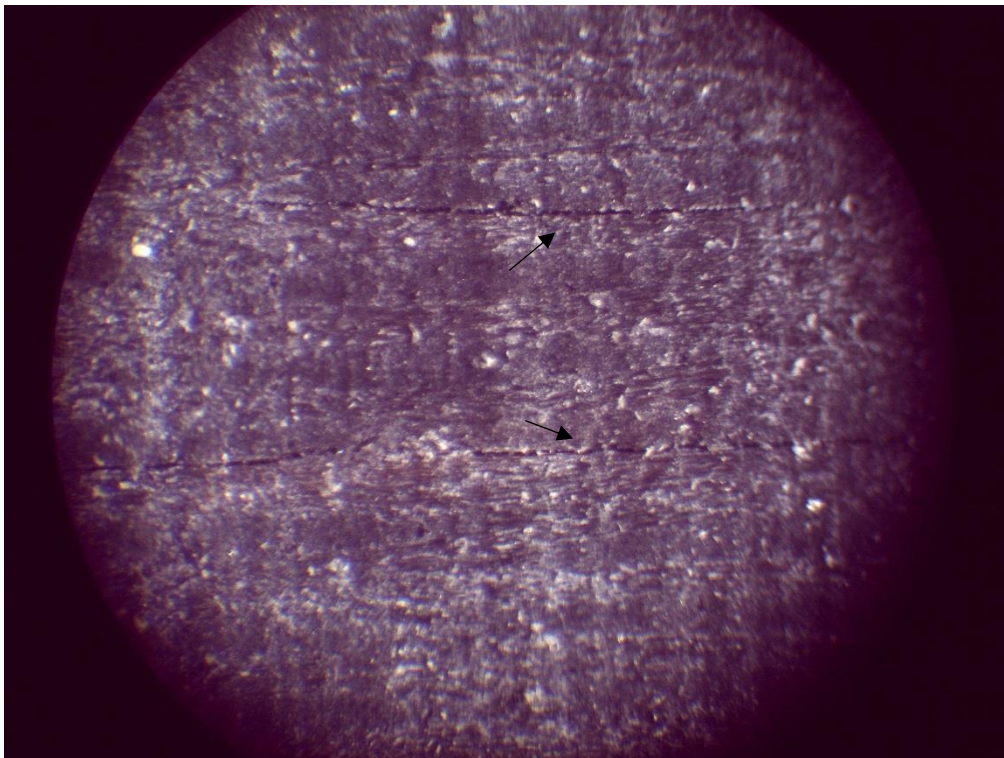


Fig. 15. *Multiple delaminations failure mode observed for 3PB aged twill specimens.*