

## **Read me - Data underlying the publication: Acoustic Emission Approach for Identifying Fracture Mechanisms in Composite Bonded Joints: A Study on Varying Substrate's Stacking Sequence.**

The dataset shared here contains the raw data on acoustic emission of quasi-static mode I crack propagation tests in secondary composite adhesively bonded joints. Five adhesively bonded tailored composites with different stacking sequences were manufactured and tested. The specimens underwent several damage mechanisms, including cohesive failure, delamination, fibre breaking and fibre-matrix debonding.

The dataset is divided into folders, with the specimen identification described here: <https://doi.org/10.1016/j.tafmec.2024.104490>. Moreover, two files will be saved in each folder: .tradb (transient waveforms recorded during the tests) and .pridb (file that includes all the parameters recorded for each waveform).

An additional folder named Load versus Displacement contains the experimental data from the quasi-static mode I test. The data format is a Microsoft Excel Worksheet (.xlsx), following the same specimen identification in the referred paper.

If you have any questions or need extra information, please do not hesitate to contact me through the following email: [r.dearaujoalveslima@tudelft.nl](mailto:r.dearaujoalveslima@tudelft.nl).

### **Acoustic emission raw data specific information:**

The .pridb file contains a table with the following parameters for each recorded waveform in the order of the columns as specified below:

1. Set identification;
2. Set type;
3. Time when the waveform was recorded;
4. Channel – as only one sensor was used, it will contain just the number 1;
5. Status;
6. Threshold in mV;
7. Amplitude;
8. Rise-time;
9. Duration;
10. Energy;
11. RMS (Root Mean Square);
12. Counts;
13. TRAI (waveform identification – order in which the waveforms were acquired);
14. Load in mV (multiply by 0.03 to have the values in N);
15. Displacement in mV (multiply by 0.01 to have the values in mm).

### **Load versus displacement raw data specific information:**

The Excel files present three columns related to the acquisition time, load (N) and displacement (mm) values.