

Supporting Information for “Pressure-induced reactivity in the emeraldine salt and base forms of polyaniline probed by FTIR and Raman”

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Raman Spectra

Figure 1S presents the Raman spectra measured during the compression (A) – decompression (B) cycle of PANI-EB-IF at ambient temperature (298 K). The characteristic bands of PANI-EB-IF at ambient pressure are due to the quinoid segments at 1590 (ν_{C-C}), 1470 ($\nu_{C=N}$), 1218 (ν_{C-N}) and 1164 (β_{C-H}) cm^{-1} ,¹⁻³ (Figure 2S A, bottom spectrum). The overall observed results for the Raman experiments are quite similar to the results reported for the FTIR data. Briefly, a broadening and a blue shift of the bands as the pressure increases, preceding the complete loss of the spectral features

possibly indicating a partial or complete amorphization of the polymer at ~ 14 GPa. Under decompression, the amorphization is almost completely reversible and the recovered spectrum is very similar to the starting one unless a broadening of the bands likely due to the stress. However, it is important to notice that PANI-EB presents a strong resonance condition with this exciting radiation (647.1 nm) turning impossible to observe the formation of any other species during the compression-decompression cycle.

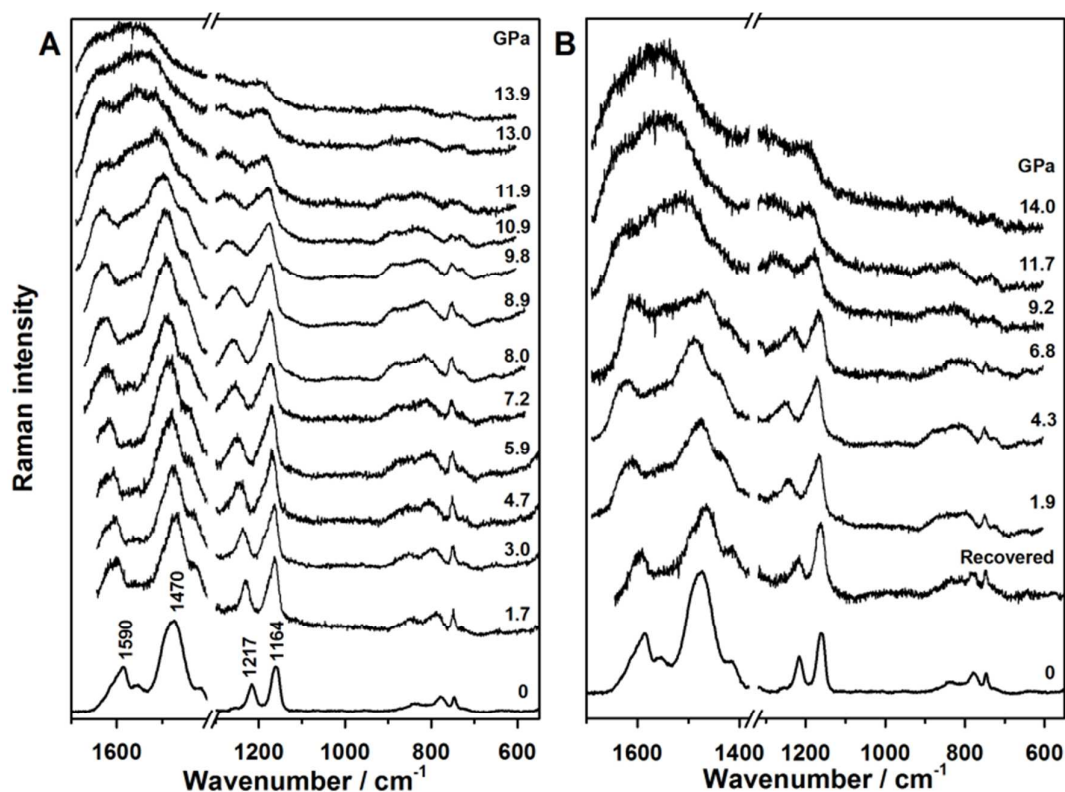


Figure 1S. Raman spectra of PANI-EB-IF (A) compression and (B) decompression at 298 K.

The Raman spectra of the doped and dedoped forms of PANI-bulk and PANI-RM are summarized in Figures 2S and 3S, respectively.

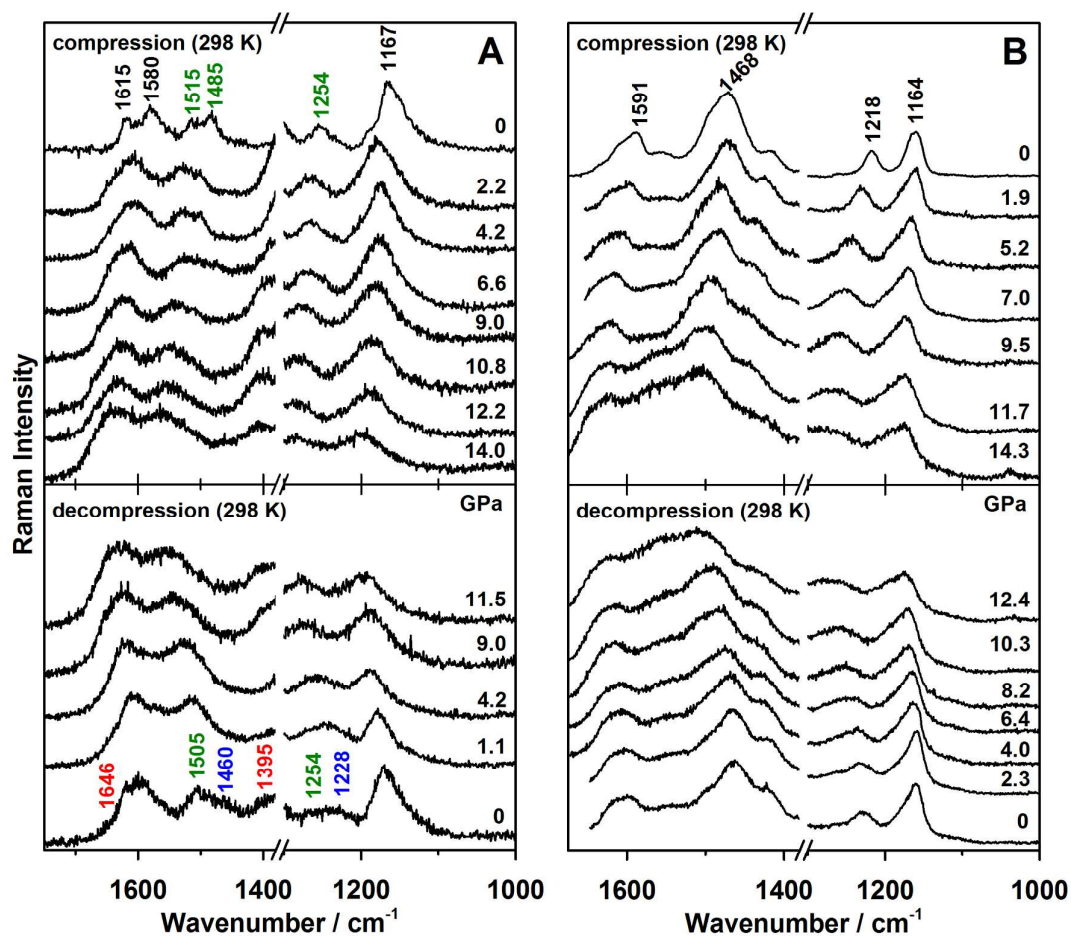


Figure 2S. Raman spectra of PANI-ES-bulk (A) and PANI-EB-bulk (B) during the compression (upper panels) and decompression (lower panels) at 298 K.

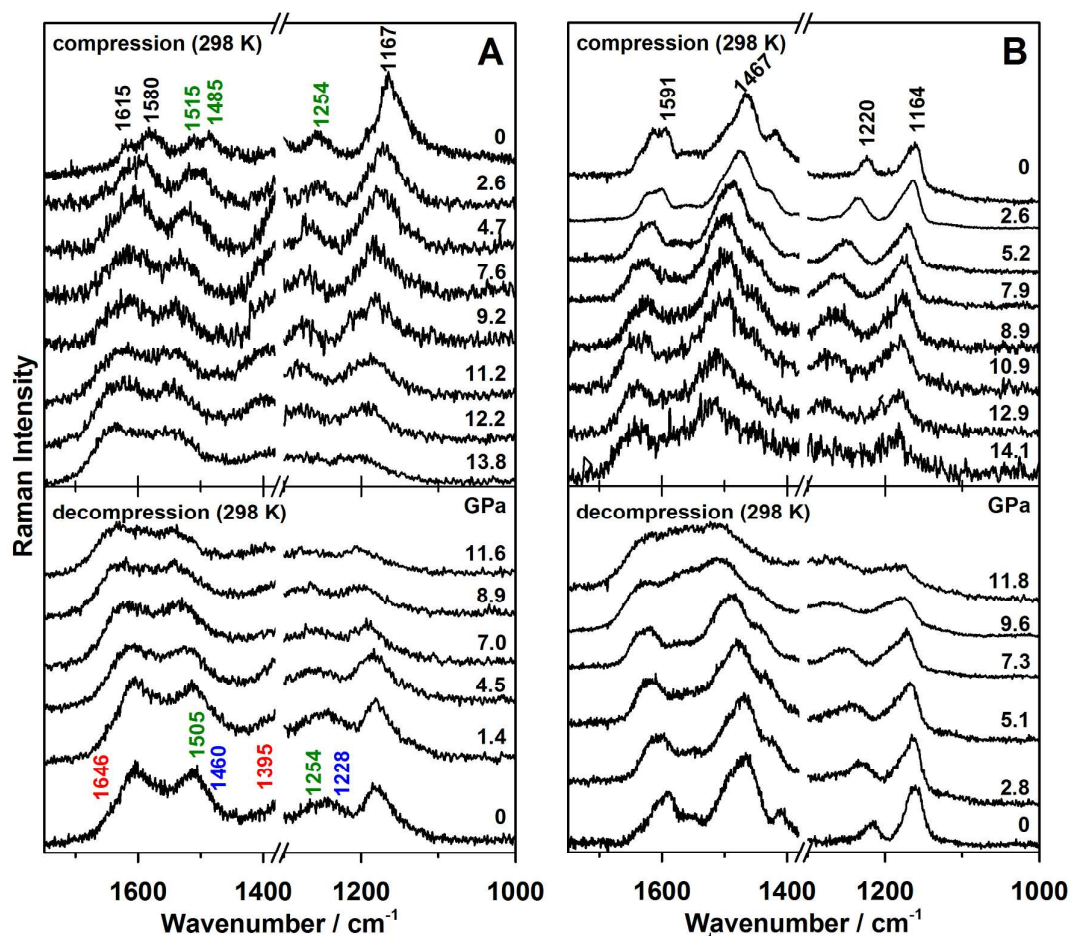


Figure 3S. Raman spectra of PANI-ES-RM (A) and PANI-EB-RM (B) during the compression (upper panels) and decompression (lower panels) at 298 K.

References

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