



**Figure S 1** – The pattern of damage to the PEI adherend adjacent to the sonotrode during the formation of the TecaPEI joints; USW duration ( $t$ ), ms / Clamping force ( $P$ ), atm / Holding time ( $\tau$ ), ms: a) #1 – 400/1.5/3000; b) #2 – 400/1.7/5000; c) #3 – 400/1.9/7000; d) #4 – 500/1.5/5000; e) #5 – 500/1.7/7000; f) #6 – 500/1.9/3000; g) #7 – 600/1.5/5000; h) #8 – 600/1.7/3000; i) #9 – 600/1.9/5000; j) #10 – 400/2.1/3000; k) #11 – 500/2.1/3000; l) #12 – 600/2.1/3000