Electronic Supplementary Material (ESI) for RSC Advances.

Plasma Polymerisation of an Allyl Organophosphate Monomer by Atmospheric Pressure Pulsed-PECVD: Insights Into The Growth Mechanisms

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SUPPORTING INFORMATION

Table S1. Tentative assignment of top-30 negative secondary ions among 414 automatically detected negative ions in the mass range 1-200 as sorted by PCA, showing a trend from more organic (negative loadings) to inorganic (positive loadings) composition of the investigated films.

Tentative assignment of top-30 negatively loaded peaks (PC1)	Tentative assignment of top-30 positively loaded peaks (PC1)
P_2OH_4, C_2PO, C_3OH, C_3O, C_2HPO, C_2H_3, CH_2PO_4, C_2HP, C_2HPO_2, C_3H_3, C_2OH, CH_2, C_2H_4PO3, CH_3PN, $C_3H_9PO_4$, C_2H_3O, H_2, $C_2H_6PO_4$, C_4H_4, PO_4H, $C_4H_6PO_3$, C_3H_2PO, CH_2P, H_3PO_4, CH, C_2H, C_3H_2, $C_3H_2PO_2$, C_4H_5, $C_4H_8PO_3$	CH_2PO_2, CP_2NO_6, P, OH, $P_2NO_4H_2$, NH_2, NH, $P_2N_2O_5$, PNOH, P_3NO_3H, PNO_2H, P_2NO_4H, CPN_2O_2, P_2NO_2, PNO, CP_2NO_5, CHP_2O_4, PO_4, Cl, PNO_7, P_3O_6, F, O, ^{18}O, P_2NO_3, $P_2NO_5H_2$, NO, O_2H, O_2, P_2NO_4

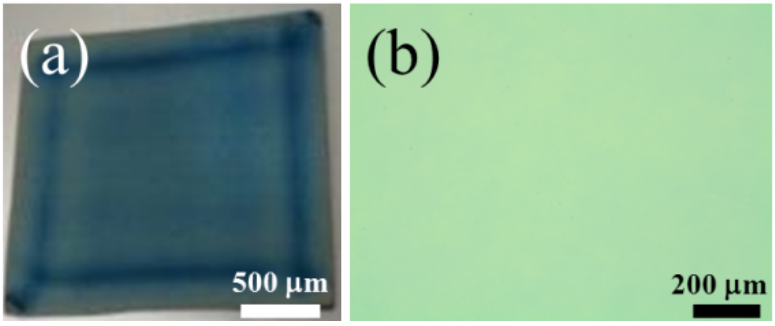

Figure S1. Top-view (a) photograph and (b) optical microscopy picture, of the film produced using a DC of 3% for a power density of 1.0 $W \cdot cm^{-2}$.

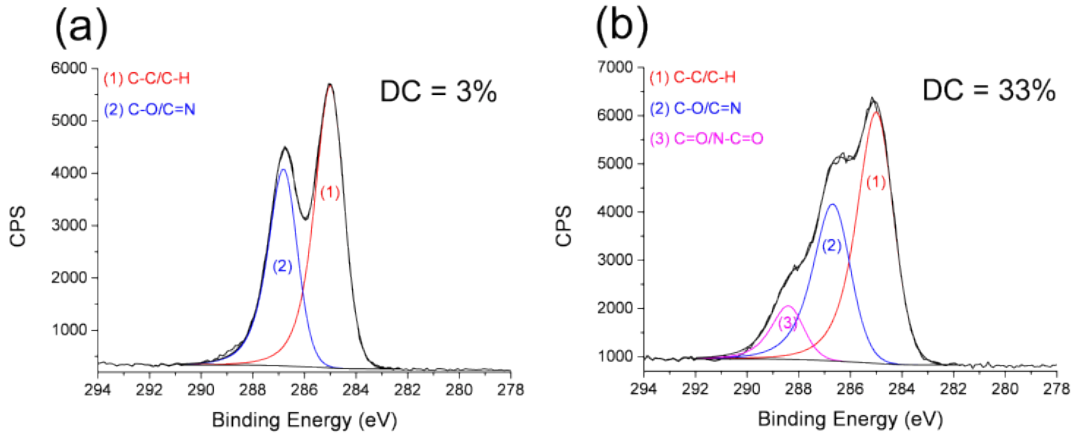

Figure S2. XPS curve-fitting of the C 1s core level of the films produced at a power density of 1.0 W·cm^{-2} and a DC of 3% (a) and of 33% (b).

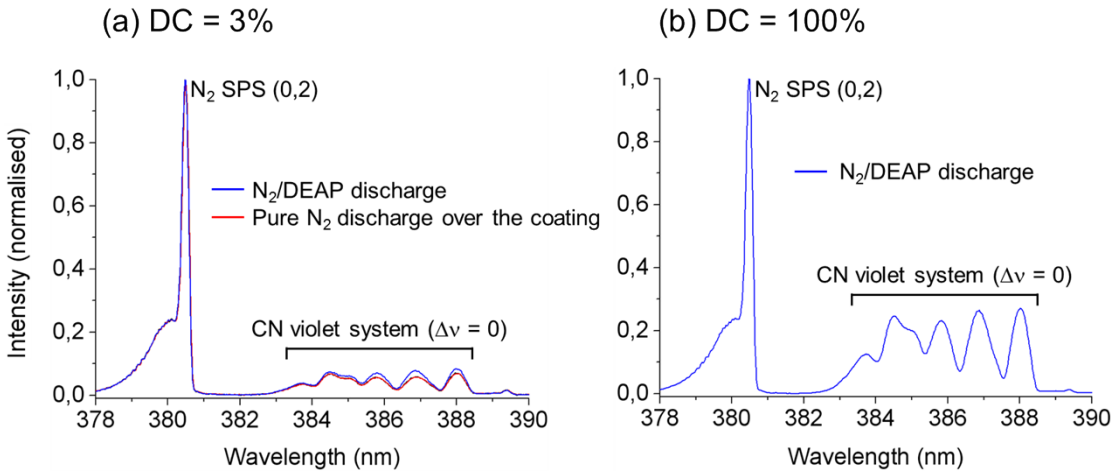

Figure S3. Evolution of the CN violet system emission ($\Delta\nu = 0$) normalised to the N_2 SPS ($C^3\Pi_u \rightarrow B^3\Pi_g$, $\Delta\nu = -2$).

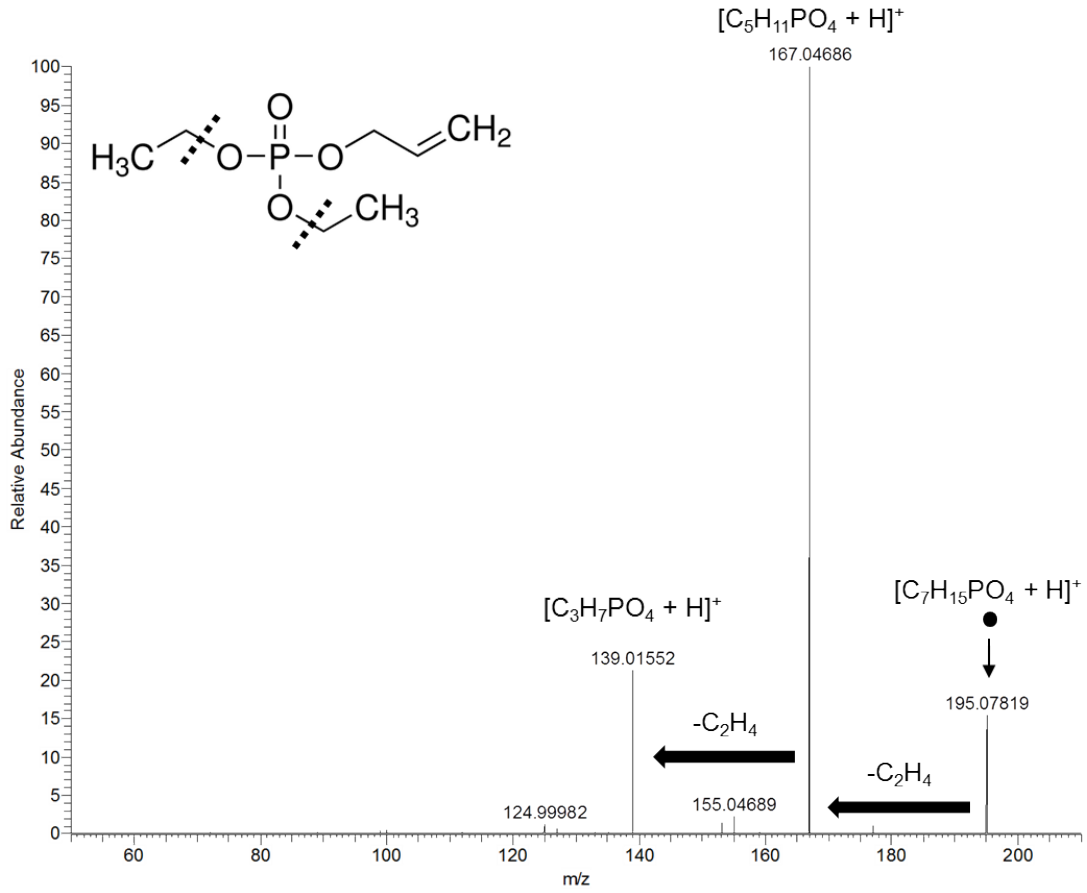

Figure S4. DART MS/MS of protonated DEAP (NCE=20) showing the loss of ethyl groups as preferential fragmentation pathway.