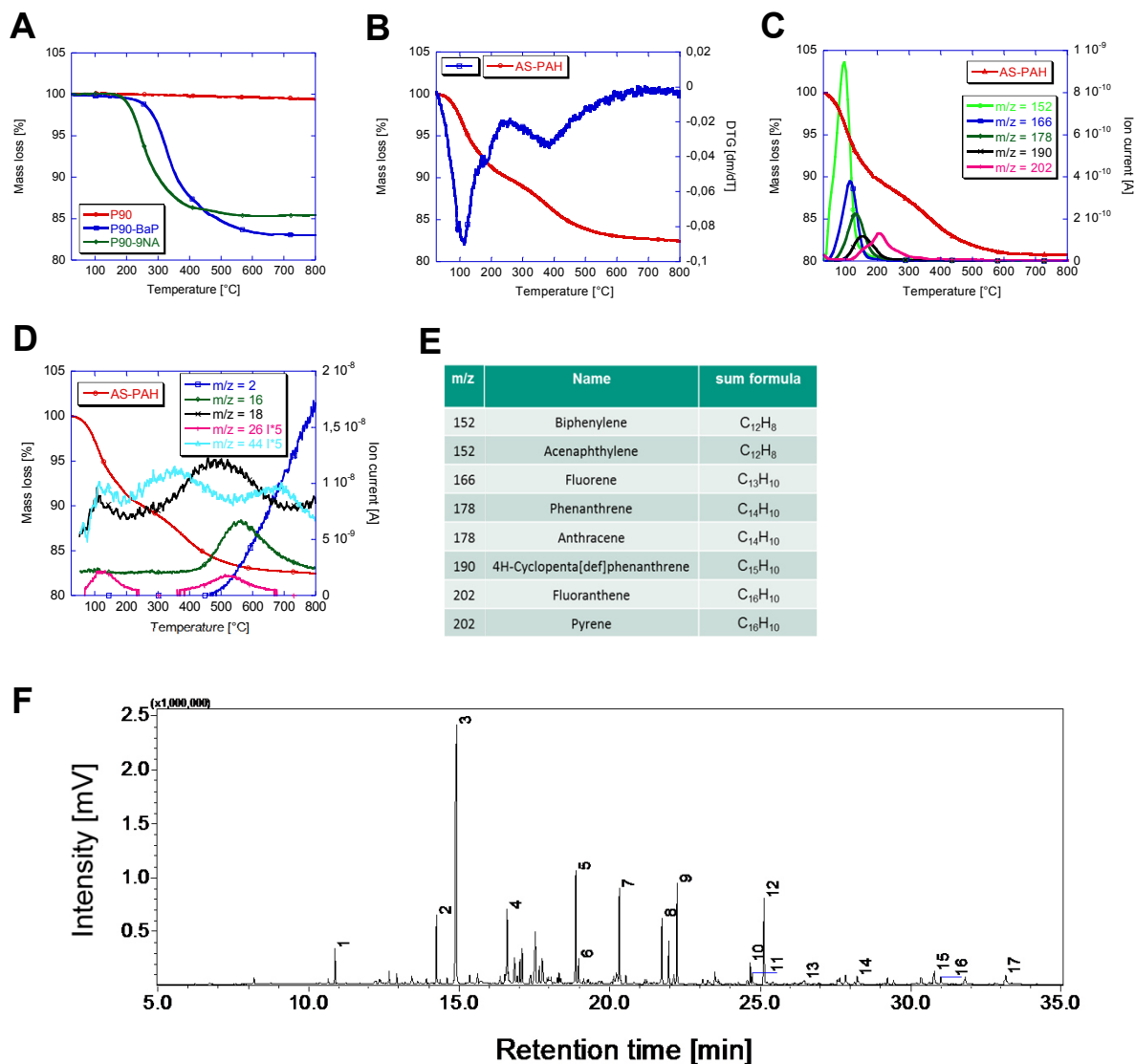


## Additional file 2



**AS-PAH exhibited a less PAH content and a PAH mix compared to the coated P90 nanoparticles.**

**A)** Representative thermograms of P90 and P90 coated with BaP or 9NA. One representative thermogram of AS-PAH is shown as the red line in **(B)**. The blue line in **B** represents the derivative thermogravimetric (DTG) results of the delta-mass-to-delta-temperature ratio, illustrating the two-stage thermal desorption. Figures **C** and **D** show thermograms and mass-spectra curves of AS-PAH detected for the range  $m/z=100-250$  (**C**) and  $m/z=1-100$  (**D**). **C**) In the first stage, PAHs were predominantly detected. **D**) The fragments  $m/z=26$  and  $44$  in the first stage were PAH fragments or acetylene and carbon dioxide. In the second stage, a release of hydrogen ( $m/z=2$ ), methane ( $m/z=16$ ), water ( $m/z=18$ ), acetylene ( $m/z=26$ ) and carbon dioxide ( $m/z=44$ ) occurred. Possible PAH candidates are represented in **(E)**. Figure **F** shows a representative GC/MS chromatogram of PAHs from an AS-PAH sample.  $m/z$ =mass-to-charge ratio