

## Supplementary Materials

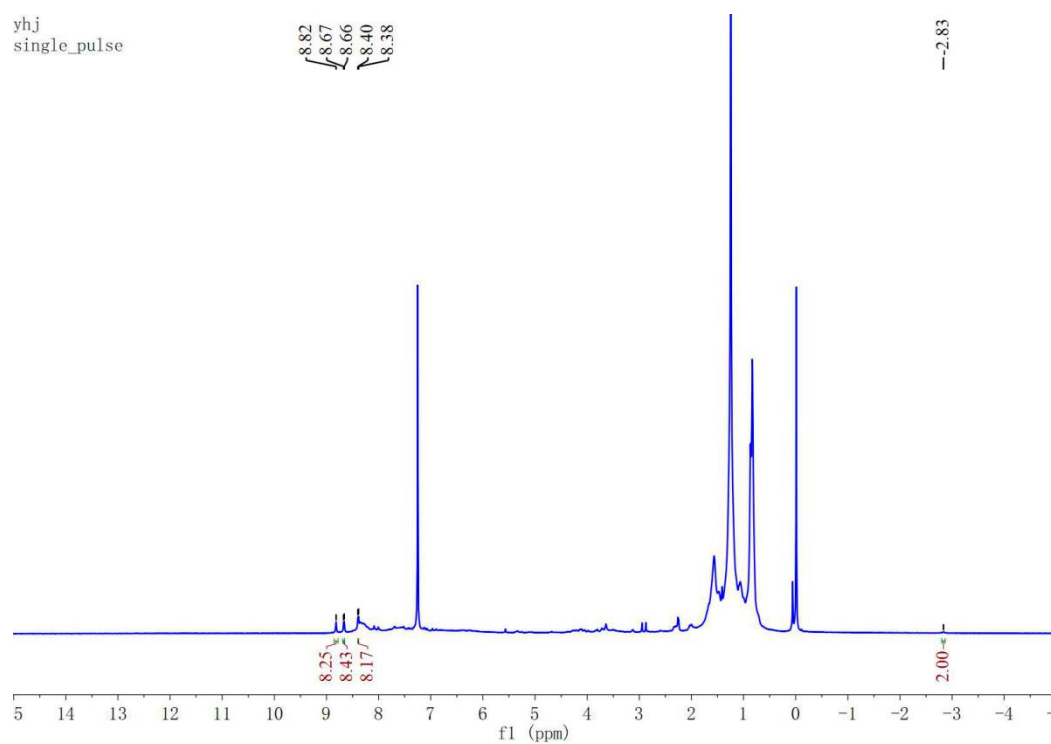


Figure S1,  $^1\text{H}$  NMR spectrum of TNPP

| analytic functional testing<br>varioEL CHNS<br>serial number: 11076108 |                    |               |                |      |         |              | 01.11.19 16:42 |                                              |                              |                                      |
|------------------------------------------------------------------------|--------------------|---------------|----------------|------|---------|--------------|----------------|----------------------------------------------|------------------------------|--------------------------------------|
| No.                                                                    | Name               | Wght.<br>[mg] | Date Time      | Info | O2      | Prot.<br>[%] | C/N<br>Ratio   | Content<br>[%]                               | Peak<br>Area                 | Daily<br>Factor                      |
| 19                                                                     | 材料系-古里密热-大分子3.5780 |               | 01.11.19 16:16 | Su   | Index 3 | 0.000        | 5.848          | N: 11.12<br>C: 65.03<br>S: 0.006<br>H: 4.345 | 14444<br>58773<br>2<br>10594 | 0.9779<br>0.9972<br>1.0500<br>0.9796 |
| 20                                                                     | 大分子有机物(补)          | 3.1740        | 01.11.19 16:28 |      | Index 3 | 0.000        | 5.900          | N: 11.18<br>C: 65.95<br>S: 0.000<br>H: 4.819 | 12883<br>52885<br>0<br>10397 | 0.9779<br>0.9972<br>1.0500<br>0.9796 |
| 21                                                                     | 大分子有机物(补)          | 3.4250        | 01.11.19 16:40 |      | Index 3 | 0.000        | 5.901          | N: 11.02<br>C: 65.02<br>S: 0.000<br>H: 4.745 | 13702<br>56256<br>0<br>11153 | 0.9779<br>0.9972<br>1.0500<br>0.9796 |

Figure S2, elemental analysis of TNPP

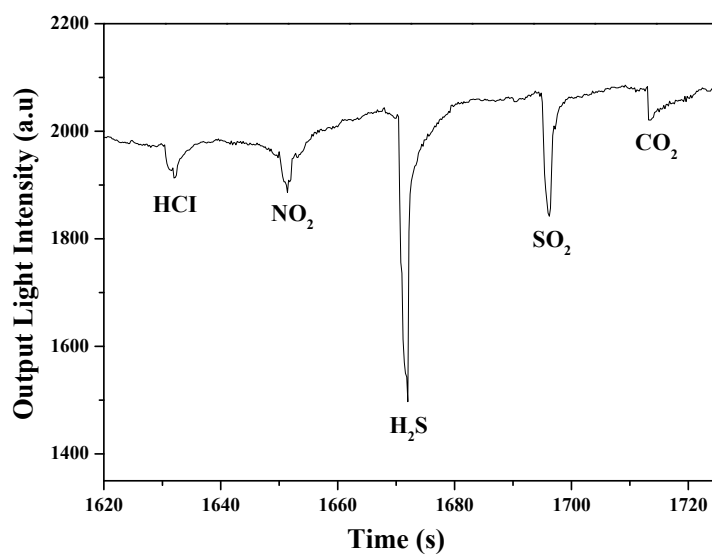
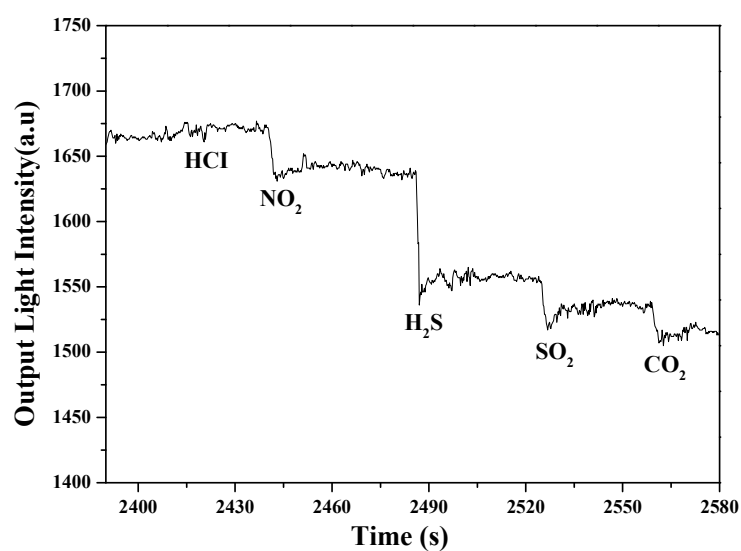
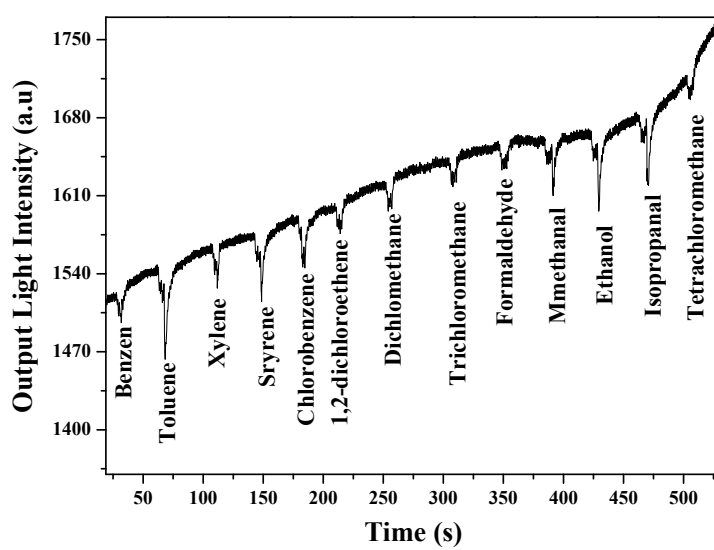


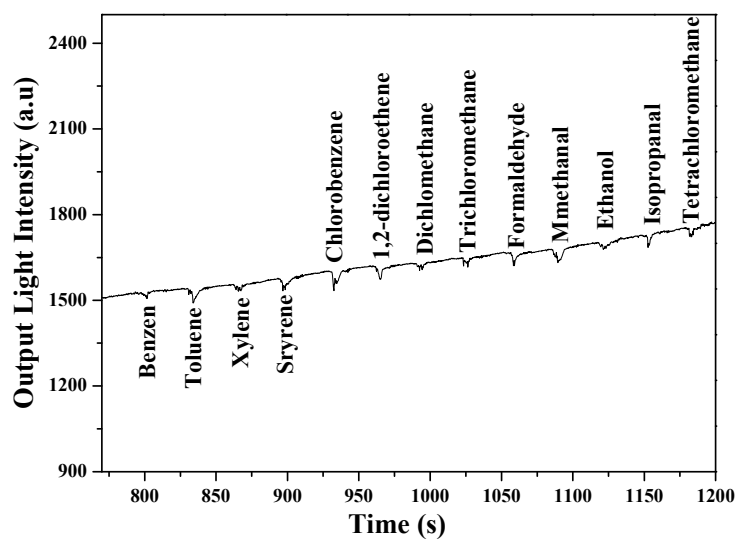
Figure S3. The Nf-TNPP film OWG sensor response to 100 ppm of inorganic gases at 650 nm



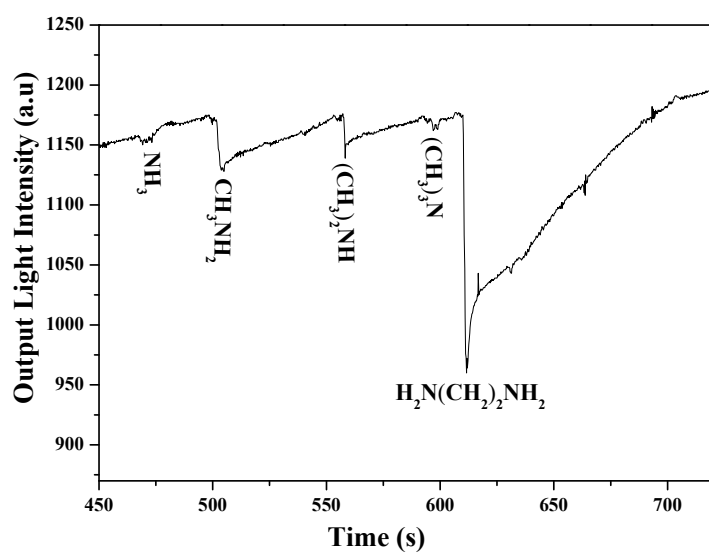
**Figure S3.** The Nf-TNPP film OWG sensor response to 100 ppm of inorganic gases at 532 nm



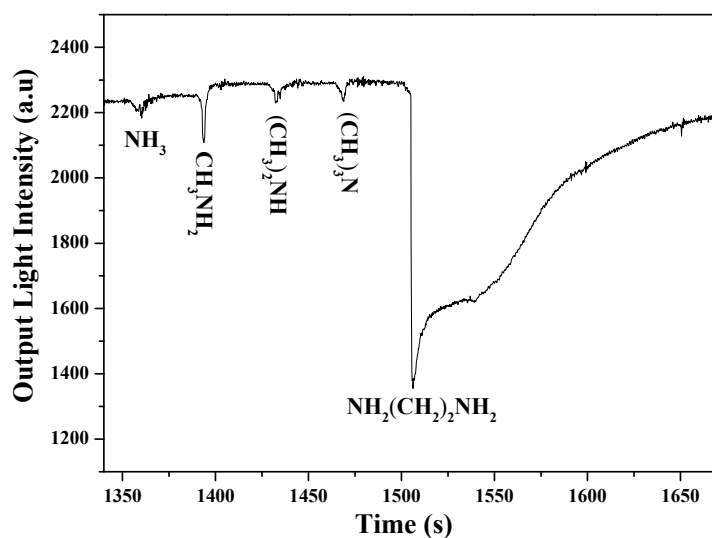
**Figure S4.** The Nf-TNPP film OWG sensor response to 100 ppm of VOCs at 650 nm



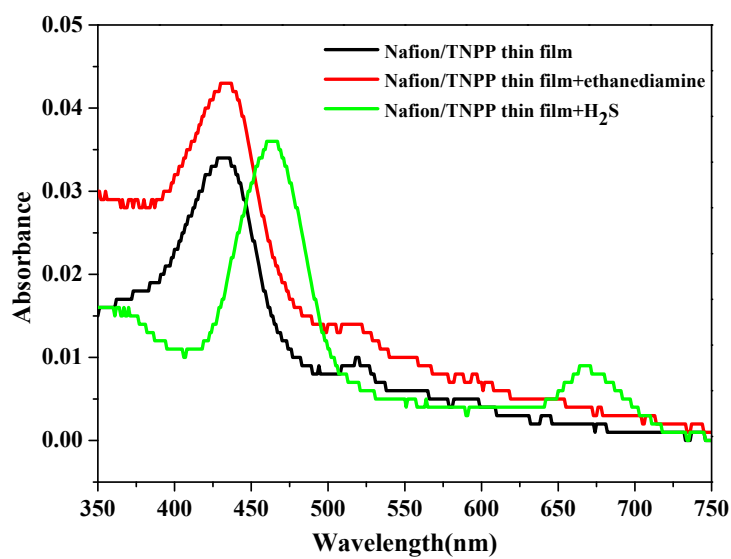
**Figure S4.** The Nf-TNPP film OWG sensor response to 100 ppm of VOCs at 650 nm



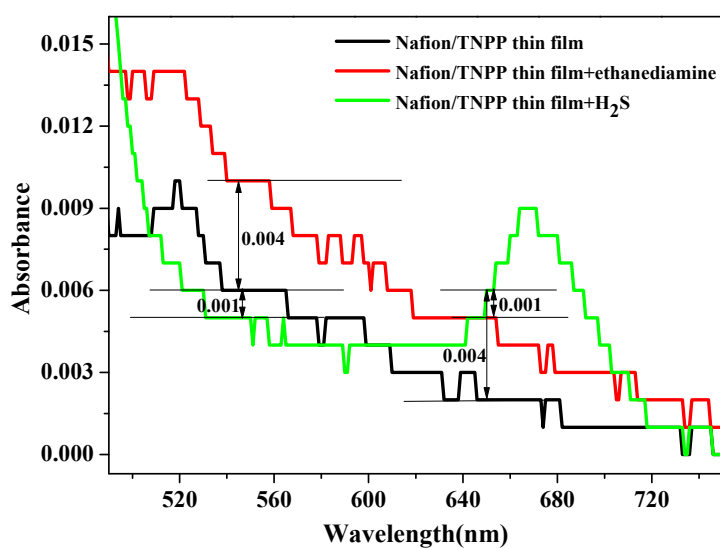
**Figure S5.** The Nf-TNPP film OWG sensor response to 100 ppm of amines at 650 nm



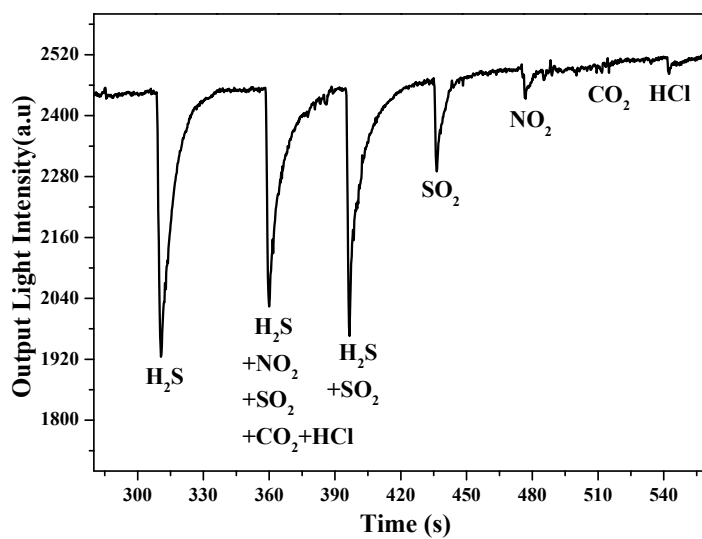
**Figure S5.** The Nf-TNPP film OWG sensor response to 100 ppm of amines at 532 nm



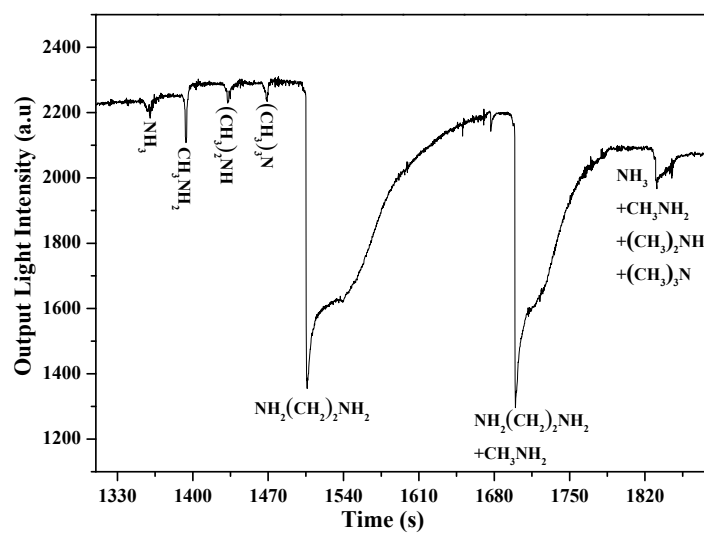
**Figure S6.** Absorption spectra of Nf-TNPP film before and after exposure to H<sub>2</sub>S and EDA gas vapours (350-750 nm)



**Figure S6.** Absorption spectra of Nf-TNPP film before and after exposure to  $H_2S$  and EDA gas vapours (490-750 nm)



**Figure S7.** The Nf-TNPP film OWG sensor response to 100 ppm of  $H_2S$  in presence of interfering gases at 650 nm



**Figure S7.** The Nf-TNPP film OWG sensor response to 100 ppm of EDA in presence of interfering gases at 532 nm