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## **Supporting Information:**

**Figure S1.** <sup>13</sup>C NMR spectrum of the filtered reaction solution measured in CDCl<sub>3</sub> of the In<sub>2</sub>O<sub>3</sub> oxide nanoparticles.



## **NMR characterization or Assignment:**

- S: Butylamine
- A: 4-(butylamino)pent-3-en-2-one
- B: N-butylpropan-2-imine
- C: N-butylacetamide

Figure S2. Kubelka-Munk elaboration of as synthesized  $In_2O_3$  DRS spectrum. The dashed line represents the *x*-axis intercept of the line tangent to the inflection point, corresponding to its apparent optical  $E_g$ , calculated with the Tauc procedure (2.73 eV).



**Figure S3** Dynamic response obtained with FIA system for repetitive pulses of 1.5 ppm sevoflurane at operation temperature of 250 °C.





**Figure S4** TGA analysis of the as-prepared  $In_2O_3$  sample.

Figure S5 Photographs of: a) the sensor before and after sensing layer deposition; b) the sensor mounted on the holder.



