SUPPLEMENTARY MATERIAL

FACILE FABRICATION OF ANILINE SENSOR BY USING COMMERCIAL CALCIUM SILICATE HYDRATE NANOSHEETS AS SENSING MATERIAL

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Characterization

The structural morphology of CSH-S was characterized by the field emission scanning electron microscope (FESEM, Zeiss, Sigma 300). HRTEM images were recorded on a JEM-2010F electron microscope, operating at 200 kV. The surface chemical groups of CSH-S were observed by Fourier transformation infrared spectroscopy (FTIR, Shimadzu, Japan). Powder X-ray diffraction (XRD) data were obtained on a Panalytical X'Pert'3 powder advance diffractometer with a graphite-monochromatized Cu Kα radiation.

Clausius-Clapeyron equation

$$\left(\frac{\partial \ln P}{\partial T} \right)_\theta = - \frac{\Delta H^\circ}{RT^2}$$

where P is the ????????????????; T is the ??????????; ΔH° is the ???????????? and R is the ???????????????.

According to Clausius-Clapeyron equation, ΔH was calculated as follows:

$$\Delta H^\circ = \frac{RT_1 T_2}{T_2 - T_1} \ln \frac{P_1}{P_2}$$
$$= \frac{RT_1 T_2}{T_2 - T_1} \ln \frac{10 \text{mPa}}{17.36 \text{mPa}}$$
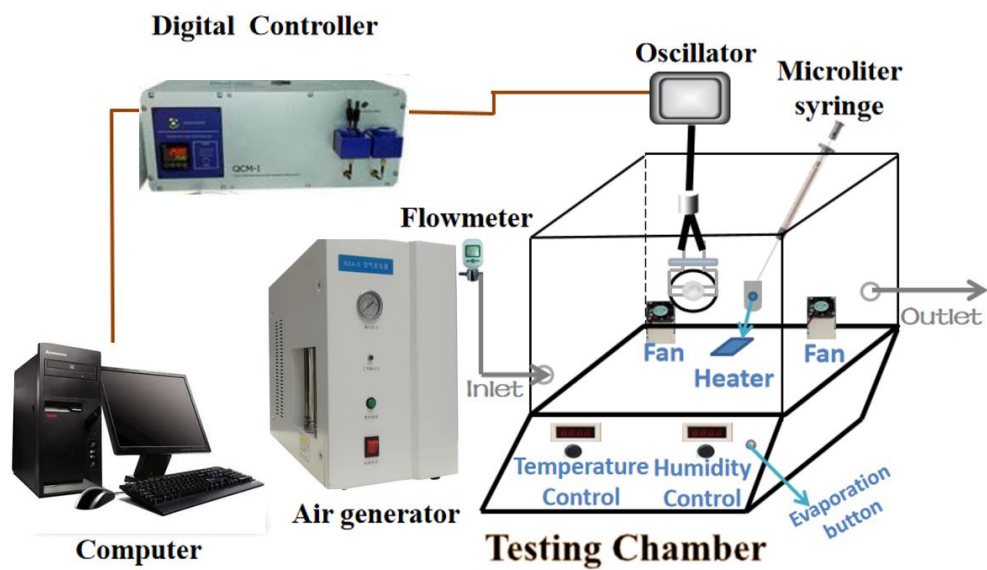$$= -28.52 \text{ kJ mol}^{-1}$$

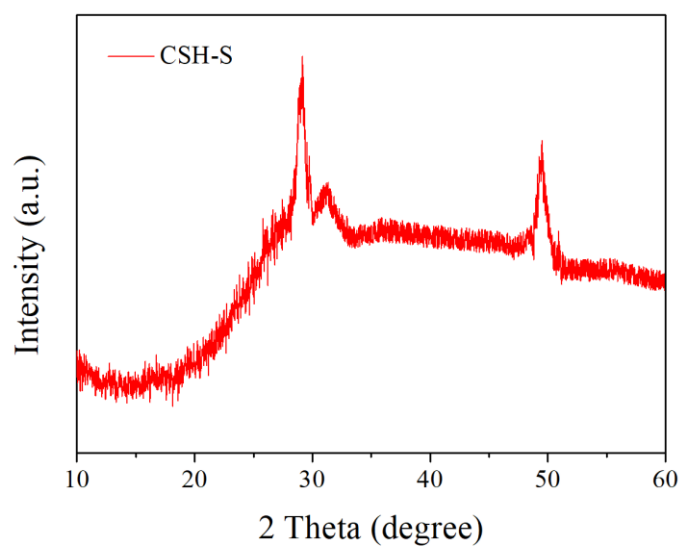**Figure 1S.** *Schematic of the sensing testing system*

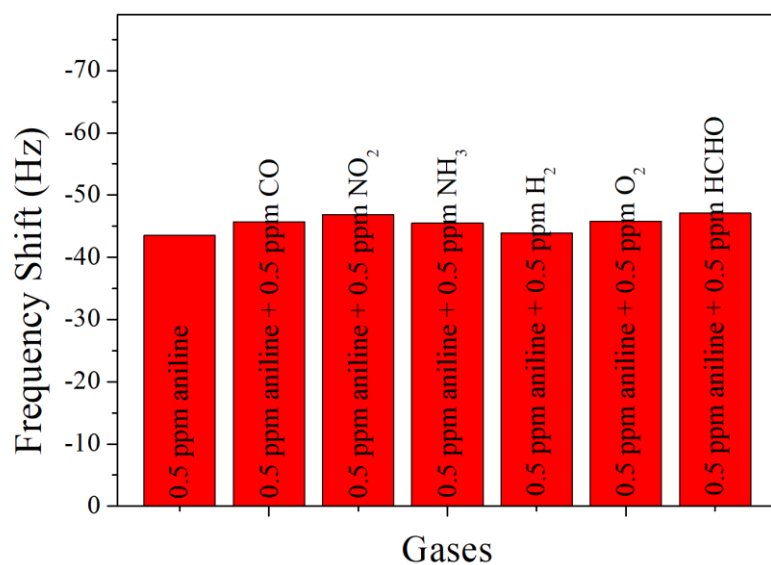**Figure 2S.** *XRD pattern of calcium silicate hydrate nanosheets*

Figure 3S. *Frequency shift values of the CSH-S coated QCM sensor to 0.5 ppm aniline mixed with 0.5 ppm of interference gases*
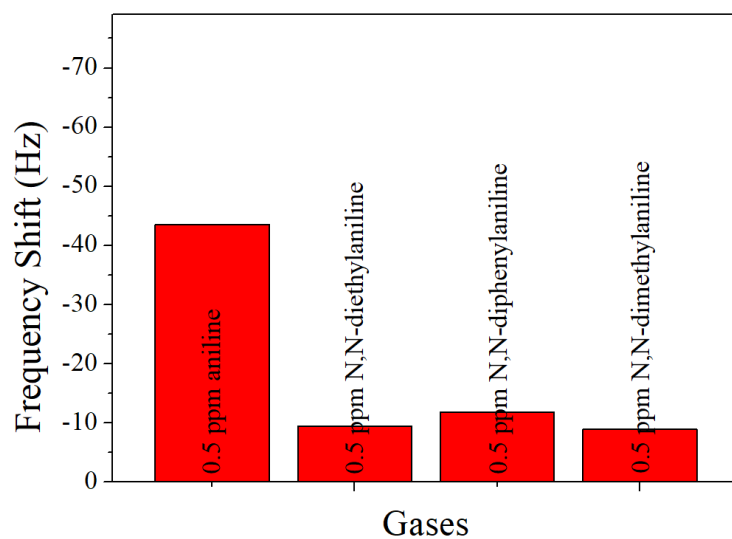

Figure 4S. *The frequency shifts of CSH-S coated QCM sensor to aniline vapor and three aniline derivative vapors. The concentrations were set at 0.5 ppm*