Electronic Supplementary Information

Synthesis of a porous SiO$_2$-H$_3$BO$_3$-V$_2$O$_5$-P$_2$O$_5$ glassy composite: Structural and Surface Morphological Behaviour for CO$_2$ Gas Sensing Applications

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Fig. S1. (a) Low magnification of SEM micrograph on which mapping was performed, and (b) Pie-chart showing elemental percentage distribution of the glass sample.

Table S1: Elements and their weight percentage of the synthesized glass sample.

| Element | Weight % |
|---------|----------|
| O K     | 41.96    |
| Al K    | 0.73     |
| Si K    | 9.04     |
Table S2. Response time, recovery time and sensing response of thin film SHVP6 porous glass at 200, 400, 600, 800 and 1000 ppm of CO$_2$.

|   |   |   |
|---|---|---|
| P | K | 15.71 |
| V | K | 32.56 |
| CO$_2$ (ppm) | Response time (sec) | Recovery time (sec) | Sensing Response (sec) |
|-------------|---------------------|---------------------|------------------------|
| 200         | 12.2                | 15.3                | 1.83                   |
| 400         | 14.4                | 19.08               | 2.07                   |
| 600         | 16.3                | 21.6                | 2.34                   |
| 800         | 20.2                | 24.3                | 2.65                   |
| 1000        | 22.6                | 25.8                | 3.05                   |