

SemeaTech HCN Sensor Lifespan

All models of SemeaTech's electrochemical HCN sensors are consumptive. Based on the working principles, the catalyst of the working electrode of such a gas sensor depletes gradually when the sensor exposes to the HCN gas. The lifespan of the sensor is determined by its capacity like an alkaline battery, and the capacity is defined by how long the sensor can expose to a certain concentration of HCN gas in ppm-hours.

As an example, the sensitivity of SemeaTech 7-Series HCN-50 sensor is 0.1 $\mu\text{A/ppm}$, and theoretically, the capacity of this sensor is 20,000 ppm-hours. The lifespan of this sensor is 2,000 hours if it exposes to 10 ppm HCN gas.

The table below shows the lifespan of SemeaTech HCN sensors (both 4 and 7-series) when exposing to different concentrations of HCN gas.

HCN concentration	Operating time (hrs/day)	Lifespan (days)
50 ppm	2	200
25 ppm	2	400
10 ppm	8	250
5 ppm	24	166

Note: All SemeaTech HCN sensors in both 4 and 7 series are not recommended to continuously working at high concentration of HCN gas for a long time. These sensors are designed for life safety applications where the sensor is only exposed to gas occasionally. Continuous exposing to high concentration of HCN gas will cause significant reading drift.