

Supporting Information for

Identification of chemical vapor mixture assisted by artificially extended database for environmental monitoring

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Table S1. Identification accuracy of individual vapors and mixture vapors

Type	Vapors	Test	Results	Accuracy
Individual	NO ₂	9	9	100%
	NH ₃	9	9	100%
	HCHO	9	9	100%
Mixture	NO ₂ +NH ₃	9	9	100%
	NH ₃ +HCHO	9	8	89%
	HCHO+NO ₂	9	8	89%
	NO ₂ +NH ₃ +HCHO	9	8	89%

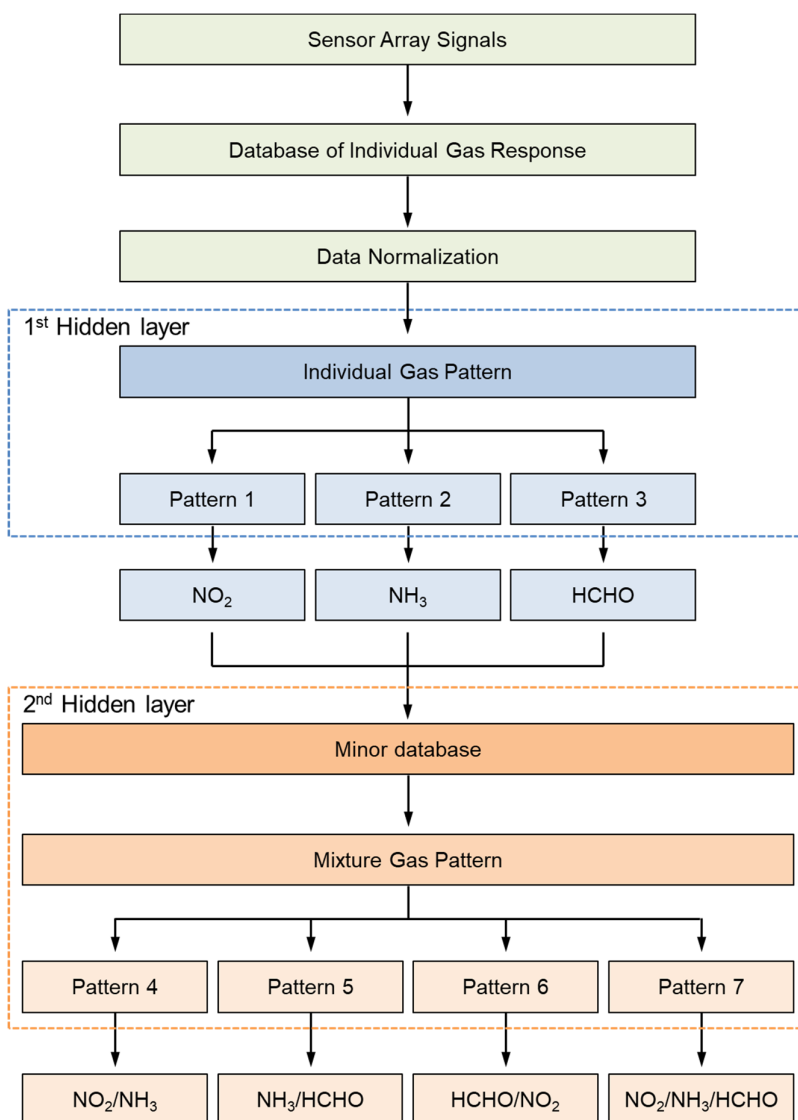


Figure S1. Concept of data processing model to classify the mixture vapors based on database of individual vapors using by pattern recognition.

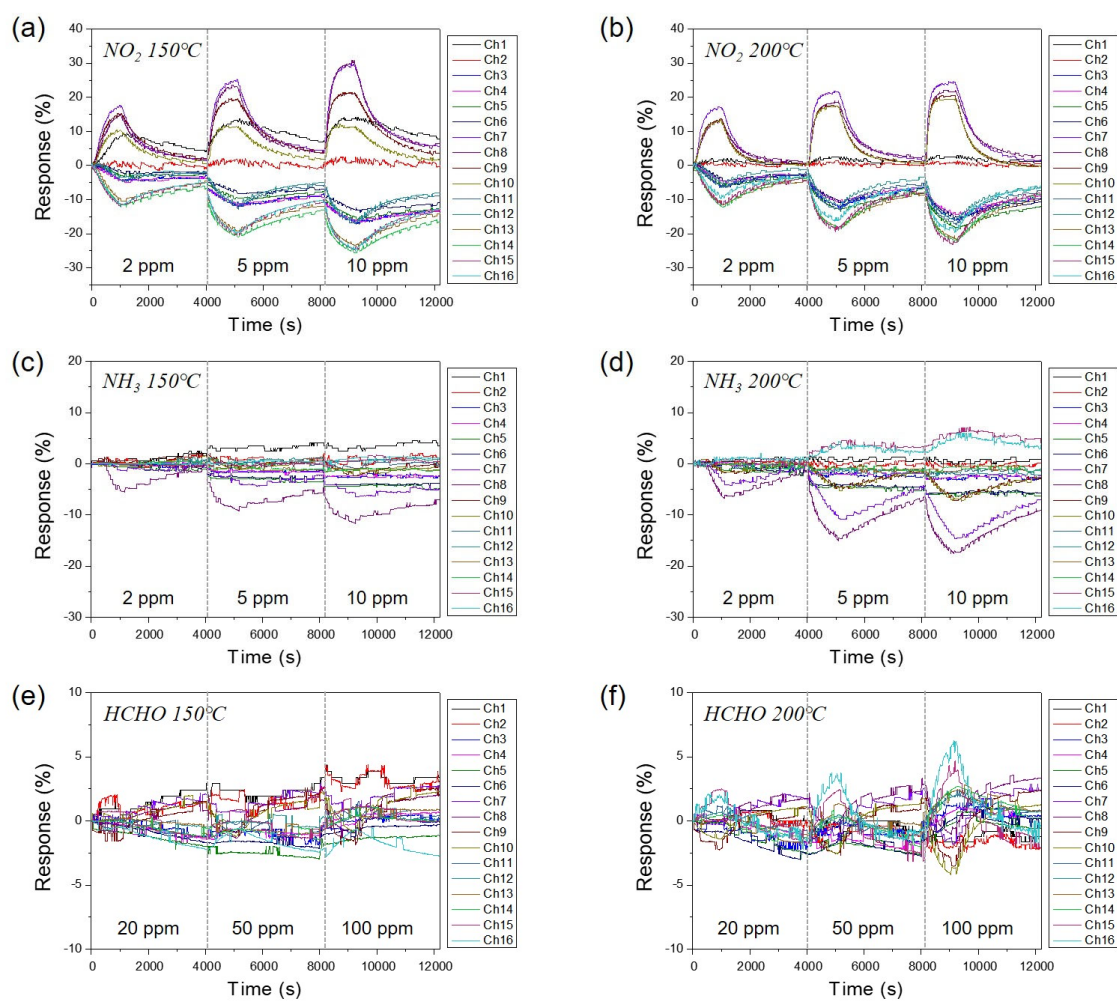


Figure S2. Experimental response curve of metal oxide sensor array for (a-b) NO_2 , (c-d) NH_3 , and (e-f) HCHO vapors in 150 and 200°C.

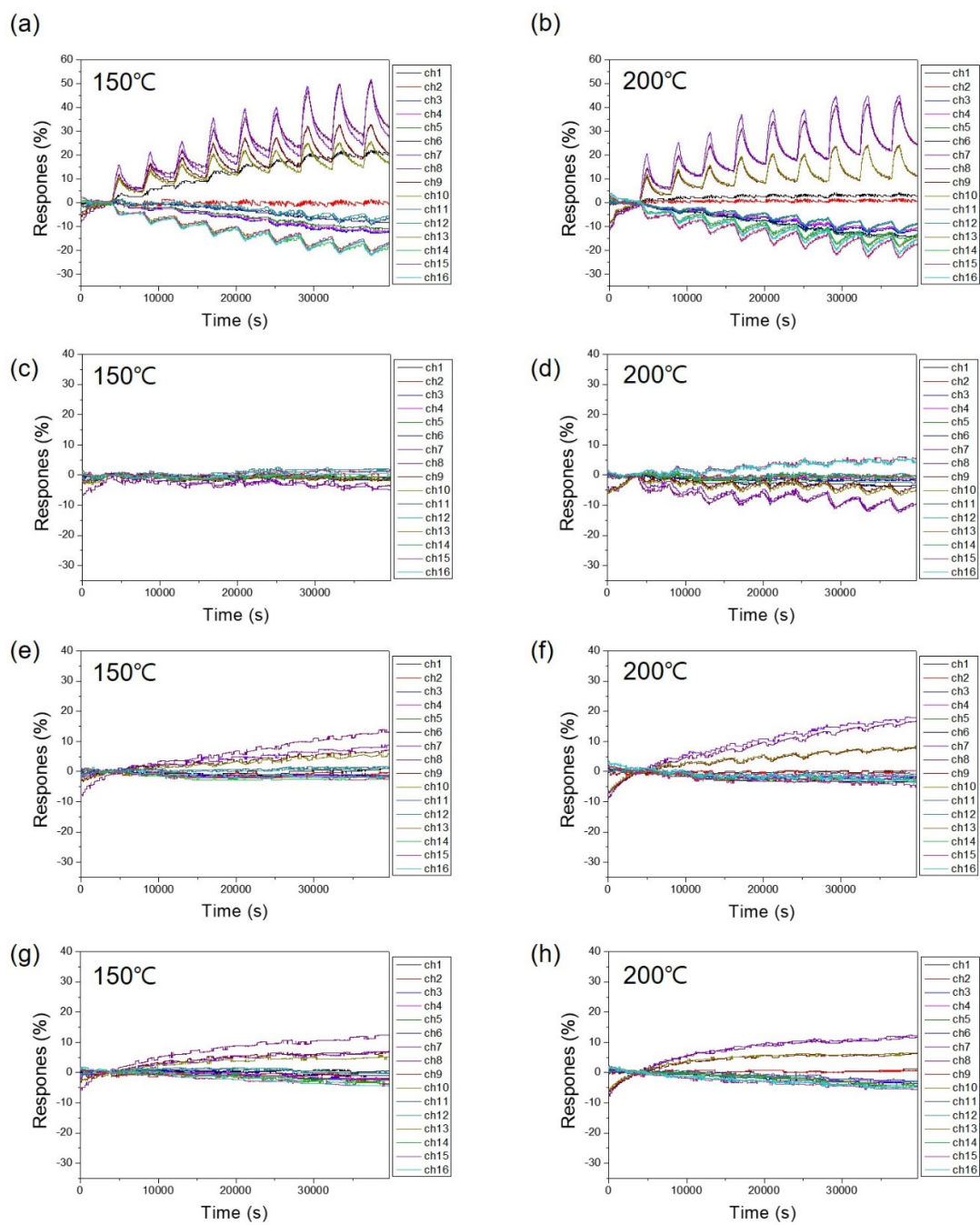


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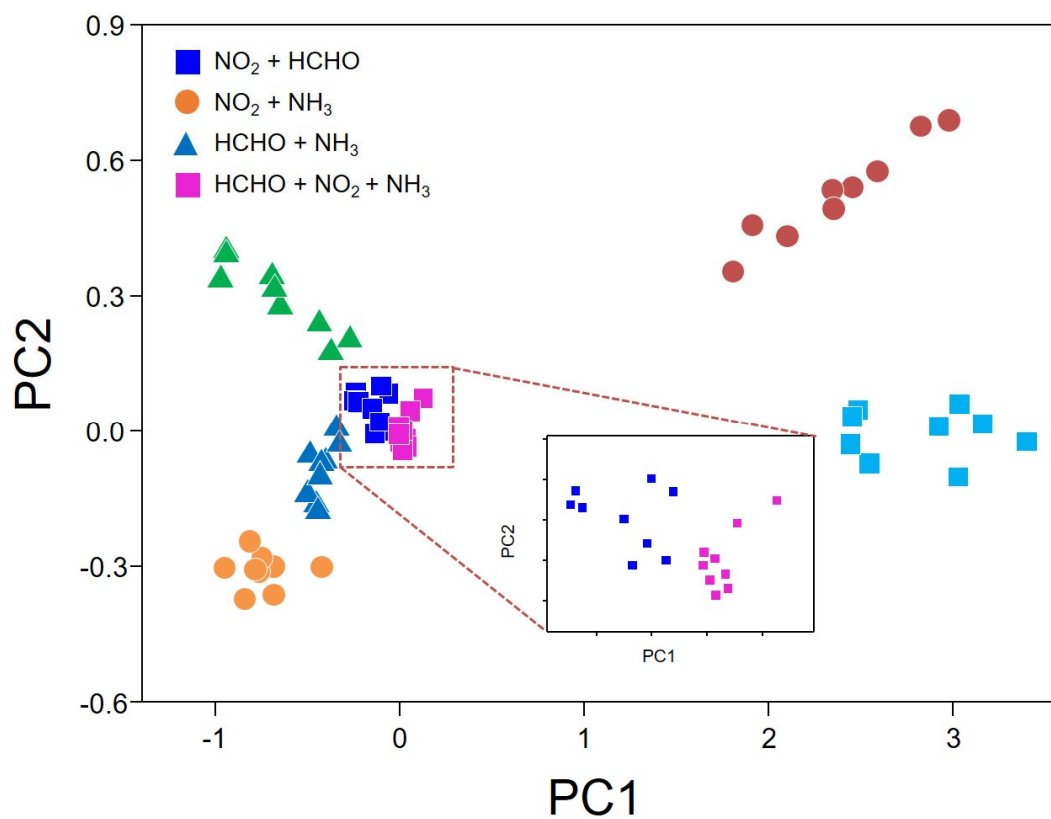


Figure S4. Two dimensional PCA results of mixture vapors ($\text{NO}_2 + \text{HCHO}$, $\text{NO}_2 + \text{NH}_3$, $\text{HCHO} + \text{NH}_3$, and $\text{HCHO} + \text{NO}_2 + \text{NH}_3$), which are projected to PC plane of individual vapors. In the inset area, all of vapors can be well classified.

