

Supplementary Information for Photocatalytic Activity of Silicon-based Nanoflakes for the Decomposition of Nitrogen Monoxide

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[Evaluation procedures of photocatalytic activity for NO decomposition]

We used a continuous reactor (see, Fig. S1) to determine the photocatalytic activity for NO decomposition [S. Yin, H. Hasegawa, D. Maeda, M. Ishitsuka and T. Sato, *Journal of Photochemistry and Photobiology A: Chemistry*, 2004, **163**, 1-8.]. The evaluation was followed by the established procedures in the Japanese Industrial Standard [*Japanese Standards Association, Japanese Industrial Standard R1701-1:2004*]. The powder samples were packed in the groove of the holder ($20 \times 20 \times 0.2 \text{ mm}^3$) and the decrease in the concentration of NO gas was measured at the outlet of the reactor. A test gas of 1 ppm NO-50 vol% air (balance N_2) was flowed at constant rate of 200 mL/min. The test gas was flowed continuously for 10 min to achieve a balance between diffusion and adsorption prior to light irradiation. We set the wavelength of the irradiated light to $>290 \text{ nm}$ (450 W high-pressure mercury lamp equipped with Pyrex glass as a filter) or $>400 \text{ nm}$ with the ultraviolet emission filtered out.

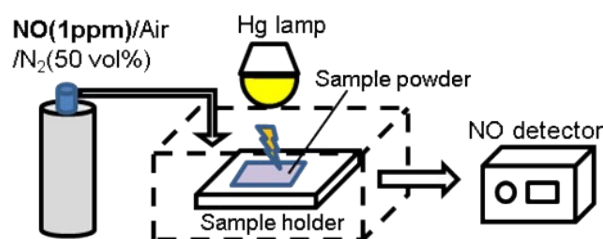


Figure S1. Schematic illustration of the evaluation apparatus to determine the photocatalytic activity for NO decomposition