Supplementary Information

Tailoring Amorphous Alumina Catalysts with Enriched Five-Coordinated Aluminum via pH control

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Figure S1–S8

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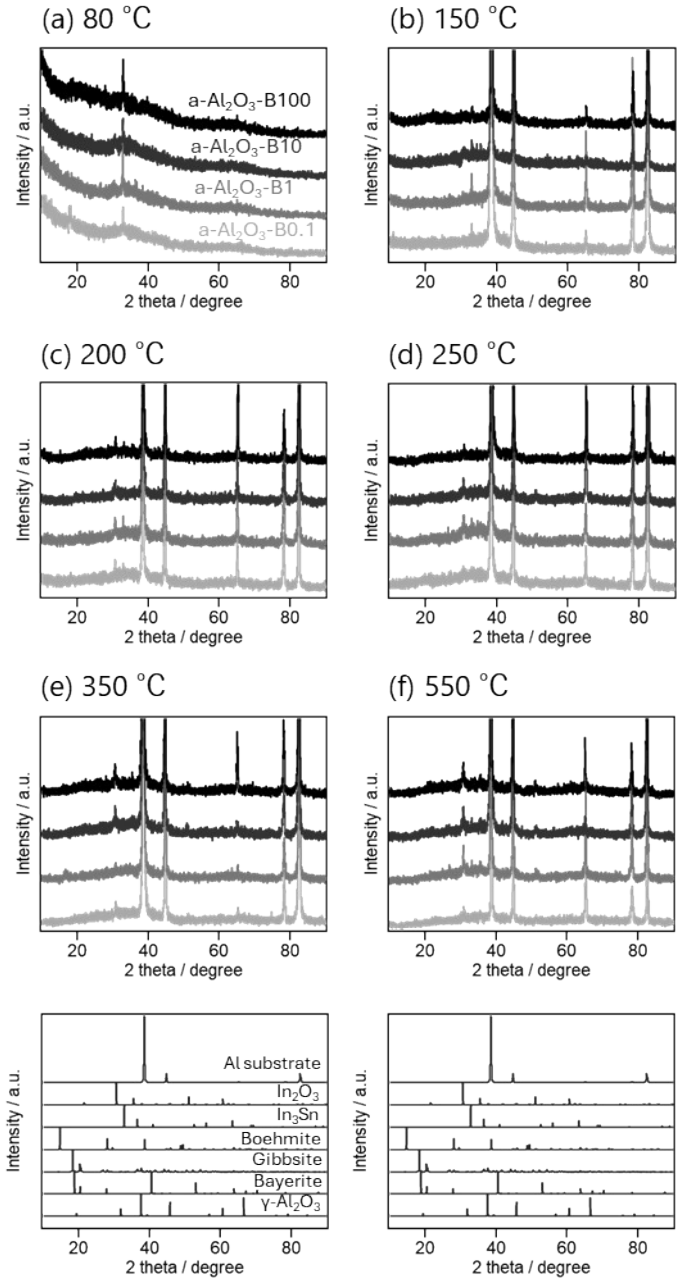

Figure S1. XRD patterns of a-Al_2O_3-B0.1, a-Al_2O_3-B1, a-Al_2O_3-B10, a-Al_2O_3-B100 heated at (a) 80 ℃, (b) 150 ℃, (c) 200 ℃, (d) 250 ℃, (e) 350 ℃, (f) 550 ℃.

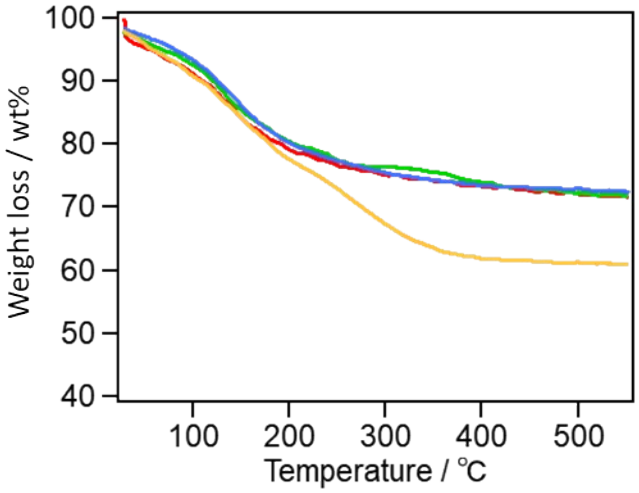

Figure S2. Weight loss of a-Al_2O_3-B0.1 (red), a-Al_2O_3-B1 (green), a-Al_2O_3-B0.10 (blue), and a-Al_2O_3-B0.100 (yellow) measured by thermogravimetry.

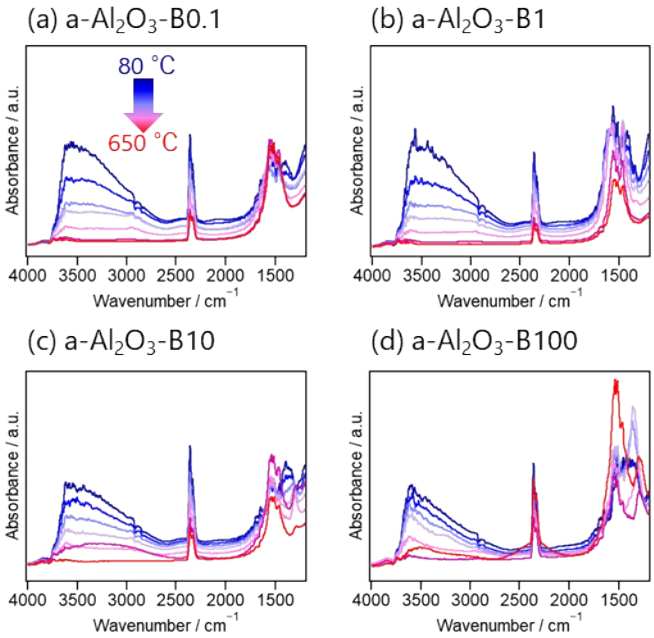

Figure S3. In-situ FT-IR spectra at 80–650 ℃ for (a) a-Al_2O_3-B0.1, (b) a-Al_2O_3-B1, (c) a-Al_2O_3-B10, and (d) a-Al_2O_3-B100.

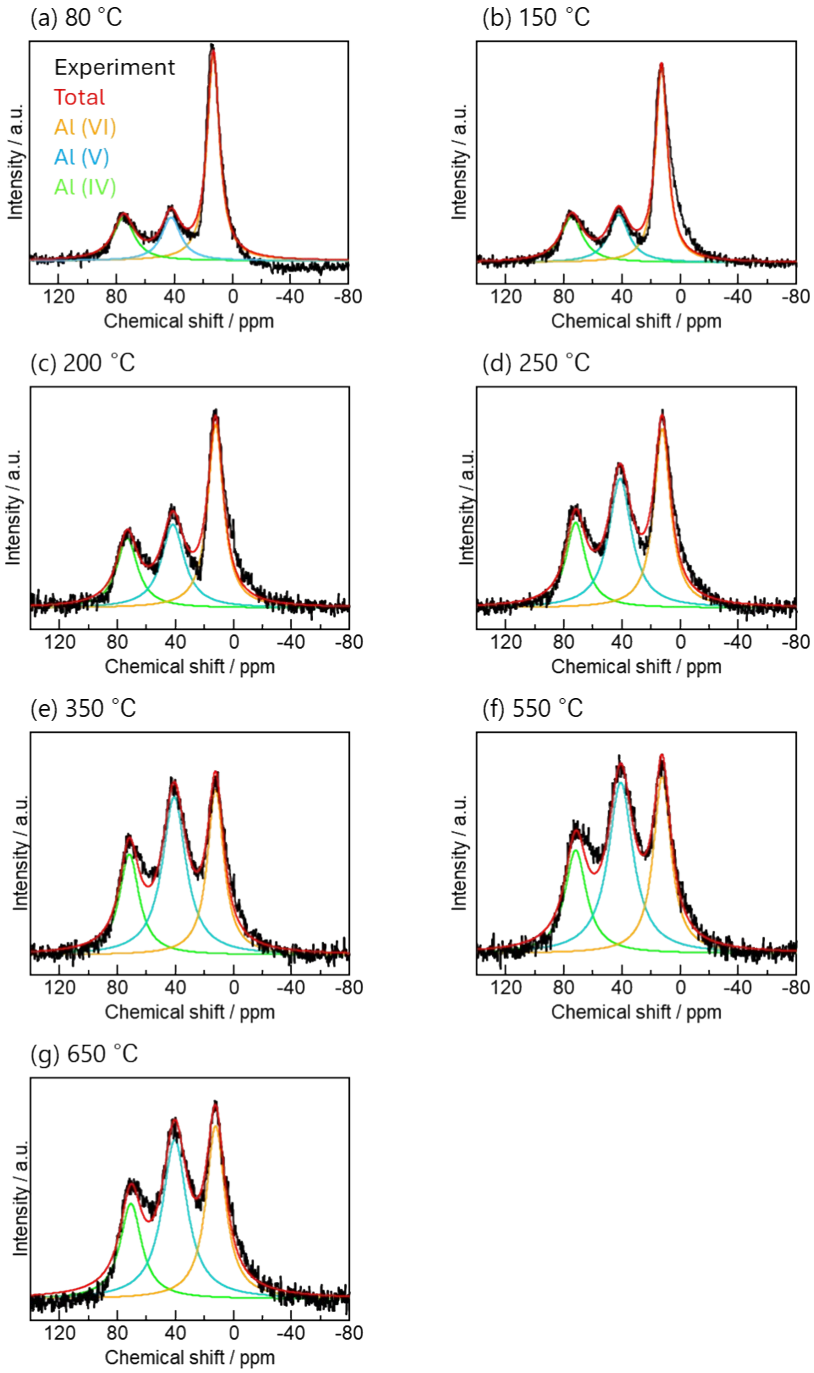

Figure S4. Wave separation for the Solid ^{27}Al-NMR spectra of a-Al_2O_3-B0.1 after heating at (a) 80 ℃, (b) 150 ℃, (c) 200 ℃, (d) 250 ℃, (e) 350 ℃, (f) 550 ℃, and (g) 650 ℃.

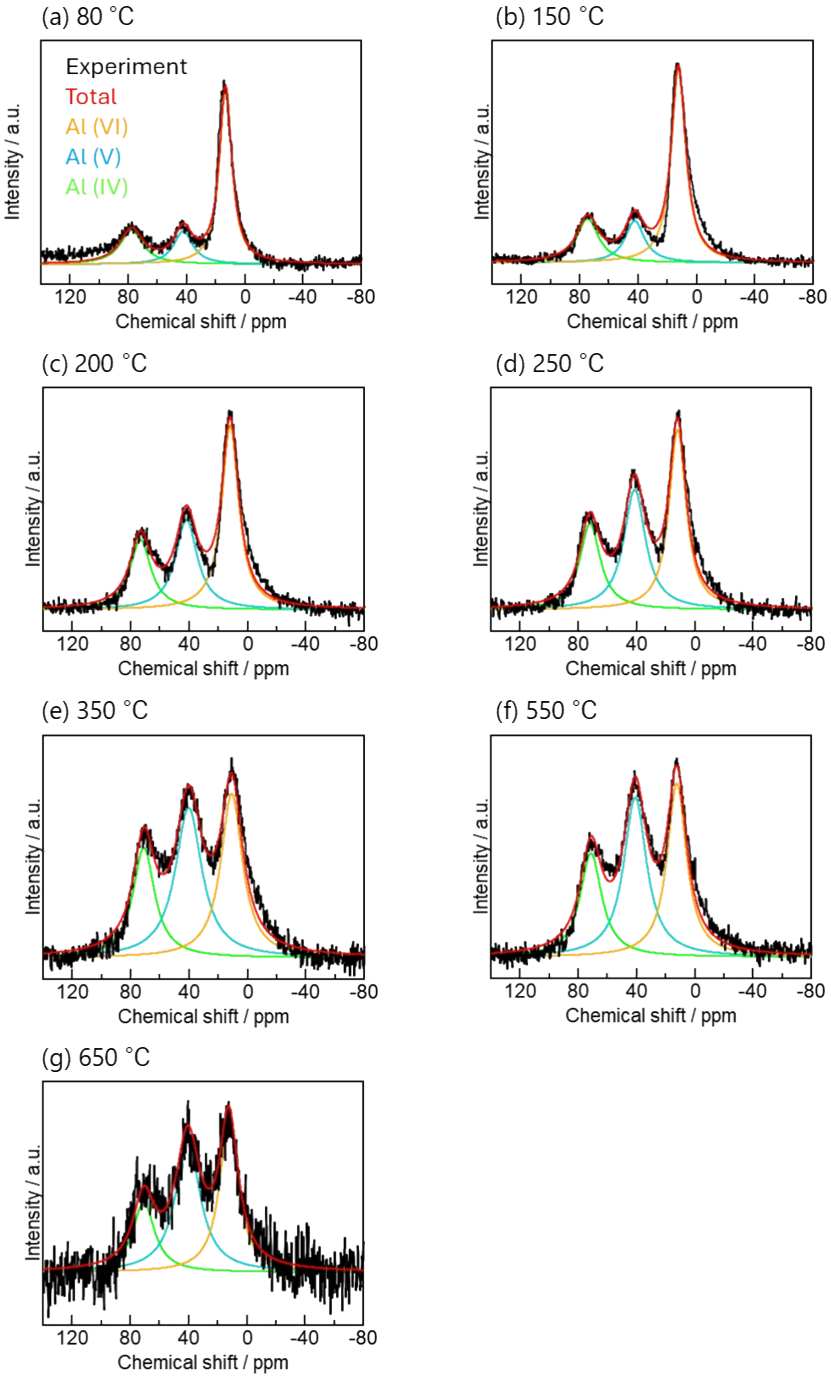

Figure S5. Wave separation for the Solid ^{27}Al-NMR spectra of a-Al_2O_3-B1 after heating at (a) 80 ℃, (b) 150 ℃, (c) 200 ℃, (d) 250 ℃, (e) 350 ℃, (f) 550 ℃, and (g) 650 ℃.

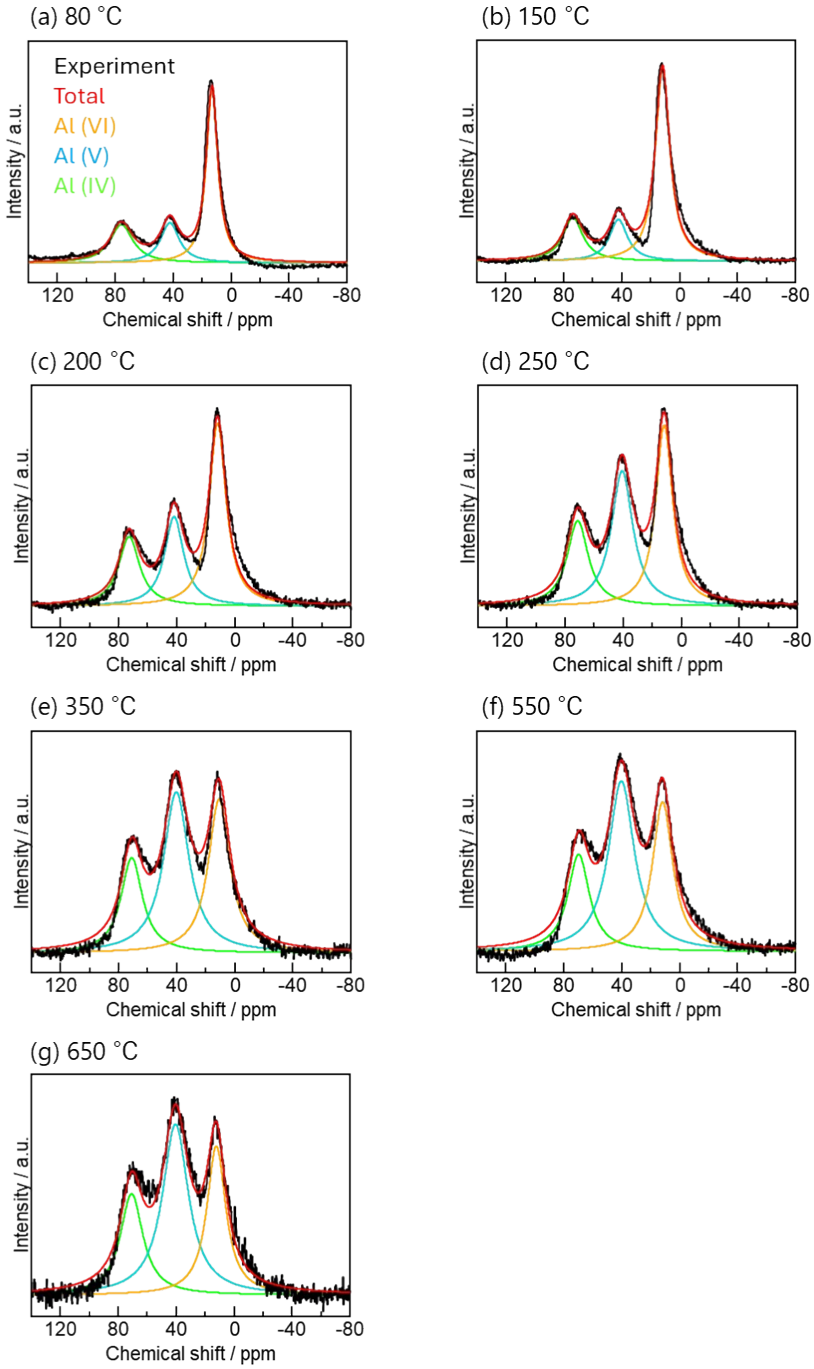

Figure S6. Wave separation for the Solid ^{27}Al-NMR spectra of a-Al_2O_3-B10 after heating at (a) 80 ℃, (b) 150 ℃, (c) 200 ℃, (d) 250 ℃, (e) 350 ℃, (f) 550 ℃, and (g) 650 ℃.

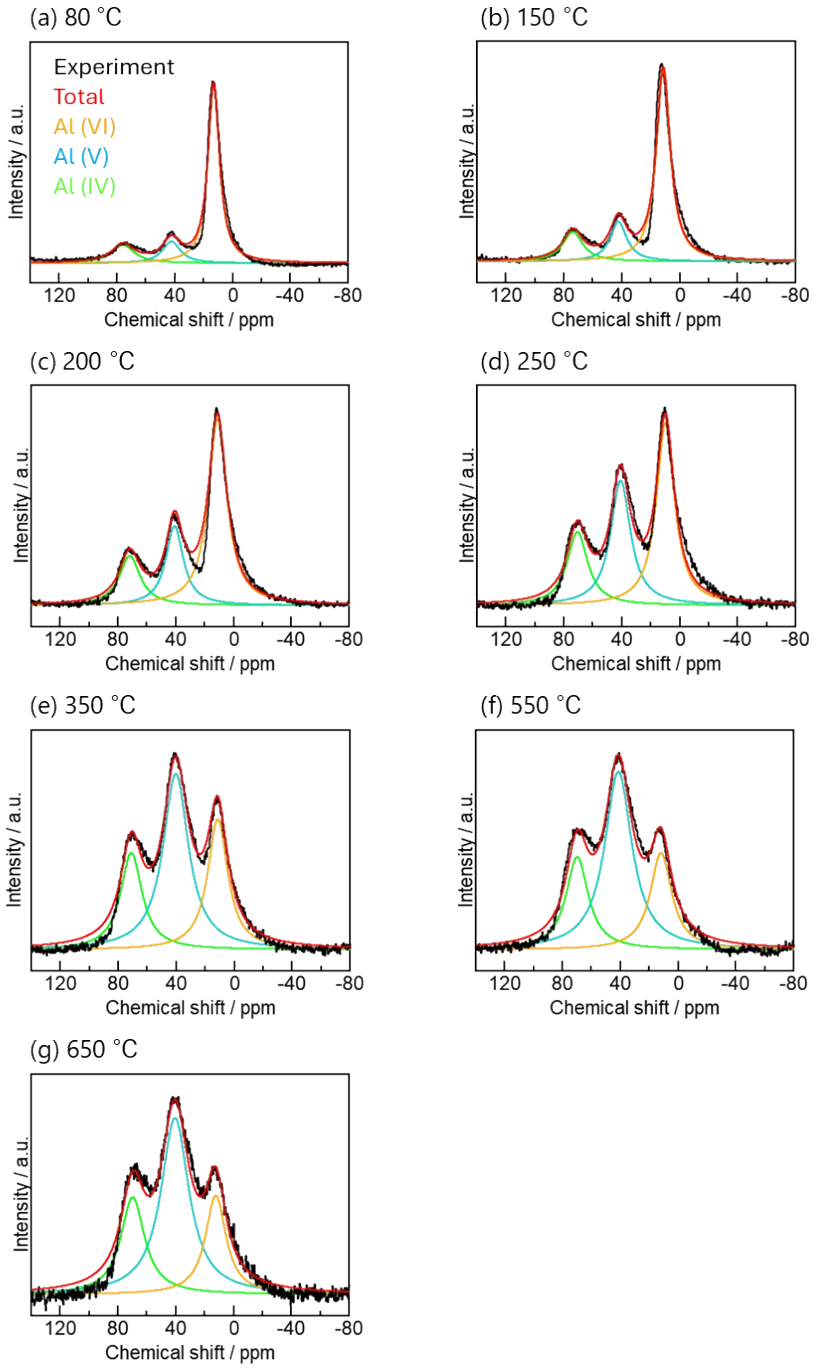

Figure S7. Wave separation for the Solid ^{27}Al-NMR spectra of a-Al_2O_3-B100 after heating at (a) 80 ℃, (b) 150 ℃, (c) 200 ℃, (d) 250 ℃, (e) 350 ℃, (f) 550 ℃, and (g) 650 ℃.

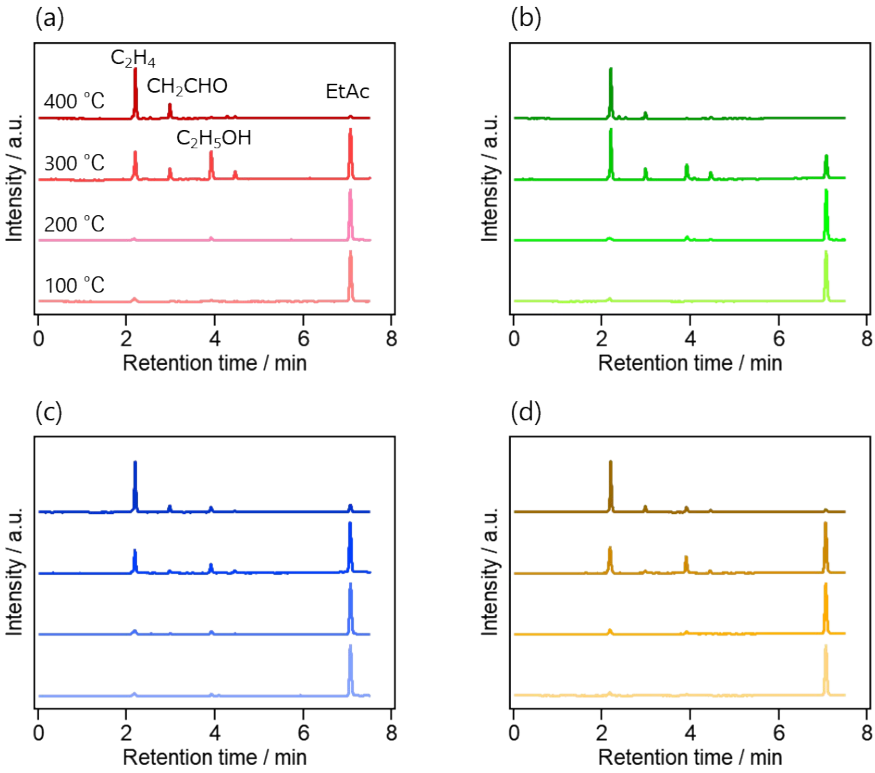

Figure S8. The results of gas chromatography for (a) a-Al_2O_3-B0.1 (red), (b) a-Al_2O_3-B1 (green), (c) a-Al_2O_3-B10 (blue), and (d) a-Al_2O_3-B100 (yellow) at 100–400 °C. The peaks around 2.2, 2.9, 3.9, and 7.1 min are assigned to ethylene (C_2H_4), acetone (CH_2CHO), ethanol (C_2H_5OH), and ethyl acetate (EtAc), respectively.