Supplementary Information

Preparation of high-purity Ga_2O_3 by urea/ammonia-induced crystallization of GaOOH and its thermal conversion

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Table S1.P_{Ga} of GaOOH samples prepared at various stirring speeds and aging temperatures. (urea/ammonia molar ratio is 1:2)

Sample	S1	S2	S3	S4	S5	S6
Stirring speed(rpm)	100	400	700	100	400	700
Aging temperature and time	85℃/6h	85℃/6h	85℃/6h	95℃/6h	95℃/6h	95℃/6h
P_{Ga}(%)	99.9714	99.9842	99.9821	99.9974	99.9951	99.9971

Table S2.P_{Ga} of GaOOH samples prepared at various urea/ammonia molar ratios. (stirring speed is 400 rpm, aging temperature is 95 ℃, aging time is 6 h)

Sample	S7	S8	S9	S10	S11	S12
Urea/ammonia molar ratio	1:0	1:1.6	1:2.07	1:2.35	1:3.17	0:1
P_{Ga}(%)	99.9978	99.9982	99.9996	99.9995	99.997	99.9998

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Table S3. P_{Ga} of S7 prepared at various aging time.

(stirring speed is 400rpm, aging temperature is 95 ℃)

0h	3h	4h	5h	6h
<1%	76.0916%	79.6054%	99.8811%	99.9978%

Table S4. Composition of S8 obtained after aging for 1 h.

Ga(wt.%)	O(wt.%)	atomic ratio (Ga:O)
28.1%	16.01%	1:2.48

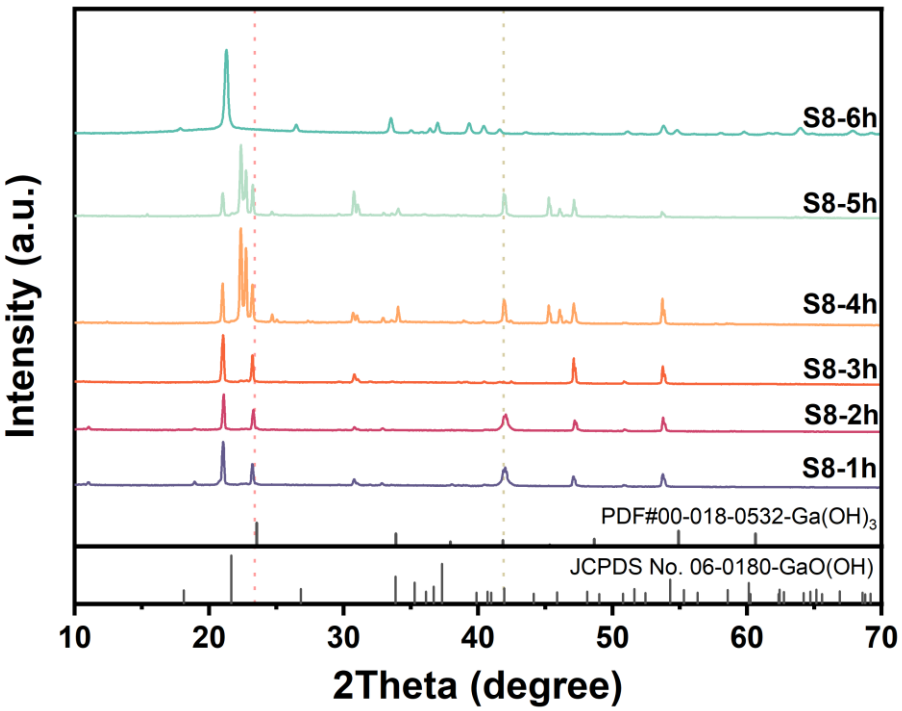

Figure S1. XRD patterns of S8 obtained at different aging times (S8-1h, S8-2h, S8-3h, S8-4h, S8-5h, S8-6h denote the different samples obtained at aging time of 1h,2h,3h,4h,5h.6h).

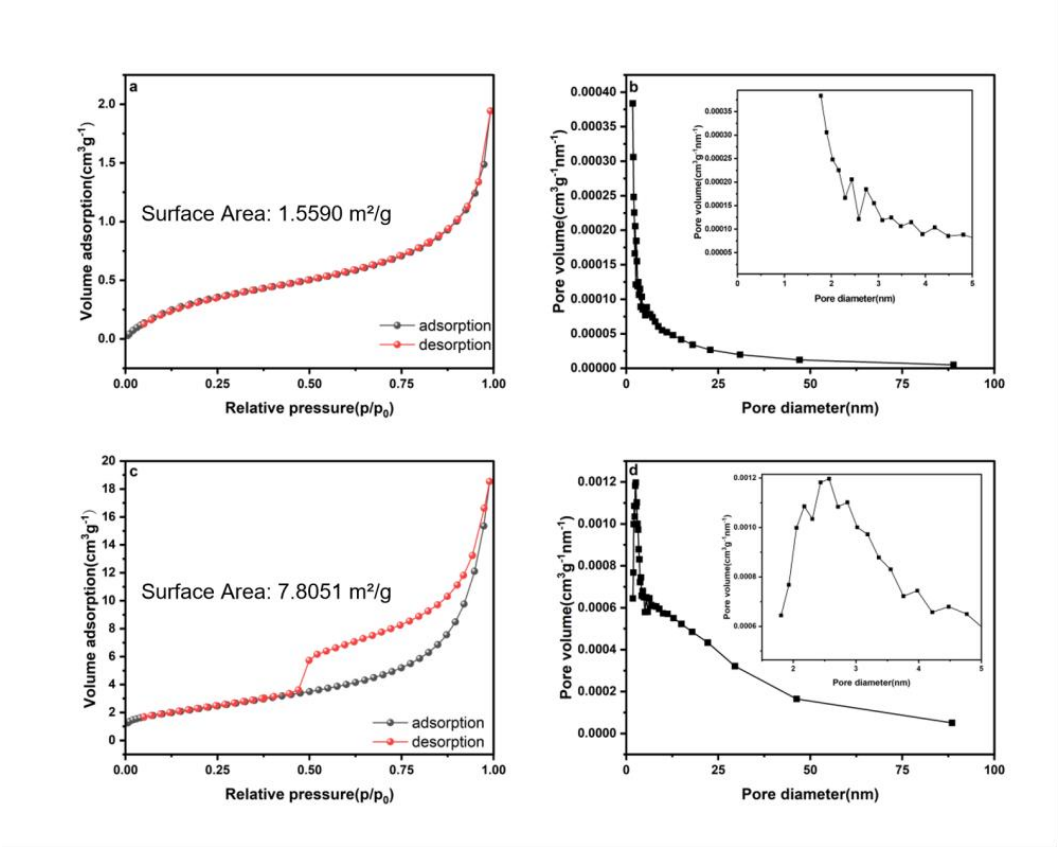

Figure S2. (a) N_2 adsorption–desorption isotherm of S7; (b) BJH pore-size distribution of S7; (c) N_2 adsorption–desorption isotherm of S11; (d) BJH pore-size distribution of S11.