Supporting Information

**Aerosol Synthesis of Phase Pure Iodine/Iodic Biocide Microparticles** Tao Wu, Andrew SyBing, Xizheng Wang and Michael R. Zachariah[[1]](#footnote-1))

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FIG. S1. The SEM images and XRD pattern of as-received HIO3



FIG. S2. TGA and DSC curves of HIO3 under argon environment at a heating rate of 5 ºC/min.



**002**

**210**

**21-1**

**11-1**

**11-1**

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**210**

**011**

**-121**

**103**

**200**

**103**

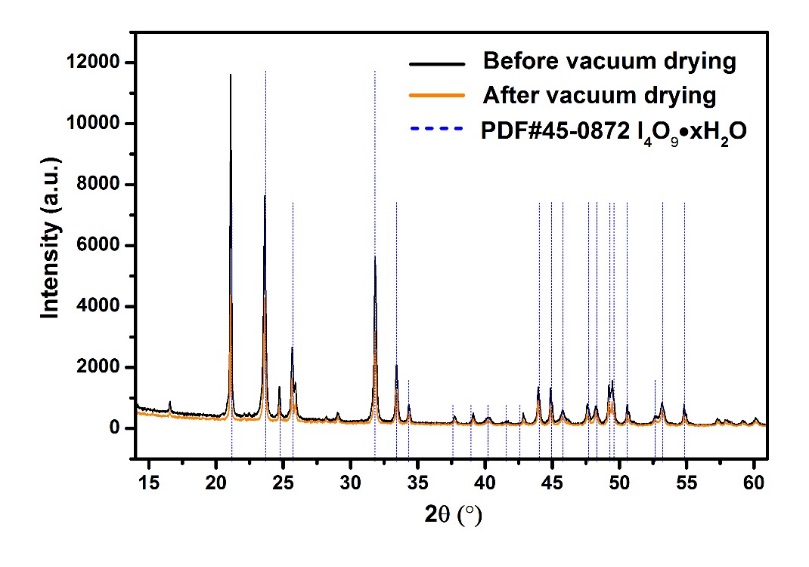
**-121**

**200**

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FIG. S3. The XRD patterns of HIO3 at different temperatures



A B



**212**

**012**

**102**

**110**

C

FIG. S4. TGA/DSC (A) and XRD (B) of as-prepared I4O9• xH2O before vacuum drying treatment and XRD (C) of as-prepared I4O9• xH2O and as-received HIO3.



**-121**

**103**

**200**

**012**

**002**

**110**

A B



**-121**

**103**

**200**

**-121**

**103**

**200**

C D



**103**

**-121**

**200**

**200**

**103**

**-121**

E F

FIG. S5. XRD patterns of the product by annealing of HIO3 at 139 (A), 150 (B), 180 (C) and 260 °C (D) for one hour, respectively. XRD patterns of the product by annealing of HIO3 at 150 (E) and 180 (F) for two minutes, respectively.

Table SI. Listed hkl values for each phase in each XRD pattern.

|  |  |  |  |
| --- | --- | --- | --- |
| PDF#22-0338 I2O5 | | PDF#21-1126 HI3O8 | |
| 2θ (º) | **hkl values** | **2θ (º)** | **hkl values** |
| 21.29 | -111 | 22.72 | 112 |
| 1.87 | -102 | 23.14 | 020 |
| 22.9 | 002 | 23.58 | 200 |
| 24.4 | 210 | 26.27 | 103 |
| 24.71 | -211 | 27.16 | -121 |
| 26.67 | 102 | 28.03 | 022 |
| 28.13 | -112 | 35.26 | 123 |
| 28.77 | -302 | 36.88 | -222 |
| 28.96 | 012 | 43.71 | 321 |
| 29.06 | 211 |  |  |
| 29.94 | -212 |  |  |
| 33.86 | -312 |  |  |
| 33.99 | 400 |  |  |
| 35.02 | -402 |  |  |
| 37.04 | 212 |  |  |
| 37.3 | 021 |  |  |
| 38.5 | 410 |  |  |

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