

*Supplement of*

## **Real-time diagnosis of the hygroscopic growth micro-dynamics of nanoparticles with Fourier transform infrared spectroscopy**

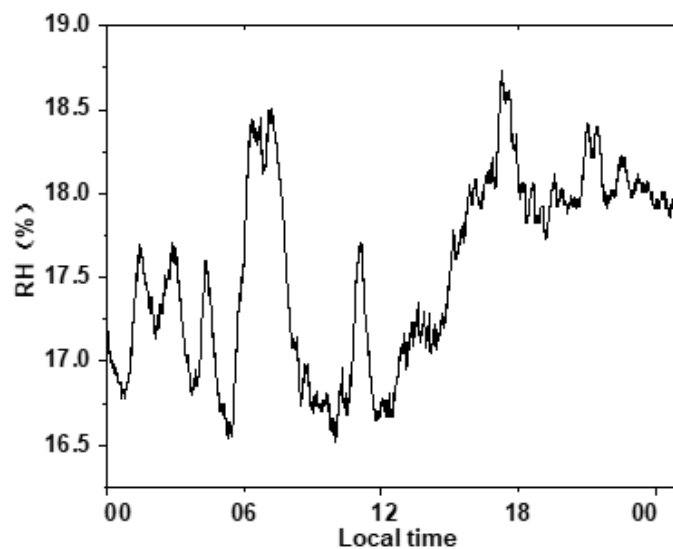
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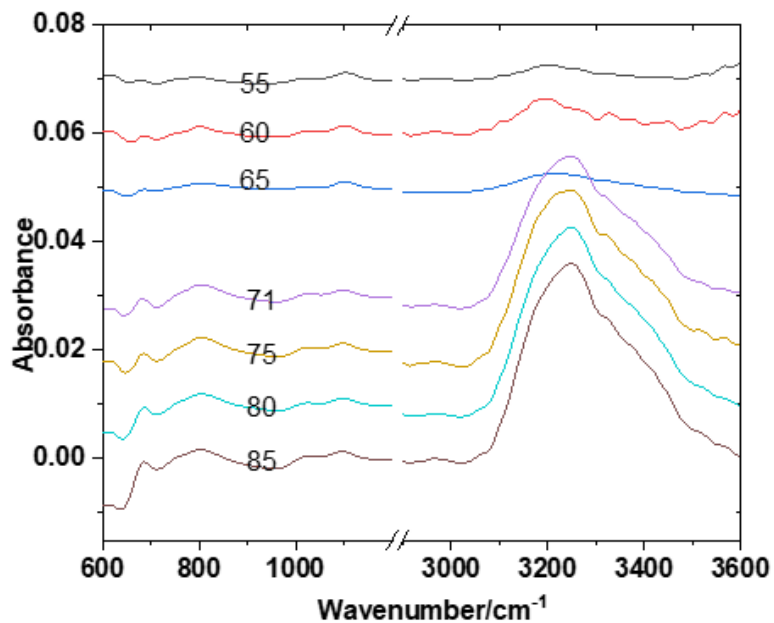
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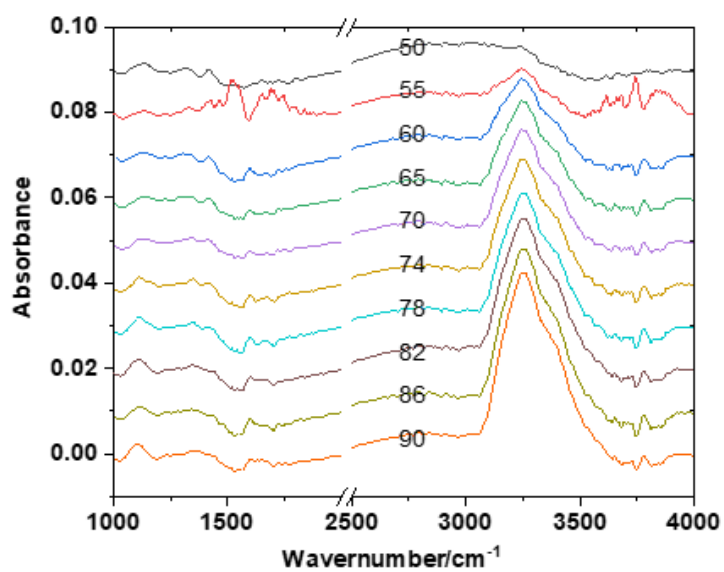
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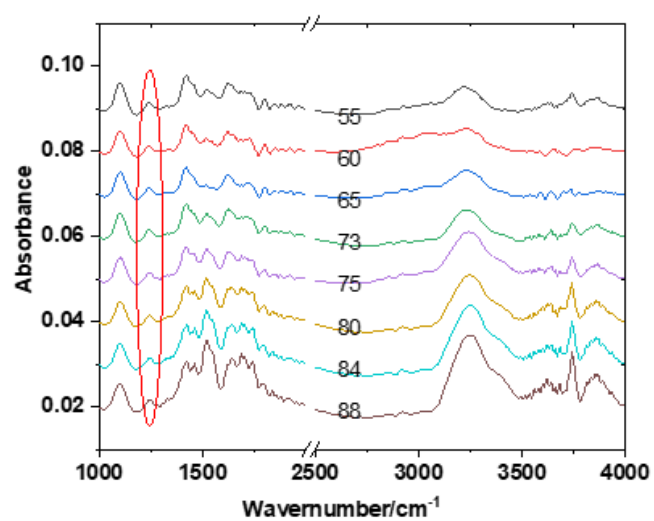
**Figure S1** Time series of RH downstream of DMA



**Figure S2.** FTIR spectral characteristics of the SN nanoparticles under humidity conditions from 55% to 85% (RH).



**Figure S3.** FTIR spectral characteristics of the AS/SN nanoparticles under humidity conditions from 50% to 90% (RH).



**Figure S4.** FTIR spectral characteristics of the AS/OA nanoparticles under humidity conditions from 55% to 88% (RH).