

Unveiling the organic contribution to the initial particle growth in 3-10 nm size range

5 Kewei Zhang¹, Zhengning Xu^{1,2}, Fei Zhang^{1,2}, Zhibin Wang^{1,2,*}

¹State Key Laboratory of Soil Pollution Control and Safety, Zhejiang Provincial Key Laboratory of Organic Pollution Process and Control, College of Environmental and Resource Sciences, Zhejiang University, Hangzhou 310058, China

²ZJU-Hangzhou Global Scientific and Technological Innovation Center, Zhejiang University, Hangzhou 311200, China

10 *Correspondence to:* Zhibin Wang (wangzhibin@zju.edu.cn)

Table S1. Summary of experimental conditions. Exp. A-F is a series of groups conducted under specific RH (20%, 40%, 60% and 80%). Exp. A represents the pure inorganic groups in the presence of SO₂ and Exp. B represents the pure organic groups in the presence of α -pinene. Exp. C-F are mixture groups containing both SO₂ and α -pinene with different concentration ratio. [SO₂] and [α -pinene] represent the concentration of SO₂ and α -pinene.

RH (%)	Group No. (Exp.)	Experiments	[SO ₂] (ppbv)	[α -pinene] (ppbv)	[α -pinene]/[SO ₂]
20	A	SO ₂	~503	0	0
	B	α -pinene	0	~1960	∞
	C	SO ₂ / α -pinene	~503	~50	0.1
	D	SO ₂ / α -pinene	~503	~99	0.2
	E	SO ₂ / α -pinene	~503	~249	0.5
	F	SO ₂ / α -pinene	~503	~497	1
40	A	SO ₂	~217	0	0
	B	α -pinene	0	~1162	∞
	C	SO ₂ / α -pinene	~217	~22	0.1
	D	SO ₂ / α -pinene	~217	~43	0.2
	E	SO ₂ / α -pinene	~217	~109	0.5
	F	SO ₂ / α -pinene	~217	~215	1
60	A	SO ₂	~169		0
	B	α -pinene		~733	∞
	C	SO ₂ / α -pinene	~169	~17	0.1
	D	SO ₂ / α -pinene	~169	~35	0.2
	E	SO ₂ / α -pinene	~169	~85	0.5
	F	SO ₂ / α -pinene	~169	~174	1
80	A	SO ₂	~96	0	0
	B	α -pinene	0	~450	∞
	C	SO ₂ / α -pinene	~96	~10	0.1
	D	SO ₂ / α -pinene	~96	~20	0.2
	E	SO ₂ / α -pinene	~96	~48	0.5
	F	SO ₂ / α -pinene	~96	~95	1