Supporting Information

Ethanol-induced ammonium polyphosphate-silver gels paint: breaking the trade-off between conductivity, flame retardancy and adhesion in single-layer functional coatings

Zilong Wang, Wanze Wu, Xiao Gong*

State Key Laboratory of Silicate Materials for Architectures, Wuhan University of Technology, Wuhan 430070, P. R. China.

* Corresponding author:

E-mail address: xgong@whut.edu.cn (X. Gong)

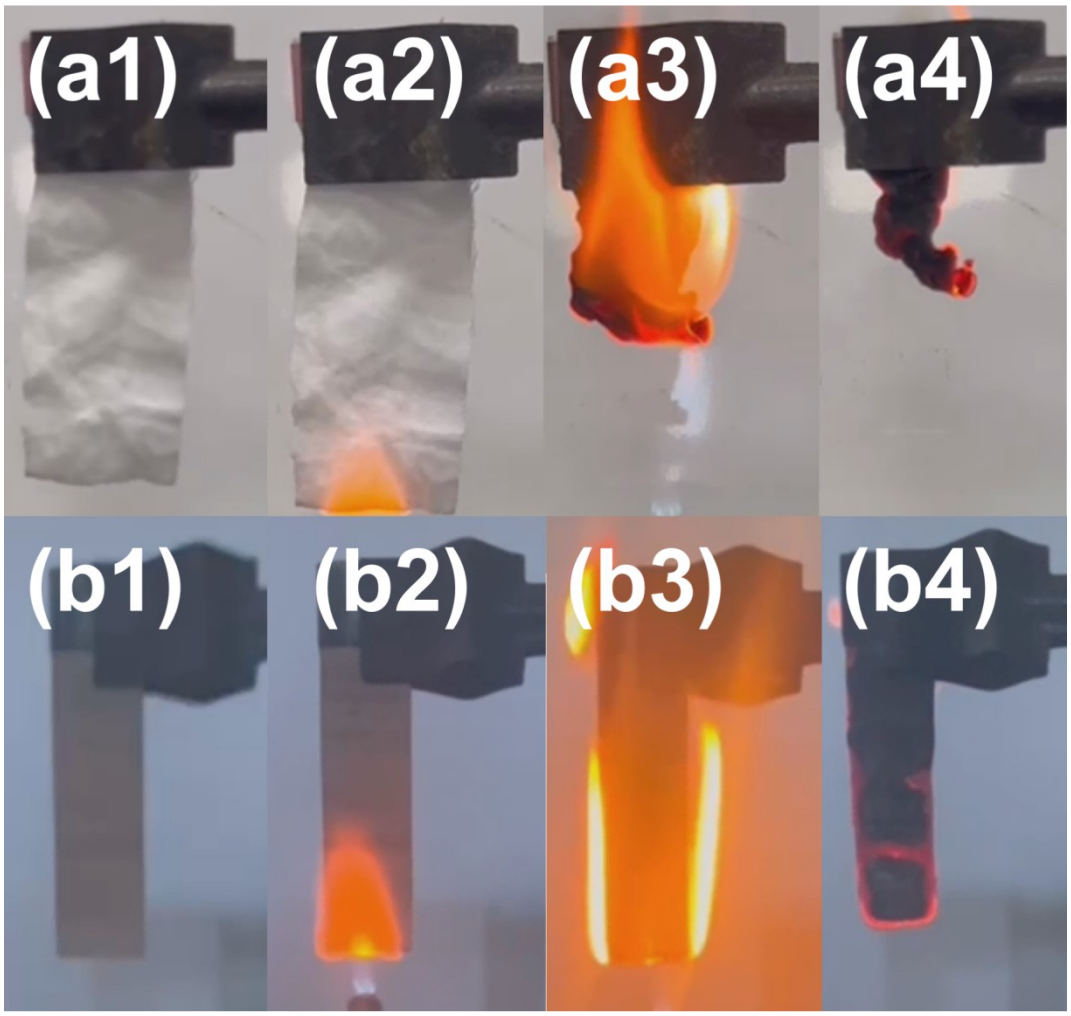

Figure S1. Photographs of uncoated cotton fabric (a1-a4) and uncoated wood (b1-b4) during vertical burning test.

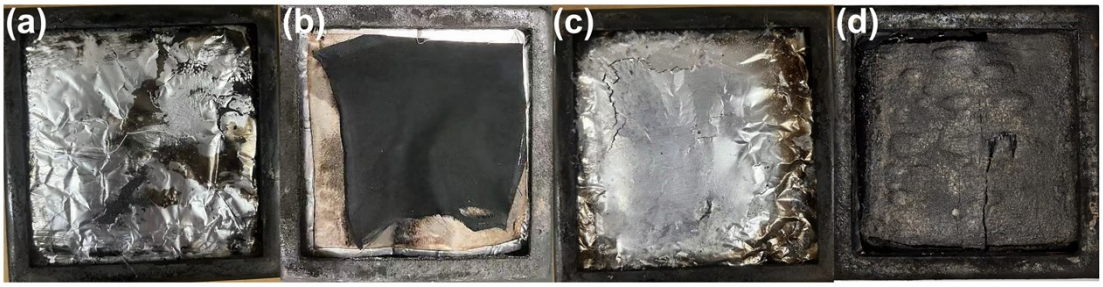

Figure S2. Photographs of the cotton fabric (a), coated cotton fabric (b), wood (c) and coated wood (d) after the cone calorimetry test.

Table S1. The combination property of this work compared to that of the article.

Ref.	Method	Substrate	LOI (%)	ΔPHRR (%)	ΔTHR (%)	Conductivity	Fire alarm
Ding et al.[1] 2023	One-step	Cotton/lyocell blended fabric	30.8	65.7	15.8	26.8 S/m	NG
Abdelkhalik et al.[2] 2024	One-step	Cotton fabric	26.9	NG	NG	0.0000095 S/m	NG
Attia et al.[3] 2023	One-step	fabric	NG	NG	NG	0.0007 S/m	NG
Kundu et al.[4] 2023	One-step	PA-66	22	45.0	24.8	20 S/m	NG
Wang et al.[5] 2024	One-step	T/S fabric	25	39.6	66.5	NG	NG
Zheng et al.[6] 2021	One-step	Cotton fabric	NG	NG	NG	134 Ω	NG
Mao et al.[7] 2022	LBL	Cotton fabric	32	63.0	31.4	142 S/m	NG
Liu et al.[8] 2024	LBL	Cotton fabric	NG	NG	NG	500 Ω	YES
Liu et al.[9] 2019	LBL	Cotton fabric	37.6	NG	NG	28 S/m	NG
Ma et al.[10] 2023	LBL	Cotton fabric	36.7	74.4	62.4	125 S/m	NG
Rao et al.[11] 2021	One-step	Cotton fabric	31	87	63.5	0	NO
Qi et al.[12] 2023	One-step	Cotton fabric	42	88.4	55.3	0	NO
Chen et al.[13] 2023	LBL	Cotton fabric	51.5	91.4	46.1	0	NO
Luo et al.[14] 2022	LBL	Cotton fabric	51	70.11	64.19	0	NO
Lin et al.[15] 2019	One-step	Cotton fabric	NG	71	67.4	0	NO
Chen et al.[16] 2020	One-step	Cellulose	NG	74	21.4	0	NO
Xia et al.[17] 2022	One-step	Cotton fabric	25	63.5	50	NG	YES
Shen et al.[18] 2024	LBL	Fabric wood	NG	NG	NG	NG	YES
Li et al.[19] 2022	LBL	Cotton fabric	28.5	24	11	0	NO
Ma et al.[20] 2022	LBL	Cotton fabric	30.1	55.8	42	0	NO
Our work	**One-step**	**Cotton fabric** **wood**	**66** **64**	**65.3** **37.6**	**50.4** **35.3**	**＞200 S/m** **＞667 S/m**	**YES**

Note: NG: not given.

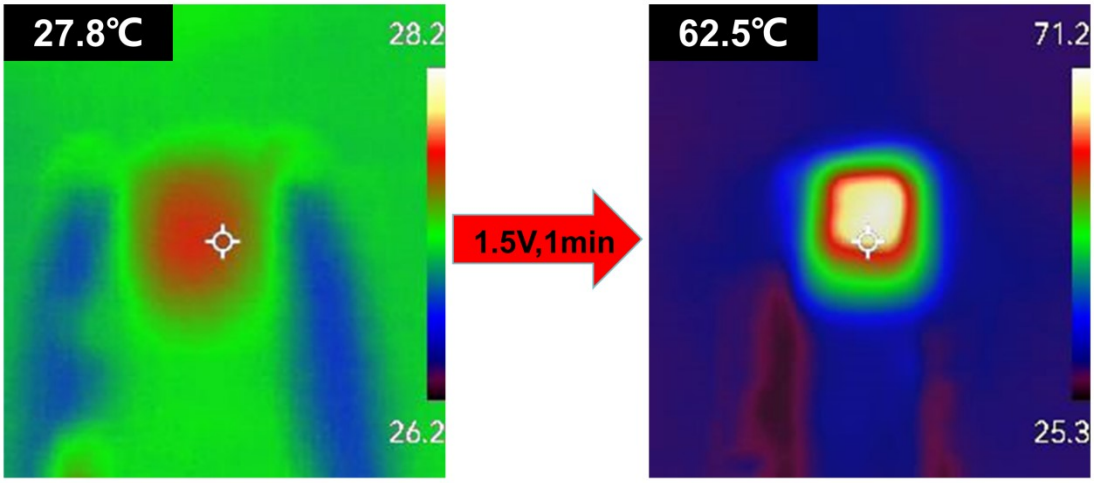

Figure S3. The thermoelectric effect of coated cotton fabric.

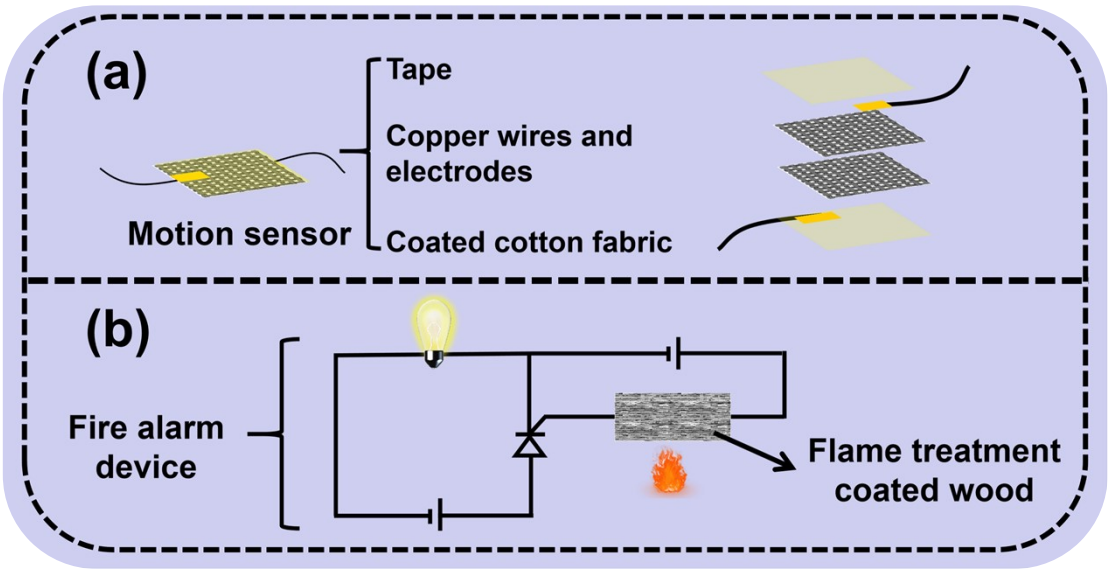

Figure S4. The manufacturing process of motion sensors (a) and fire alarm devices (b).

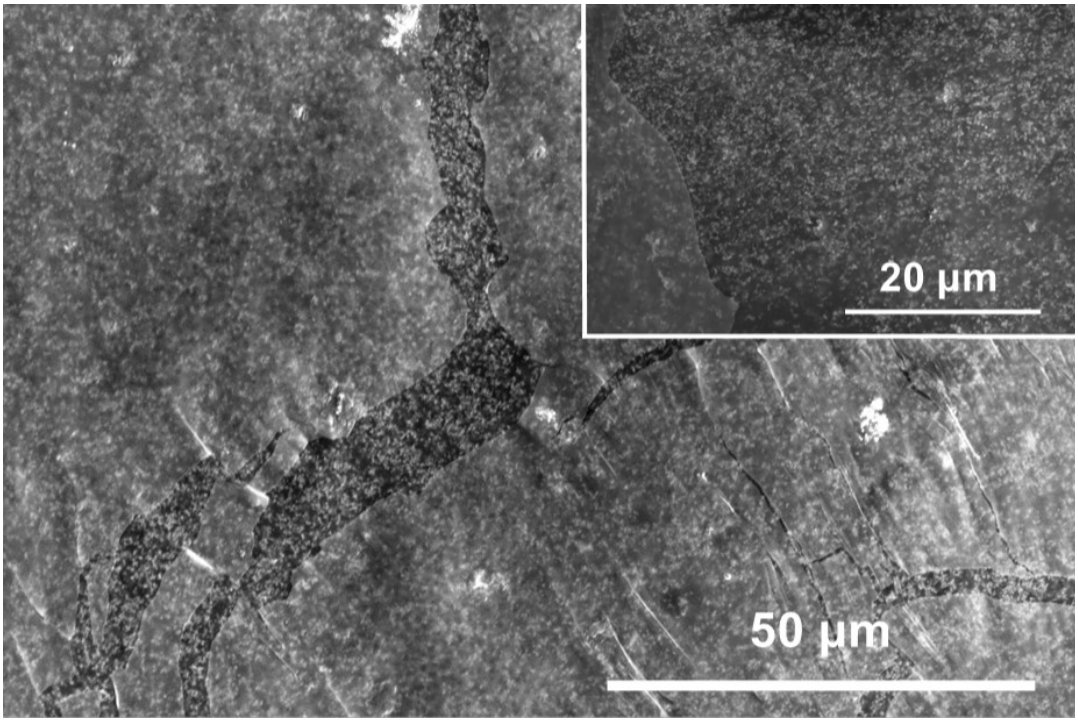

Figure S5. SEM images of APP-Ag gels.

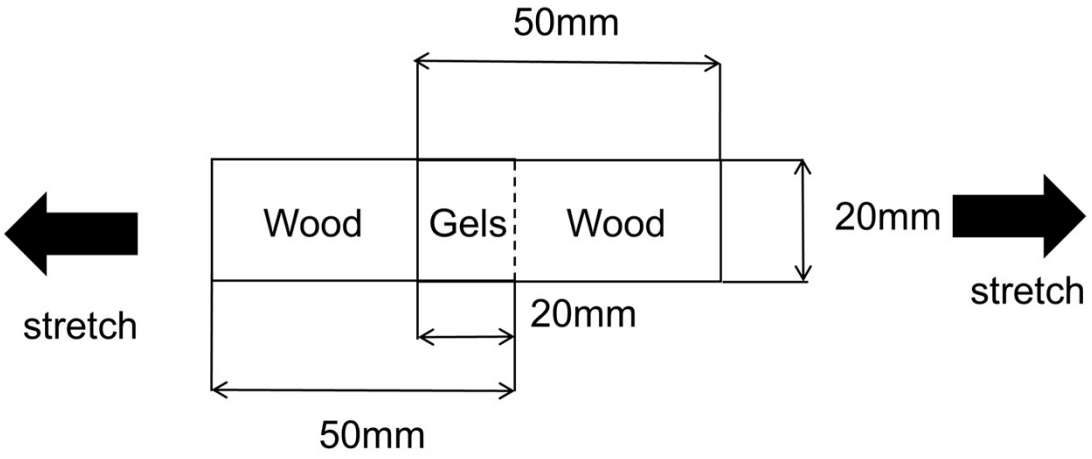

Figure S6. Illustration of the single-lap shear test.

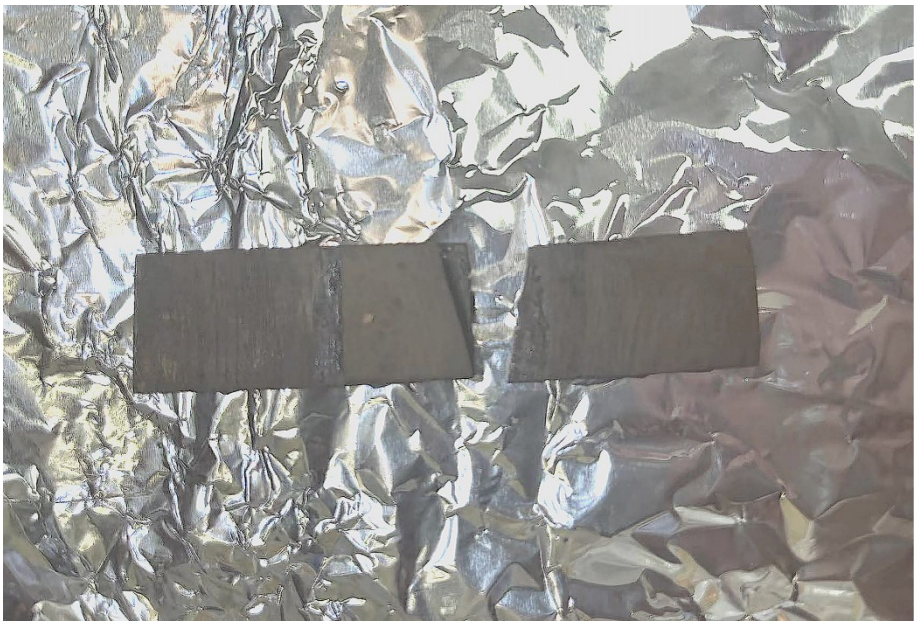

Figure S7. The wood after the single-lap shear test.

Figure S8. The hydrophilicity of APP-Ag gels.

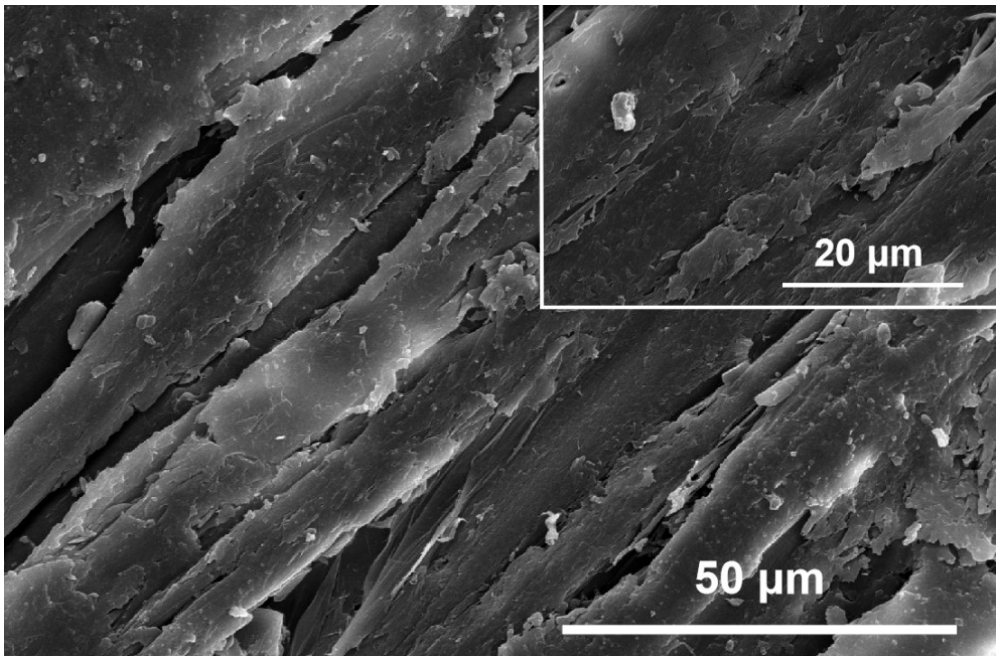

Figure S9. SEM images of the wood.

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