

# A simple approach to determining the efficacy of antiperspirants using paper-based colorimetric paper sensors: SweatSense

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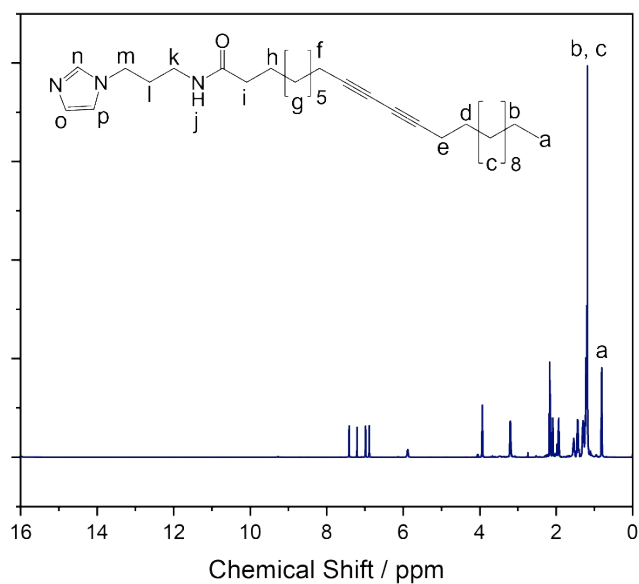


Figure S1. <sup>1</sup>H NMR spectrum of PCDA-I

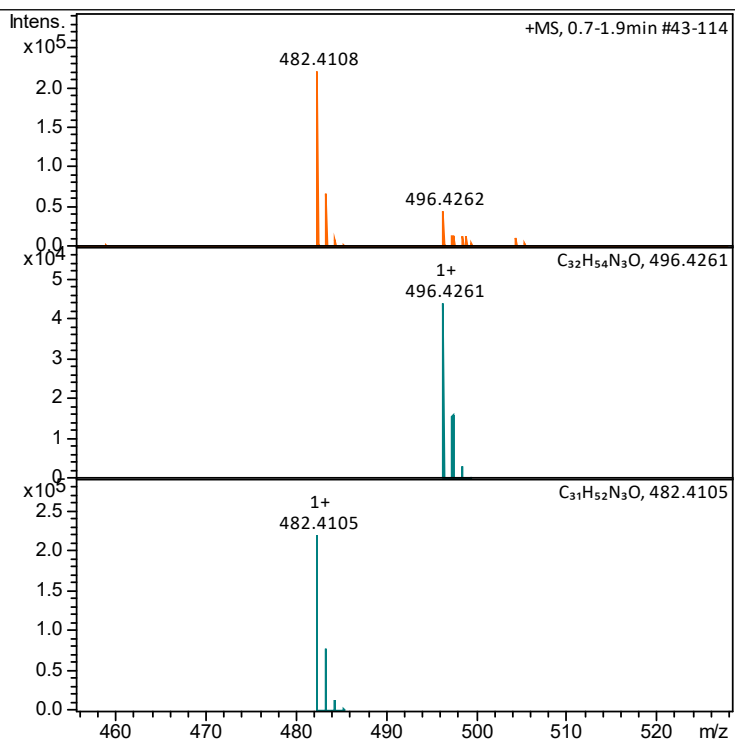


Figure S2: High resolution mass spectrometry of PCDA-I+H derivative

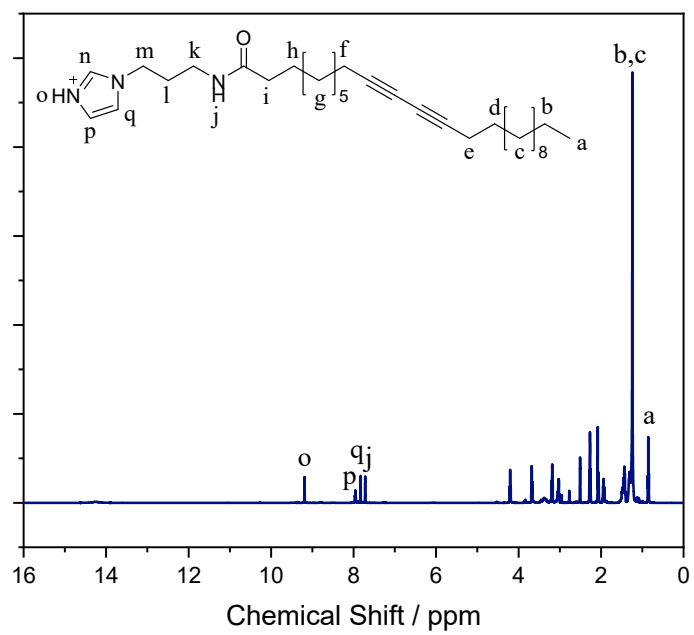


Figure S3. <sup>1</sup>H NMR spectrum of PCDA-I<sup>+</sup>H

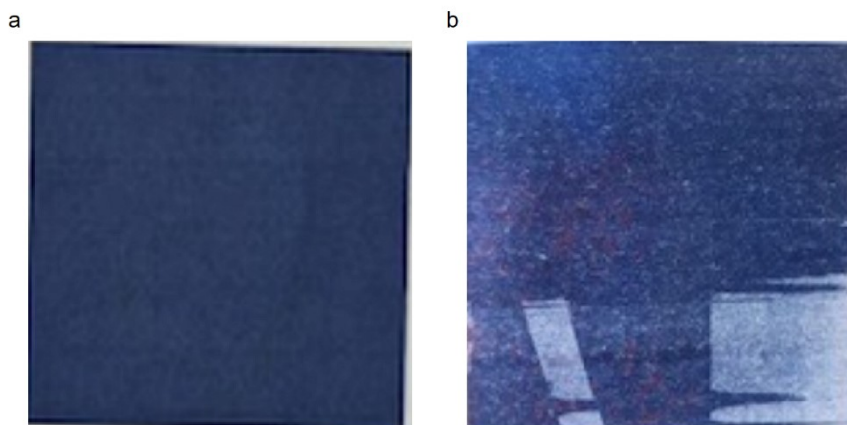


Figure S4. Comparison of a well uniformed patch versus a non-uniform low quality one.



Figure S5. The visual effect of curing time and irradiation energy on PCDA-I+H patches cured under a) 6 sec with  $5,000 \mu\text{J}/\text{cm}^2$  b) 6 sec with  $500,000 \mu\text{J}/\text{cm}^2$  c) 12 sec with  $5,000 \mu\text{J}/\text{cm}^2$  d) 12 sec with  $500,000 \mu\text{J}/\text{cm}^2$  e) 18 sec with  $5,000 \mu\text{J}/\text{cm}^2$  and f) 18 sec with  $500,000 \mu\text{J}/\text{cm}^2$

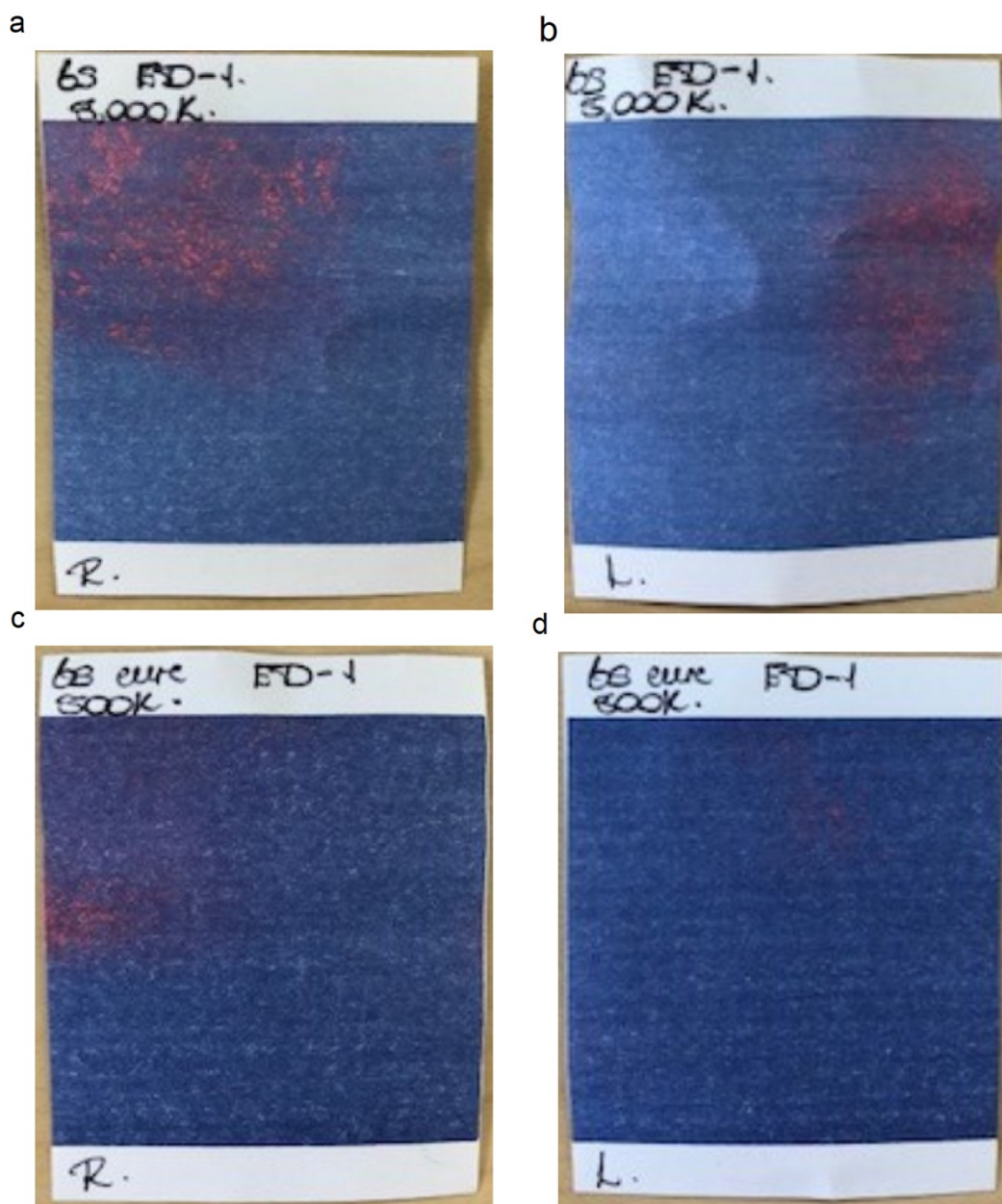


Figure S6. Hot room results of right and left underarms using 6 sec cured PCDA-I<sup>+</sup>H patches after 5,000 and 500,000  $\mu\text{J}/\text{cm}^2$  irradiation respectively.

a



b



c



d



Figure S7. Hot room results of right and left underarms using 12 sec cured PCDA-I<sup>+</sup>H patches after 5,000 and 500,000  $\mu\text{J}/\text{cm}^2$  irradiation respectively.

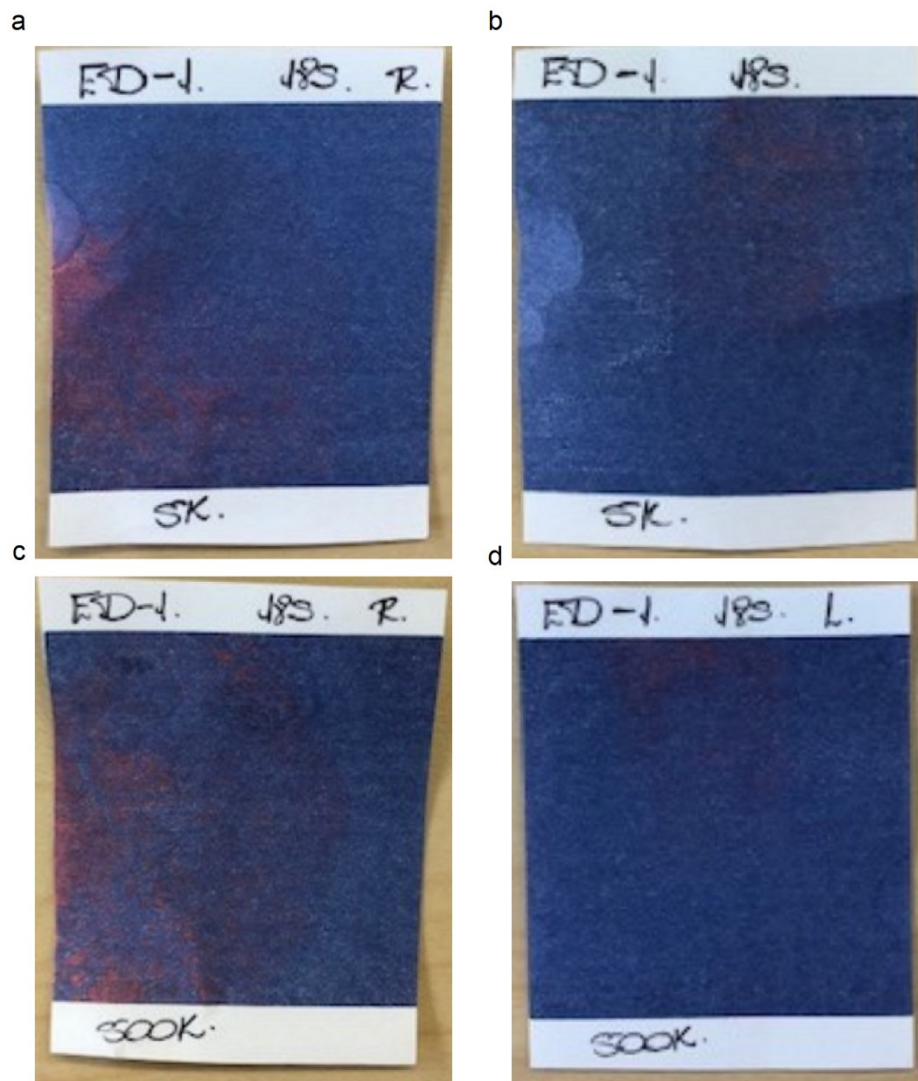


Figure S8. Hot room results of right and left underarms using 18 sec cured PCDA-I<sup>+</sup>H patches after 5,000 and 500,000  $\mu\text{J}/\text{cm}^2$  irradiation respectively.

Table S1. Hot room performance evaluation of PCDA-I<sup>+</sup>H sensors made under different curing times and irradiation energies.

Insert	Time (sec)	Energy ( $\mu\text{J}/\text{cm}^2$ )	Sensor Uniformity	Contrast	Droplet clarity	Droplet spreading	Overall
1	6	5,000	poor	good	good	high	✓
2	6	500,000	poor	poor	poor	least	✗
3	12	5,000	good	good	good	least	✓
4	12	500,000	good	good	poor	high	✗
5	18	5,000	poor	poor	poor	high	✗
6	18	500,000	poor	poor	poor	least	✗

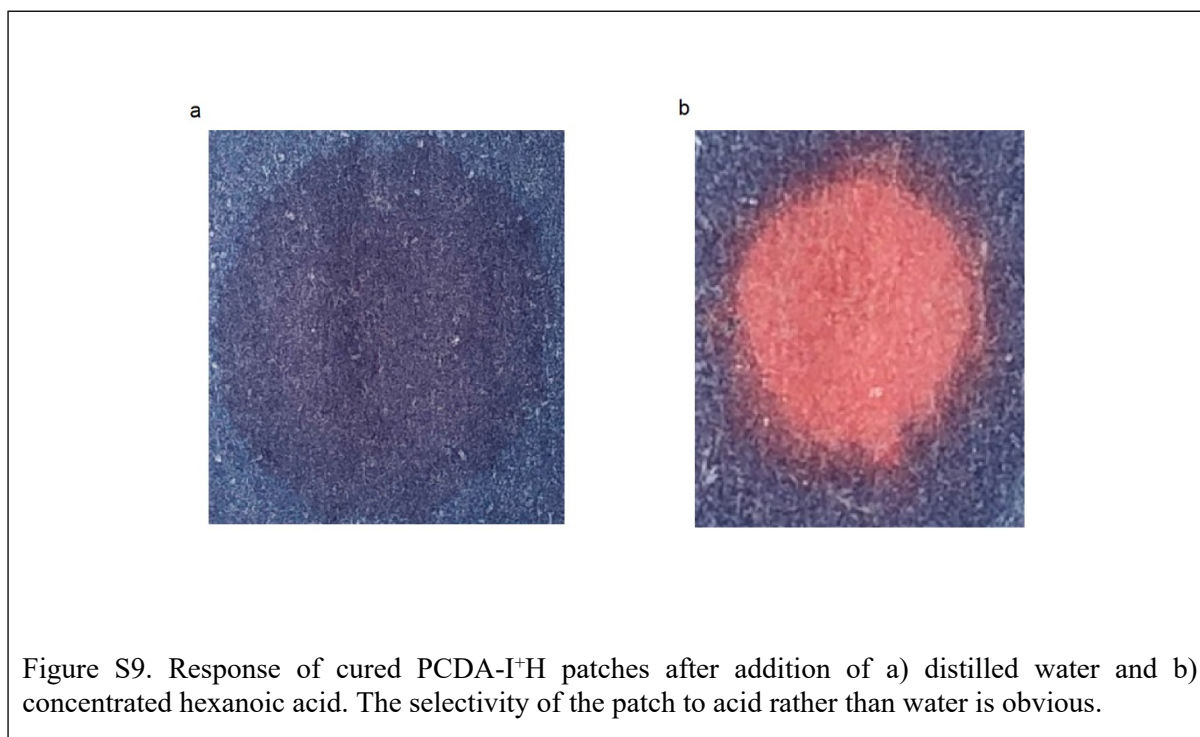


Figure S9. Response of cured PCDA-I<sup>+</sup>H patches after addition of a) distilled water and b) concentrated hexanoic acid. The selectivity of the patch to acid rather than water is obvious.





Figure S10. Example hot room results of a person sweating prior to any antiperspirant usage, the “untreated” sweat.

Table S2. Hot room performance evaluation of PCDA-I<sup>+</sup>H sensors split into three subcategories (a) light, (b) moderate and (c) heavy sweaters.

<b>Panelist Number</b>	<b>AP or No AP</b>	<b>Sweat Area (mm<sup>2</sup>)</b>	<b>% Total Coverage</b>	<b>Sweat Weight (mg)</b>	<b>Image Reference</b>
8	No AP	66.48	2.65	323	DEO-HOT-8112-00003-5
15	No AP	24.77	1.01	288	DEO-HOT-8112-00003-4
33	No AP	76.88	3.09	316	DEO-HOT-8114-00003-4
1	No AP	43.15	1.84	264	DEO-HOT-8114-00001-7
29	No AP	79.24	3.58	277	DEO-HOT-8103-00005-8
8	AP	11.13	0.389	138	DEO-HOT-8117-00002-5
15	AP	5.81	0.22	145	DEO-HOT-8117-00001-8
33	AP	6.03	0.25	124	DEO-HOT-8117-00001-4
1	AP	5.31	0.18	117	DEO-HOT-8117-00001-1
29	AP	21.41	0.85	148	DEO-HOT-8117-00001-2

Table S2 continued.

<b>Panelist Number</b>	<b>AP or No AP</b>	<b>Sweat Area (mm<sup>2</sup>)</b>	<b>% Total Coverage</b>	<b>Sweat Weight (mg)</b>	<b>Image Reference</b>
17	No AP	1112.242	46.61	523	DEO-HOT-8120-00001-2
5	No AP	1176.924	47.65	551	DEO-HOT-8120-00002-1
19	No AP	1329.965	54.00	582	DEO-HOT-8120-00002-9
22	No AP	956.2812	41.71	497	DEO-HOT-8120-00004-5
26	No AP	1042	44.56	563	DEO-HOT-8121-00001-4
17	AP	130.9	5.56	219	DEO-HOT-8120-00003-2
5	AP	102.4	4.30	248	DEO-HOT-8113-00002-1
19	AP	98.5	4.32	194	DEO-HOT-8113-00001-10
22	AP	107.4	4.59	232	DEO-HOT-8112-00003-7
26	AP	158.0	6.97	316	DEO-HOT-8112-00003-3

Table S2 continued.

<b>Panelist Number</b>	<b>AP or No AP</b>	<b>Sweat Area (mm<sup>2</sup>)</b>	<b>% Total Coverage</b>	<b>Sweat Weight (mg)</b>	<b>Image Reference</b>
37	No AP	2029	87.23	763	DEO-HOT-8107-00002-1
52	No AP	1930	83.27	722	DEO-HOT-8107-00002-3
9	No AP	2029	86.51	789	DEO-HOT-8107-00001-7
24	No AP	1999	85.05	813	DEO-HOT-8107-00001-8
16	No AP	1992	85.42	707	DEO-HOT-8107-00001-10
37	AP	111.53	4.87	248	DEO-HOT-8116-00002-2
52	AP	311.0	14.08	398	DEO-HOT-8116-00001-3
9	AP	193.1	8.63	267	DEO-HOT-8116-00002-7
24	AP	278.9	12.67	311	DEO-HOT-8116-00003-3
16	AP	293.9	12.63	224	DEO-HOT-8116-00002-6