

On the radiolytic stability of potentiometric sensors with plasticized polymeric membranes

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Supplementary Material

Table S1. Potentiometric sensitivity of the control sensor array during the experiment (± 1 mV/dec).

	Pr³⁺								
Days	i1	i2	i3	i4	i5	i6	i7	i8	i9
1	16	0	3	2	17	18	14	12	9
3	15	2	5	2	14	17	15	12	7
10	16	3	5	0	16	20	15	14	8
15	17	3	5	2	17	17	15	12	7
21	16	5	4	3	17	19	16	11	7
32	16	2	5	3	17	18	15	12	7
	Gd³⁺								
1	16	14	16	9	15	16	20	15	10
3	16	13	17	9	15	16	21	14	10
10	17	15	18	8	17	14	20	15	11
15	16	12	17	8	17	15	19	13	10
21	16	15	18	7	17	14	18	14	10
32	17	15	17	8	16	13	20	14	10
	UO₂²⁺								
1	18	21	3	21	14	55	22	11	21
3	18	22	2	23	15	49	22	10	20
10	17	24	3	23	14	57	21	12	20
15	19	22	1	23	15	51	22	11	21
21	18	22	2	23	15	48	24	13	21
32	17	21	3	23	14	53	22	12	20

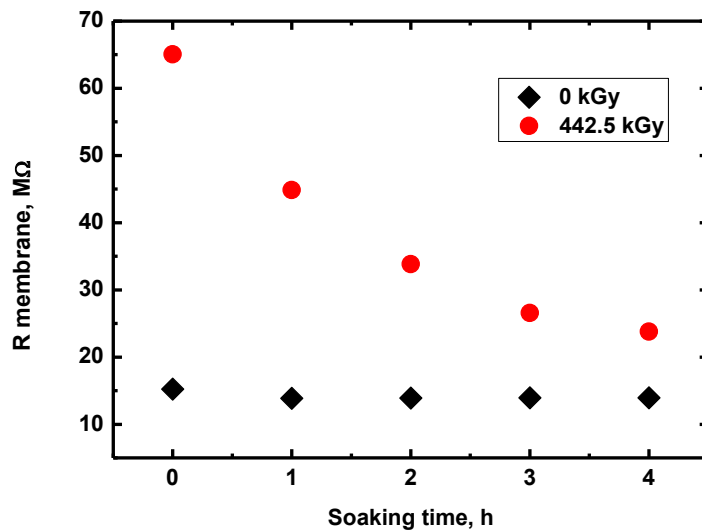


Figure S1. The evolution of the i8 membranes' resistance upon soaking in 0.01 M NaCl.

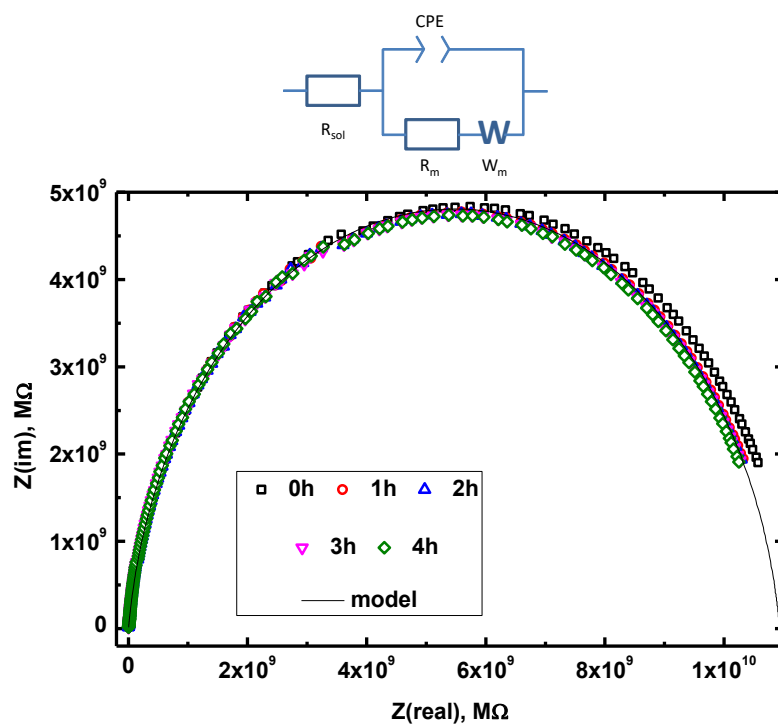


Figure S2. Nyquist plots the i8 membranes' resistance upon soaking in 0.01 M NaCl. Right after interaction with 0.01 M NaCl (0h) and after immersion in the solution during 1–4 hours (1h–4h) respectively. Equivalent circuit is schematically shown at the top of the figure, where R_{sol} – uncompensated solution resistance, CPE – constant phase element, R_m – bulk membrane, W_m – Warburg element. Calculated Nyquist plot based on the equivalent model circuit is shown as a black curve.

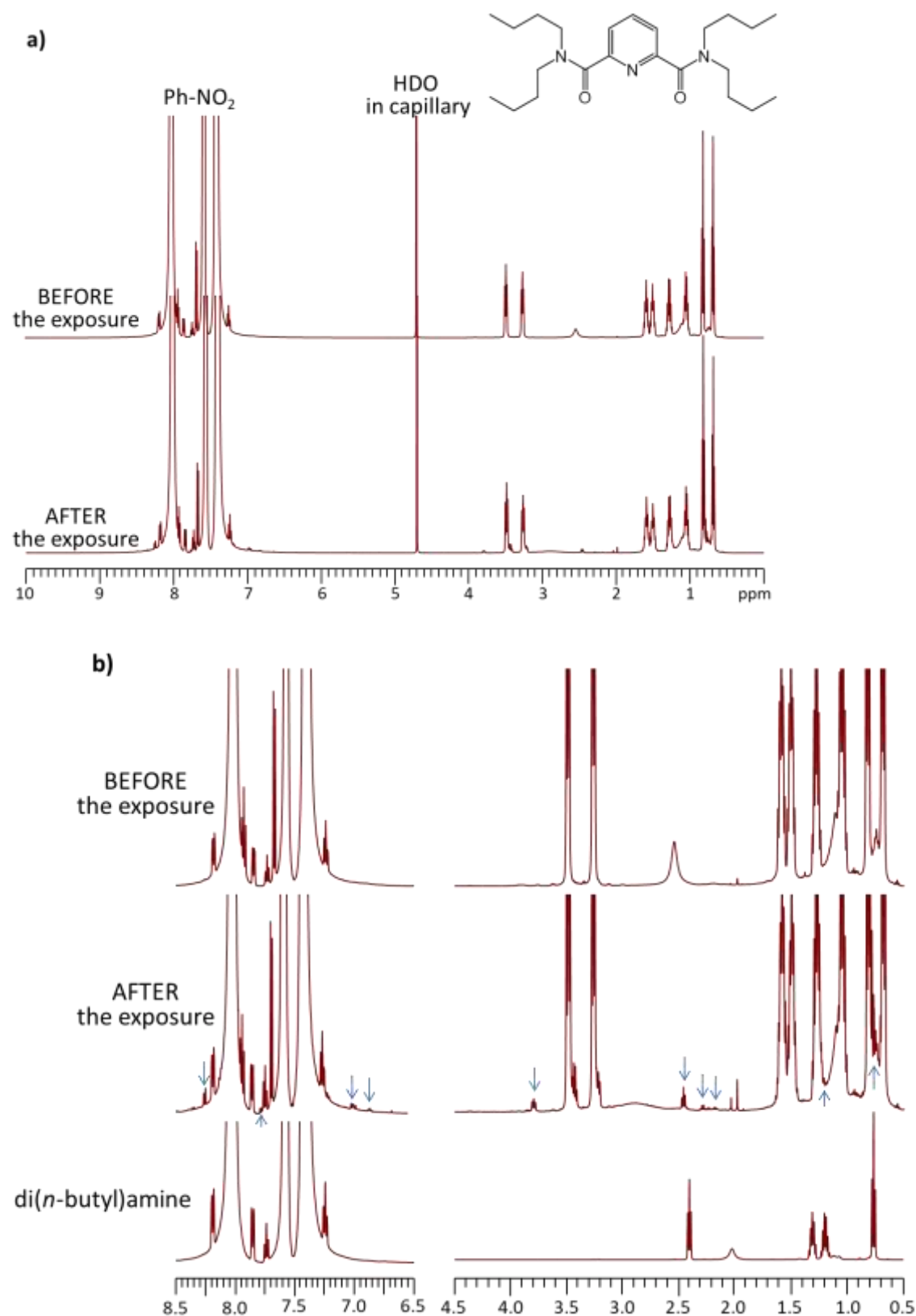


Figure S3. (a) Overview of ¹H NMR spectra of nitrobenzene solutions of **11** before and after the exposure to ionizing radiation. (b) The amplified aromatic and aliphatic parts of the same spectra (the most discernable new signals are marked by arrows). The bottom spectrum corresponds to the nitrobenzene solution of di(*n*-butyl)amine, measured separately.

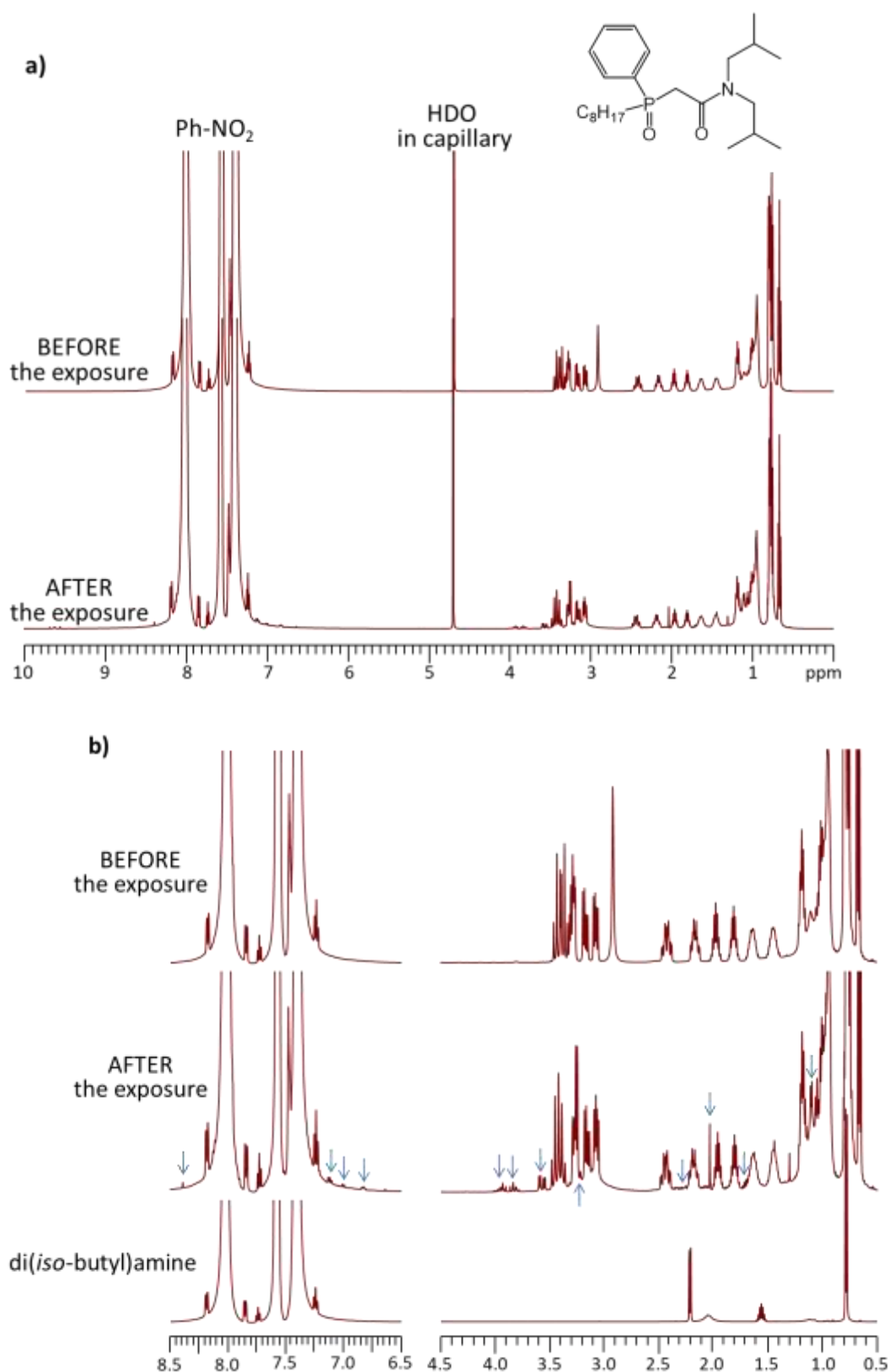


Figure S4. (a) Overview of ¹H NMR spectra of nitrobenzene solutions of **16** before and after the exposure to ionizing radiation. (b) The amplified aromatic and aliphatic parts of the same spectra (the most discernable new signals are marked by arrows). The bottom spectrum corresponds to the nitrobenzene solution of di(*iso*-butyl)amine, measured separately.