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Supplementary Material

Gamma Radiation-Induced Unsaturated P(VDF-CTFE) Membranes with Improved Mechanical Properties

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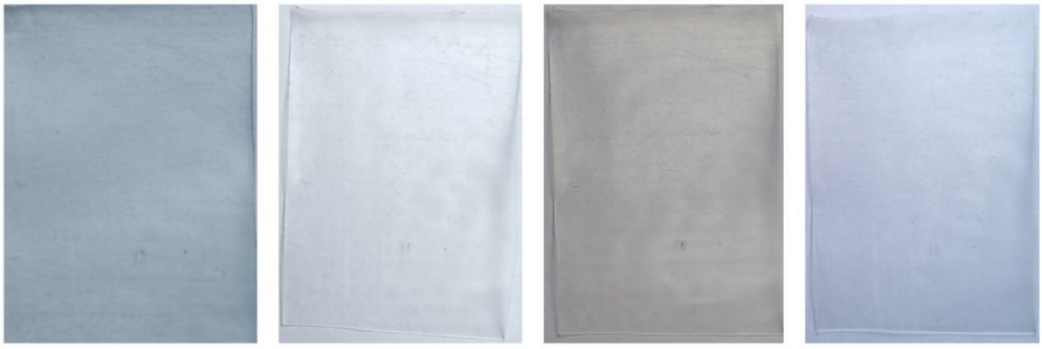

Figure S1. The discoloration process of one piece of P(VDF-CTFE)-EtOAc membrane. From left to right: before irradiation, after 10.2 kGy irradiation for 0h, 3h, 5h, respectively. The difference in white balance was caused by ambient light.

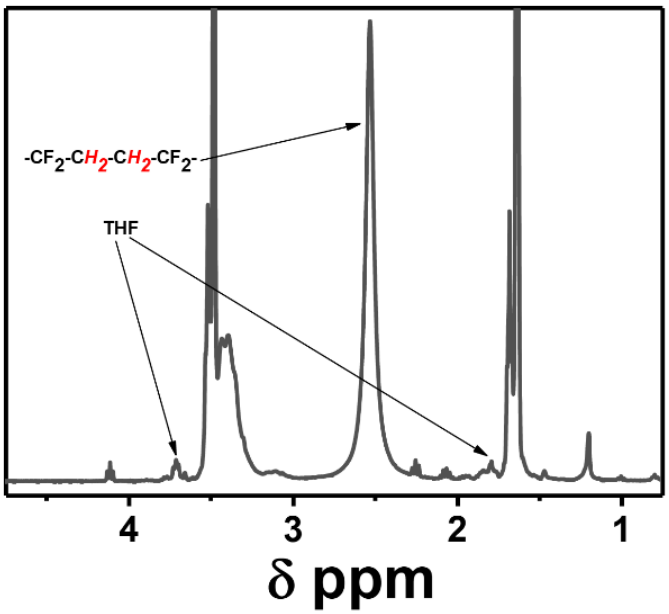

Figure S2. The THF peaks of unirradiated P(VDF-CTFE)-THF 0kGy in ^{1}H NMR spectrum.

Table S1 The functional groups in P(VDF-CTFE)-THF membrane obtained from C1s XPS spectra before and after 10.2 kGy radiation

Carbon binding	P(VDF-CTFE)-THF 0kGy			P(VDF-CTFE)-THF 10.2kGy		
	Binding energy (eV)	FWHM (eV)	Content (%)	Binding energy (eV)	FWHM (eV)	Content (%)
CF_2	291.10	1.74	52.31	291.10	1.67	34.70
CF_2CF_2	291.99	1.12	6.24	291.81	1.21	19.00
C=O	289.63	1.54	5.32	289.86	1.27	5.41
C-Cl	286.69	1.85	9.78	286.47	1.72	14.89
C-C	284.94	1.31	24.44	284.87	1.20	18.58

C=C	284.31	0.79	1.91	284.29	0.84	7.42

Table S2. Yield strength, breaking strength and breaking elongation with SD values of all samples.

Sample	Average yield strength (MPa)	SD (MPa)	Average breaking strength (MPa)	SD (MPa)	Average breaking elongation (%)	SD (%)
P(VDF-CTFE)-EtOAc 0kGy	4.35	0.14	10.55	0.78	671.29	48.08
P(VDF-CTFE)-EtOAc 10.2kGy	4.52	0.47	12.84	1.87	896.63	31.74
P(VDF-CTFE)-THF 0kGy	3.34	0.17	6.27	0.55	799.89	19.45
P(VDF-CTFE)-THF 10.2kGy	8.23	0.22	20.53	0.53	641.04	16.28