

Supplementary Materials

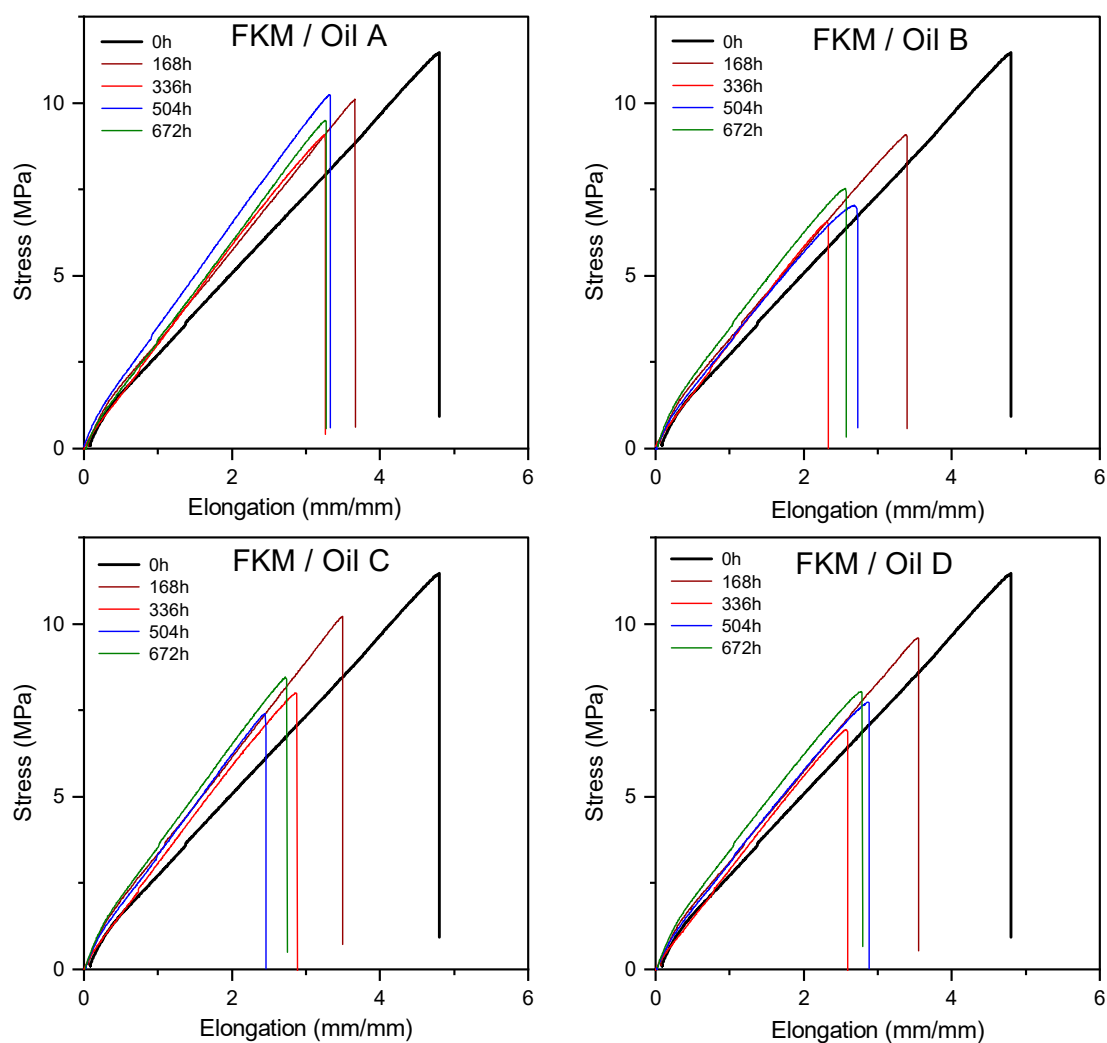


Figure S1. Tensile strength and elongation at break for FKM and oils A to D (Fresh and after aging periods of 168, 336, 504, and 672 h).

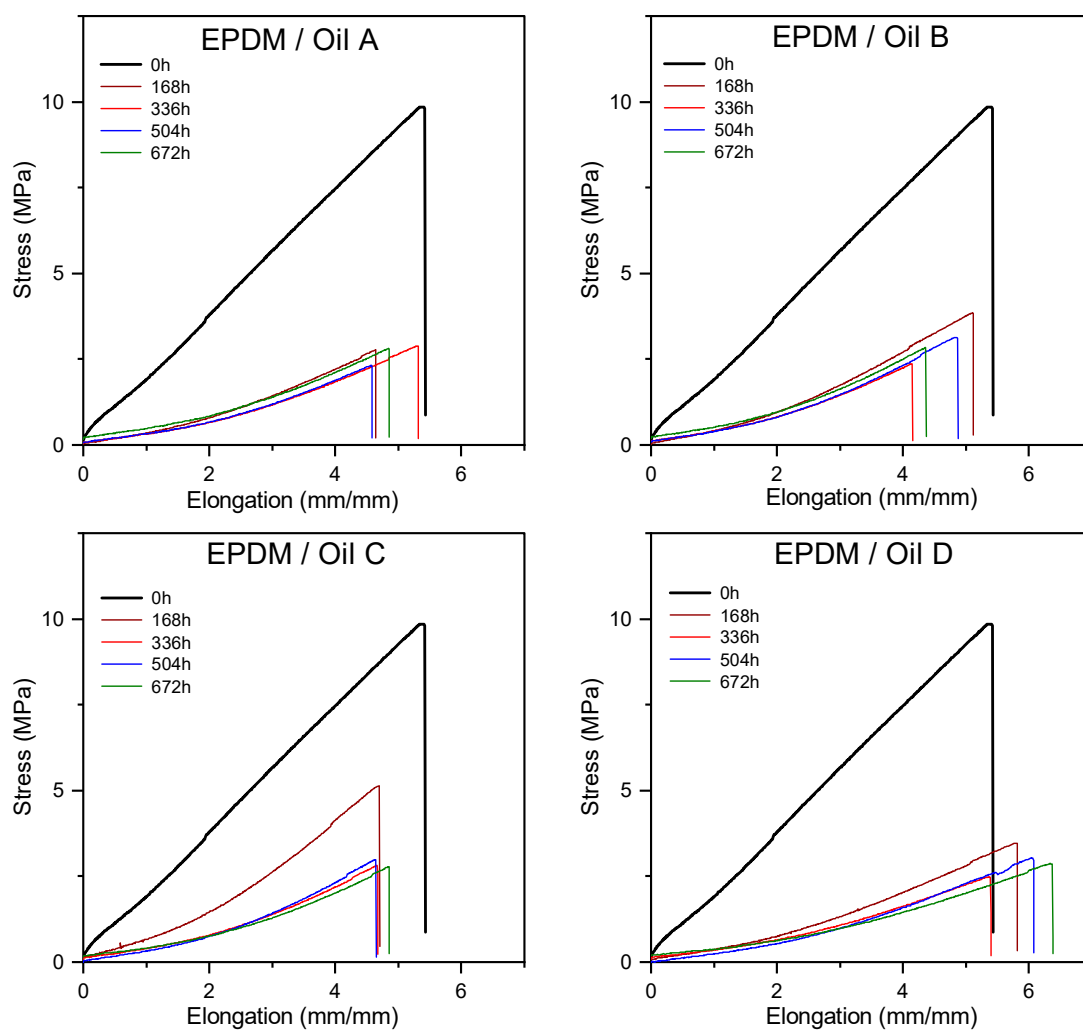


Figure S2. Tensile strength and elongation at break for EPDM and oils A to D (Fresh and after aging periods of 168, 336, 504, and 672 h).

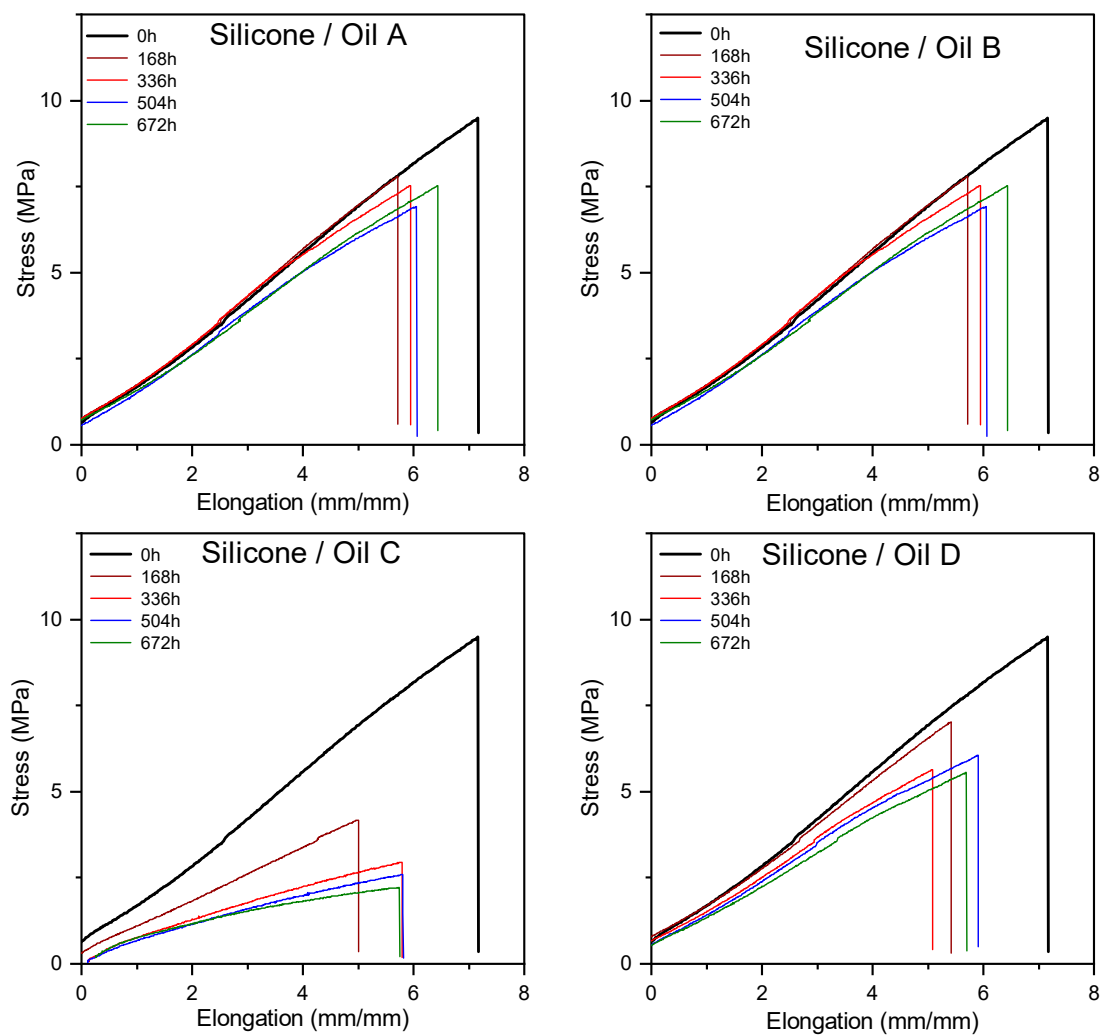


Figure S3. Tensile strength and elongation at break for Silicone and oils A to D (Fresh and after aging periods of 168, 336, 504, and 672 h).

Table S1. Characteristic FTIR spectra bands for FKM.

Zone / cm ⁻¹	Assignment	Fresh	Oil A -1 w	Oil A -4 w	Oil B -1 w	Oil B -4 w	Oil C -1 w	Oil C -4 w	Oil D -1 w	Oil D -4 w
3602 - 3654	Free O – H [1]	0.1079	0.0008	0.2325	0.2139	0.1692	0.1991	0.2171	0.1918	0.1679
2991 - 3037	-CH ₂ F str. [1]	0.0039	-0.0256	0.0186	0.0219	0.0205	0.0241	0.0235	0.0067	0.0286
2941 - 2987	-CH ₃ assym. str. [1]	0.1117	0.1653	0.0312	0.0512	0.0519	0.0454	0.0722	0.1519	0.0278
2879 - 2941	-CH ₃ symm. str. [1]	0.5166	2.1222	0.3206	0.1112	0.4273	0.1960	0.7526	1.4896	0.0726
2802 - 2879	Acyclic, -CH ₂ - sym. str. [1]	0.2614	1.0721	0.1595	0.0549	0.2054	0.0893	0.3437	0.7156	0.0298
1709 - 1753	C=CF ₂ str. [1]	0.6231	0.0917	0.0429	0.1334	0.0284	0.1721	0.0718	0.1894	0.0412
1680 - 1709	R ₁ R ₂ C=CH- str. [1]	-0.0573	0.0311	0.0011	-0.0264	-0.0083	-0.0173	-0.0125	-0.0178	0.0017
1589 - 1680	C=C str. [1,2]	0.5486	0.5343	-0.0076	-0.0382	0.0213	0.0396	-0.0063	-0.0175	-0.0140
1554 - 1589	Amines, aromatics [1]	0.0654	0.0956	-0.0086	-0.0066	-0.0019	0.0067	0.0131	-0.0030	-0.0053
1522 - 1554	Amines, aromatics [1]	0.1127	0.1155	-0.0648	-0.0332	-0.0233	-0.0190	-0.0209	-0.0163	-0.0359
1441 - 1498	-CH ₂ - sciss. [1]	-0.0018	0.0997	-0.1209	-0.0366	-0.0612	-0.0259	-0.0162	0.0400	-0.0365
1412 - 1441	-CH ₃ assym. def. [1]	0.3471	0.2582	0.5045	0.3783	0.3695	0.3953	0.4255	0.3283	0.3847
1356 - 1412	-CH ₂ F wag. [1,3] -CF ₃ str [2]	3.6552	2.6415	3.8813	4.3323	4.0883	4.2786	4.2353	3.7113	4.2697
1331 - 1356	C=CF ₂ str. [1]	0.1761	0.1116	0.1928	0.2089	0.2043	0.2104	0.2039	0.1705	0.2156
1265 - 1308	Esters, amides [1]	0.1864	0.2069	0.2196	0.2255	0.2082	0.2527	0.2316	0.1874	0.2555
1053 - 1263	-CF ₂ - str [2]	32.7431	23.4440	35.5248	40.3665	36.5861	40.2121	37.6077	33.3810	38.6870
953 – 1053	C-F str in monofluorinated aliphatic groups [1]	1.9998	2.8331	2.2510	1.7427	1.6400	2.1105	2.0903	1.8208	1.8234
837-895	-CF str. [3]	3.4918	3.1477	4.8562	4.4162	4.4728	4.4158	4.1351	3.6158	4.4710

References

1. Socrates, G. Infrared and Raman Characteristic Group Frequencies. In *Tables and Charts*; John Wiley & Sons: Hoboken, NJ, USA, 2001; ISBN 978-0-470-09307-8.
2. Kang, H.; Chen, L.; Du, H.; Wang, H.; Li, D.; Fang, Q. Hot Nitric Acid Diffusion in Fluoroelastomer Composite and Its Degradation. *RSC Adv.* **2019**, *9*, 38105–38113. <https://doi.org/10.1039/C9RA06286F>.
3. Mitra, S.; Ghanbari-Siahkali, A.; Kingshott, P.; Almdal, K.; Rehmeier, H.K.; Christensen, A.G. Chemical Degradation of Fluoroelastomer in an Alkaline Environment. *Polym. Degrad. Stab.* **2004**, *83*, 195–206. [https://doi.org/10.1016/S0141-3910\(03\)00235-0](https://doi.org/10.1016/S0141-3910(03)00235-0).