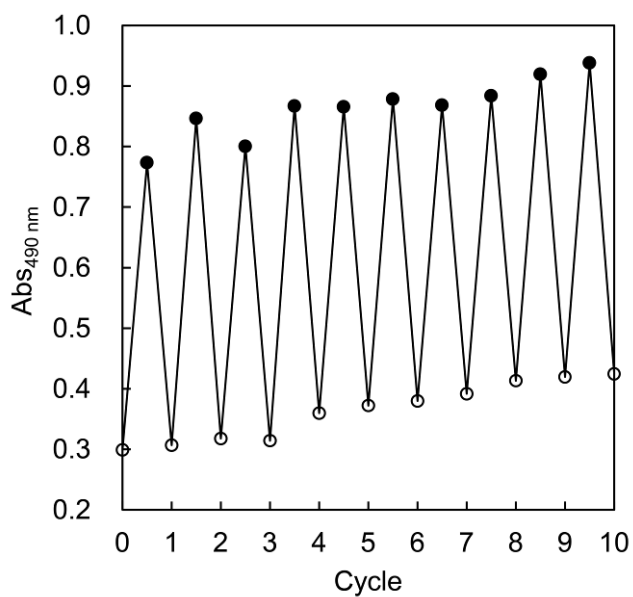


## Electronic Supplementary Information

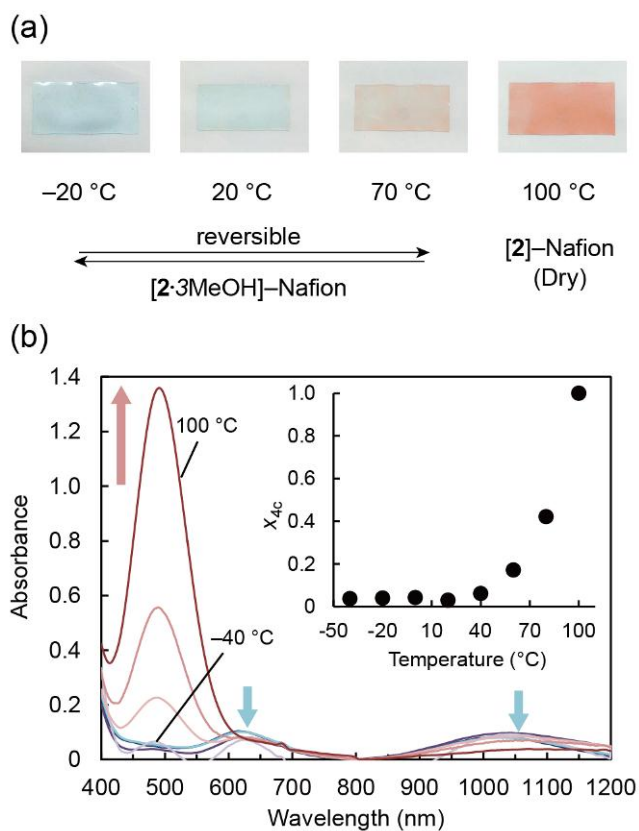
### Multi-Responsive Nafion Films Containing Cationic Metal-Chelate Complexes

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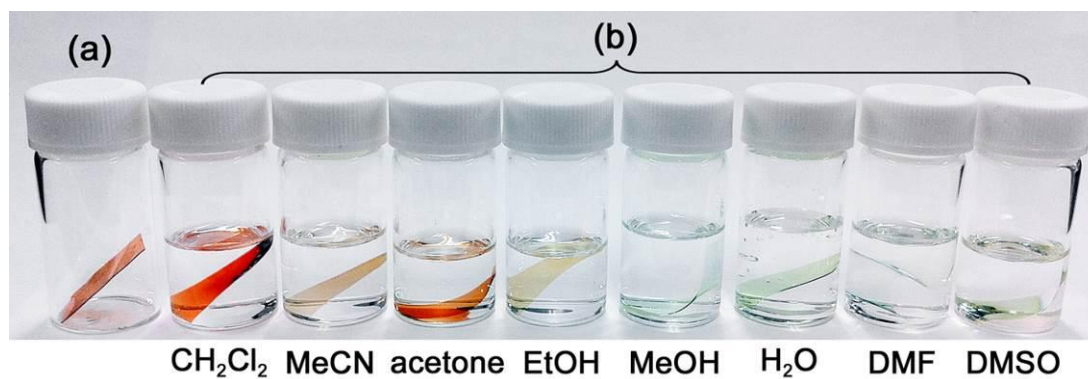
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**Fig. S1.** Absorbance changes of [1·3MeOH]-Nafion monitored at 490 nm for repeated temperature changes between -40 °C (open circles) and 70 °C (filled circles).



**Fig. S2.** (a) [2·3MeOH]-Nafion at various temperatures. (b) UV-vis absorption spectra of [2·3MeOH]-Nafion recorded between -40 °C and 100 °C at 20 K intervals. The change is irreversible above 80 °C because of the desorption of MeOH. The insert shows the temperature dependence of the molar ratio ( $x_{4c}$ ) of four-coordinated species in the film.



**Fig. S3.** [1]-Nafion (a) before and (b) after immersion in various solvents.