## **List of Symbols**

## Symbol Description Alpha α Beta β Pie $\pi$ C=OCarbonyl group $\lambda_{\text{max}}$ Maximum wavelength Emission wavelength $\lambda_{\text{em}}$ Excitation wavelength $\lambda_{\text{ex}}$ Chemical capacitance $C_{SC}$ ohm Ω $C_T$ Electrolyte capacitance $T_{10}$ Onset temperature Light off temperature T50 Maximal conversion temperature $T_{90}$ $T_{m}$ Peak temperature Amino group -NH<sub>2</sub> $T_{m}$ Melting temperature $T_{10}$ The temperature at which 10% of the total weight loss occurs Light off temperature at which 50% of the total weight loss occurs T50 The temperature at which 90% of the total weight loss occurs T<sub>9</sub><sub>o</sub> Micrometers μΜ Millimeter mM nm Nanometer -OH Hydroxyl group Methoxy group -O-CH<sub>3</sub> cm Centimeters °C Degree celsius Exchange current density Jo $J_{lim}$ Limiting current density $\mathsf{E}_{\mathsf{pp}}$ Peak to peak potential Οβ Lattice oxygen $O_{\alpha}$ Chemisorbed oxygen $N_3$ Ruthenium based dye Lifetime τ HCI Hydrogen chloride Binding parameter n $\mu$ L Microliters Hertz Hz ٧ Voltage CaCl<sub>2</sub> Calcium chloride KOH Potassium hydroxide $R_{S}$ Series resistance Charge transport resistance $R_{ct}$ Open circuit Potential $V_{OC}$ Short circuit potential $J_{sc}$ F farad Counter electrode and electrolyte charge transfer resistance R1, R2

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