Supporting Information

Complex: [(Tp*)MoO(1-O,O)]; Concentration: 0.5 mM; Electrode radius: 800 μm

T(K)	E°′ (mV)	v range (V s^{-1})	ΔE_p range (mV)	ln ($k_{s,h}$)
297.7	−1147 (7)	3–14	185–351	−4.88 (33)
283.9	−1141 (11)	0.015–0.2	105–206	−5.77 (7)
273.9	−1129 (12)	0.1–1.5	126–260	−5.76 (18)
263.9	−1141 (3)	0.015–0.1	144–217	−6.90 (40)

Complex: [(Tp*)MoO(1-O,S)]; Concentration: 1.5 mM; Electrode radius: 125 μm

T(K)	E°′ (mV)	v range (V s^{-1})	ΔE_p range (mV)	ln ($k_{s,h}$)
297.3	−813.0 (42)	5–34	128–243	−3.52 (19)
273.1	−798.2 (41)	0.75–8	142–262	−4.92 (20)
263.4	−796.8 (27)	0.15–3	145–260	−5.72 (16)
253.5	−787.8 (43)	0.15–5	121–313	−5.85 (22)

Complex: [(Tp*)MoO(1-S,S)]; Concentration: 1.7 mM; Electrode radius: 125 μm

T(K)	E°′ (mV)	v range (V s^{-1})	ΔE_p range (mV)	ln ($k_{s,h}$)
296.9	−400.4 (25)	5–34	71–103	−1.70 (18)
283.8	−396.2 (21)	7.5–51	77–108	−1.84 (8)
273.9	−393.9 (37)	5–51	77–119	−2.10 (14)
263.4	−387.0 (58)	1.5–20	82–130	−2.94 (15)
253.5	−381.3 (31)	0.15–1	75–92	−3.46 (30)

Complex: [(Tp*)MoO(2-O,O)]; Concentration: 2.0 mM; Electrode radius: 125 μm

T(K)	E°′ (mV)	ν range (V s^{-1})	ΔE_p range (mV)	ln ($k_{s,h}$)
298.1	−722.0 (30)	0.2–3.0	90–154	−3.84 (23)
283.3	−712.0 (60)			
273.1	−710.0 (30)	0.2–3.0	100–163	−4.52 (13)
263.4	−704.7 (33)	0.2–1.5	103–171	−5.03 (28)
253.0	−698.2 (25)	0.2–1.4	120–165	−5.13 (11)

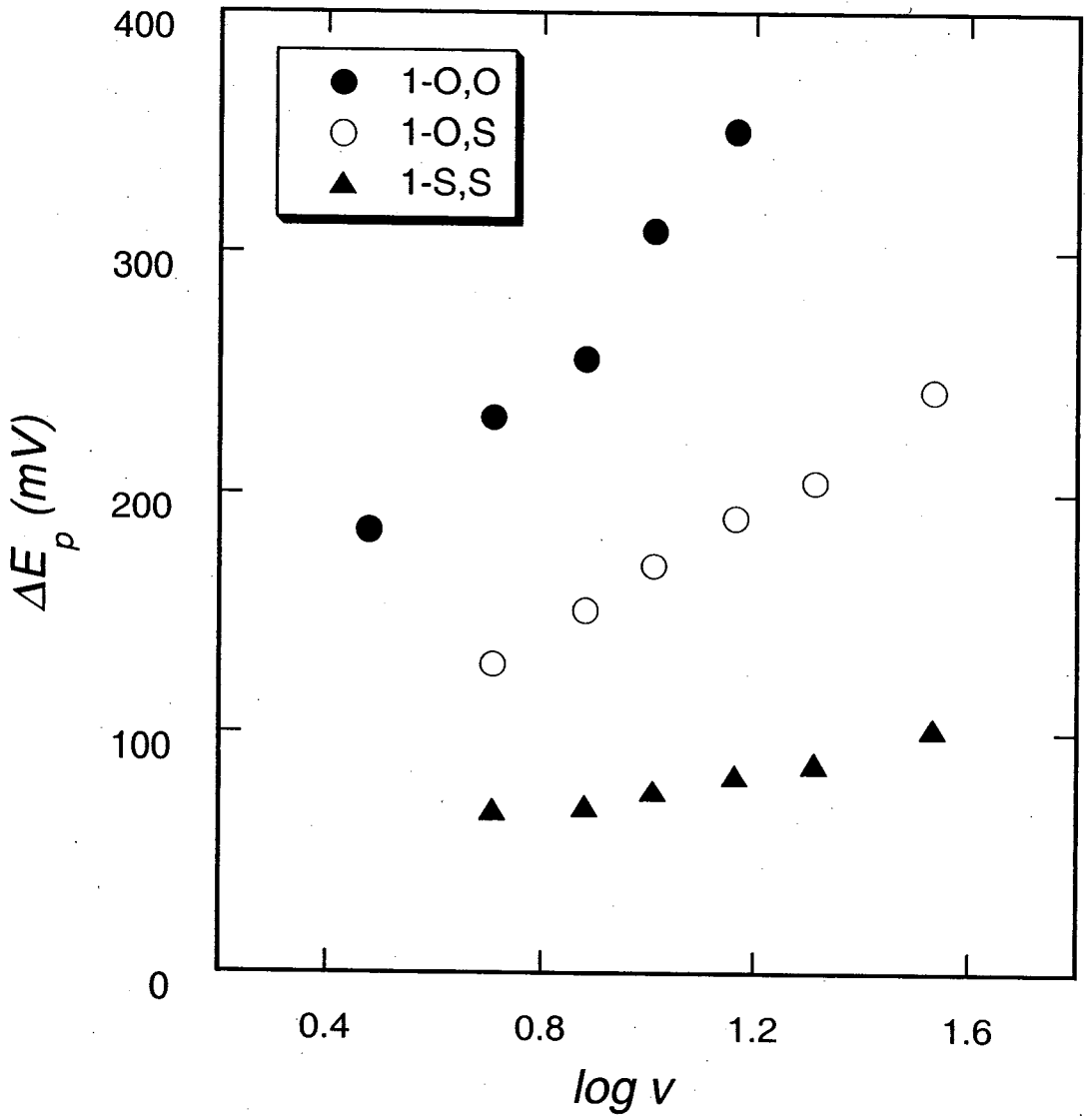
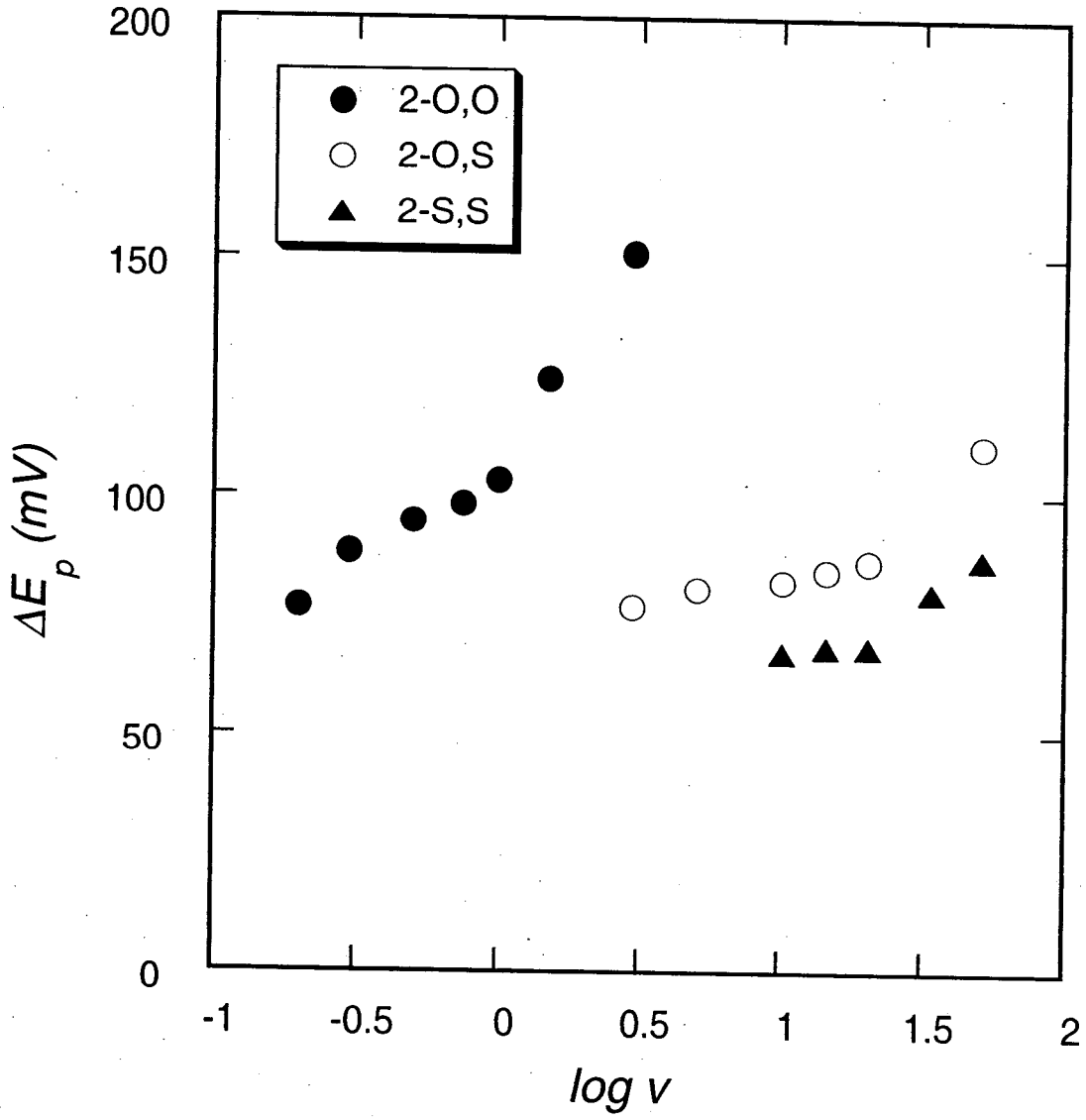
Complex: [(Tp*)MoO(2-O,S)]; Concentration: 1.1 mM; Electrode radius: 125 μm

T(K)	E°′ (mV)	ν range (V s^{-1})	ΔE_p range (mV)	ln ($k_{s,h}$)
297.2	−444.9 (11)	3–51	79–111	−1.92 (16)
283.2	−440.1 (17)	2–51	71–93	−2.04 (5)
273.2	−438.9 (14)			
263.2	−438.4 (17)	2–51	73–123	−2.69 (9)
253.2	−431.1 (11)	3–51	73–149	−2.79 (25)

Complex: [(Tp*)MoO(2-S,S)]; Concentration: 0.5 mM; Electrode radius: 125 μm

T(K)	E°′ (mV)	ν range (V s^{-1})	ΔE_p range (mV)	ln ($k_{s,h}$)
297.2	−112.4 (17)	10–51	82–86	−1.35 (14)
283.2	−104.8 (15)	8–51	70–88	−1.44 (14)
273.2	−97.0 (23)	5–51	62–86	−1.61 (20)
253.2	−89.8 (17)	10–51	72–97	−2.06 (18)

Corrected peak potential separation vs. scan rate (1a-1c)



Corrected peak potential separation vs. scan rate (2a-2c)