Supplementary Material

Isoparametricity and related phenomena in reactions of *trans*-2,3-diaryloxiranes with arenesulfonic acids

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Kinetic Data

Table S1. Rate constants $k_{XYT}\times10^5$, M^{-2} s^{-1}, values of q_Y^{XT} ($r \geq 0.992$) in equation $\log k_{XYT} = \log k_{X0T} + q_Y^{XT}\sigma_Y$ and q_X^{YT} ($r \geq 0.992$) in equation $\log k_{XYT} = \log k_{0YT} + q_X^{YT}\tau_X$ for reactions of *trans*-2,3-diaryloxiranes **1a–1d** with arenesulfonic acids **2a–2e** in the mixture dioxane–1,2-dichloroethane (7 : 3, v : v) at at different temperatures *T* [17]

Acid (σ_Y)	Oxirane (τ_X)				
	1a (0)	**1b** (2.02)	**1c** (3.47)	**1d** (4.38)	$-q_X^{YT}$
			T = 265 K		
2a (-0.27)	2120 ± 80	31.06 ± 0.06	1.51 ± 0.07	0.225 ± 0.001	0.908 ± 0.001
2b (-0.17)	3000 ± 100	39.3 ± 0.2	1.66 ± 0.01	0.227 ± 0.002	0.941 ± 0.002
2c (0)	5700 ± 100	55 ± 1	1.95 ± 0.05	0.238 ± 0.002	0.996 ± 0.003
2d (0.23)	12900 ± 300	100 ± 2	2.37 ± 0.06	0.253 ± 0.006	1.08 ± 0.01
2e (0.71)	-	-	4.67 ± 0.03	-	
q_Y^{XT}	1.57 ± 0.02	1.00±0.04	0.50 ± 0.03	0.10 ± 0.05	
			T = 281 K		
2a	4900 ± 300	-	4.6 ± 0.2	1.51 ± 0.01	0.82 ± 0.06
2b	7500 ± 200	-	6.36 ± 0.09	1.80 ± 0.02	0.84 ± 0.05
2c	16600 ± 200	-	9.8 ± 0.2	2.21 ± 0.03	0.90 ± 0.04
2d	47900 ± 500	-	18 ± 1	2.75 ± 0.05	0.97 ± 0.01
2e	-	-	54.2 ± 0.4	-	
q_Y^{XT}	1.98 ± 0.01		1.08 ± 0.03	0.50 ± 0.04	
			T = 298 K		
2a	8320 ± 400	-	24.3 ± 0.9	9.86 ± 0.04	0.68 ± 0.05
2b	13010 ± 100	-	32.0 ± 0.4	12.1 ± 0.2	0.71 ± 0.05
2c	32700 ± 500	-	52.2 ± 0.5	20.2 ± 0.1	0.75 ± 0.06
2d	142000 ± 100	-	117 ± 3	29.8 ± 0.1	0.85 ± 0.04
2e	-	-	690 ± 20	-	
q_Y^{XT}	2.5 ± 0.1		1.49 ± 0.05	1.01 ± 0.09	

Activation Data

Table S2. Values of coefficients of Eyring equation[a] ($r \geq 0.989$) and activation parameters $\Delta H_{XY}^{\neq}$ (kJ mol^{-1}), $\Delta S_{XY}^{\neq}$ (j mol^{-1} K^{-1}) and $\Delta G_{XYT}^{\neq}$ (kJ mol^{-1}) for reactions of *trans*-2,3-diaryloxiranes with arenesulfonic acids in the mixture of dioxane with 1,2-dichloroethane (7 : 3 v/v) at 265, 281, and 298 K [17]

Acid	$A_{T=\infty}^{XY}$	$-B_T^{XY}$	$\Delta H_{XY}^{\neq}$	$\Delta S_{XY}^{\neq}$	$\Delta G_{XYT=265}^{\neq}$	$\Delta G_{XYT=281}^{\neq}$	$\Delta G_{XYT=298}^{\neq}$
			Oxirane **1a**				
2a	1.0 ± 0.6	1.3 ± 0.2	25	-178	72.2	75.0	78.0
2b	1.5 ± 0.8	1.4 ± 0.2	27	-169	71.8	74.5	77.4
2c	2.9 ± 0.8	1.7 ± 0.2	32	-142	69.6	71.9	74.3
2d	5.8 ± 0.3	2.41 ± 0.09	46	-86	68.8	70.2	71.6
			Oxirane **1c**				
2a	3 ± 1	2.8 ± 0.4	53	-140	90.1	92.3	94.7
2b	4.1 ± 0.7	3.0 ± 0.2	57	-121	89.1	91.0	93.1
2c	5.87 ± 0.07	3.46 ± 0.02	66	-86	88.8	90.2	91.6
2d	8.1 ± 0.1	4.02 ± 0.04	77	-42	88.1	88.8	89.5
2e	12.6 ± 0.4	5.1 ± 0.1	98	44	86.3	85.6	84.9
			Oxirane **1d**				
2a	6.5 ± 0.1	3.88 ± 0.04	74	-73	93.3	94.5	95.7
2b	7.4 ± 0.2	4.10 ± 0.05	78	-56	92.8	94.0	94.7
2c	9.2 ± 0.1	4.58 ± 0.04	88	-19	93.6	93.9	94.2
2d	10.5 ± 0.2	4.92 ± 0.07	94	3.4	93.1	93.0	93.0

[a] $\log (k_{XYT}/T) = A_{T=\infty}^{XY} + B_T^{XY} \cdot 10^3/T$, here $A_{T=\infty}^{XY} = \lg(k_B/h) + \Delta S_{XY}^{\neq}/2.3R$, $B_T^{XY} = -\Delta H_{XY}^{\neq}/2.3R$ (k_B is Boltzmann constant, h is Plank constant, R is a gas constant).

