

US EPA ARCHIVE DOCUMENT

Matrix Surrogates and Their Respective Ranges

range		surrogate grouping	
type	values		values ^a
α_K -values ^b	0.86 to 3.7	hexafluorobenzene	.86
		fluorobenzene	3.50
		1,4-difluorobenzene	3.83
	3.7 to 6.2	fluorobenzene	3.50
		1,4-difluorobenzene	3.83
		<i>o</i> -xylene- <i>d</i> ₁₀	6.14
		chlorobenzene- <i>d</i> ₅	6.27
		<i>o</i> -xylene- <i>d</i> ₁₀	6.14
	6.2 to 26	chlorobenzene- <i>d</i> ₅	6.27
		1,2-dibromoethane- <i>d</i> ₄	26.00
		1,1,2-trichloroethane- <i>d</i> ₃	26.60
		1,2-dibromoethane- <i>d</i> ₄	26.00
		1,1,2-trichloroethane- <i>d</i> ₃	26.60
		tetrahydrofuran- <i>d</i> ₈	355.00
	26 to 500	acetone- <i>C</i> ¹³	600.00
tetrahydrofuran- <i>d</i> ₈		355.00	
acetone- <i>C</i> ¹³		600.00	
1,4-dioxane- <i>d</i> ₈		5800.00	
pyridine- <i>d</i> ₅		15000.00	
bp (°C)	85 to 155 ^c	pentafluorobenzene	85.00
		toluene- <i>d</i> ₈	111.00
		bromobenzene- <i>d</i> ₅	155.00
	155 to 213	bromobenzene- <i>d</i> ₅	155.00
		1,2-dichlorobenzene- <i>d</i> ₄	181.00
		1,2,4-trichlorobenzene- <i>d</i> ₃	213.00
	213 to 245	1,2,4-trichlorobenzene- <i>d</i> ₃	213.00
		naphthalene- <i>d</i> ₈	217.00
		1-methylnaphthalene- <i>d</i> ₁₀	245.00

^a Values are taken from Hiatt M, Anal Chem 69:1127-1134.

^b Relative volatility.

^c The effects relating to an analyte with a boiling point at or less than 85 °C are assumed to be negligible.