

## Supplementary Materials

**Table S1.** Trend line equations and coefficient of determination  $R^2$  for the characteristics shown in Fig.4 Fig.5, Fig.6 and Fig.7.

Figure	Function	Type of trend line	Equation	$R^2$
Fig. 4	$E_{sep} = f(A)$	Polynomial 6 order	$y = 2E-09x^6 - 9E-07x^5 + 0.0001x^4 - 0.0085x^3 + 0.3238x^2 - 6.1625x + 67.924$	0.9927
	$R = f(A)$	Logarithmic	$y = 0.2969\ln(x) - 0.4696$	0.9814
	$Y_{CO_2} = f(A)$	Exponential	$y = 0.0118e^{-0.009x}$	0.9973
	$X_{CO_2} = f(A)$		$y = 0.0004e^{-0.023x}$	0.9998
Fig. 5	$E_{sep} = f(P_{CO_2})$	Polynomial 6 order	$y = -3E-09x^5 + 1E-06x^4 - 0.0003x^3 + 0.0267x^2 - 1.2991x + 46.994$	0.9999
	$R = f(P_{CO_2})$	Logarithmic	$y = 0.3316\ln(x) - 0.862$	0.9943
	$Y_{CO_2} = f(P_{CO_2})$	Exponential	$y = 0.0121e^{-0.004x}$	0.9996
	$X_{CO_2} = f(P_{CO_2})$		$y = 0.0004e^{-0.01x}$	1.0000
Fig. 6a	$E_{sep} = f(P_{CO_2})$	Polynomial 6 order	$y = 3E-11x^6 - 2E-08x^5 + 4E-06x^4 - 0.0005x^3 + 0.0387x^2 - 1.4776x + 47.518$	1.0000
	$R = f(P_{CO_2})$	Logarithmic	$y = 0.3443\ln(x) - 0.857$	0.9977
	$Y_{CO_2} = f(P_{CO_2})$	Exponential	$y = 0.0102e^{-0.005x}$	0.9988
	$X_{CO_2} = f(P_{CO_2})$		$y = 0.0004e^{-0.012x}$	1.0000
Fig. 6b	$E_{sep} = f(P_{CO_2})$	Polynomial 5 order	$y = -2E-09x^5 + 1E-06x^4 - 0.0002x^3 + 0.0186x^2 - 0.7951x + 42.202$	1.0000
	$R = f(P_{CO_2})$	Logarithmic	$y = 0.3494\ln(x) - 0.8055$	0.9989
	$Y_{CO_2} = f(P_{CO_2})$	Exponential	$y = 0.0075e^{-0.006x}$	0.9982
	$X_{CO_2} = f(P_{CO_2})$		$y = 0.0004e^{-0.015x}$	1.0000
Fig. 7a	$N_{el} = f(P_{CO_2})$ for 0.02 bar	Linear	$y = 202.23x + 6478.5$	1.0000
	$N_{el} = f(P_{CO_2})$ for 0.04 bar	Linear	$y = 147.17x + 6458.7$	1.0000
	$N_{el} = f(P_{CO_2})$ for 0.05 bar	Linear	$y = 131.27x + 6458.7$	1.0000
Fig. 7b	$E_{sep} = f(P_{CO_2})$ for 0.04 bar	Polynomial 6 order	$y = 5E-11x^6 - 3E-08x^5 + 7E-06x^4 - 0.0009x^3 + 0.0664x^2 - 2.7222x + 74.768$	1.0000
Fig. 7b	$E_{sep} = f(P_{CO_2})$ for 0.05 bar	Polynomial 6 order	$y = 7E-11x^6 - 4E-08x^5 + 9E-06x^4 - 0.0012x^3 + 0.0828x^2 - 3.3451x + 87.913$	1.0000