Table S2. Typical solid-state kinetic models with expressions of differential and integral forms.

Model type	Code	Differential form f(α)	Integral form g(α)
Chemical reaction models			
1st order	F_1	$1-\alpha$	$-\ln(1-\alpha)$
2nd order	F_2	$(1-\alpha)^2$	$(1-\alpha)^{-1}-1$
3rd order	F_3	$(1-\alpha)^3$	$(1/2)[(1-\alpha)^{-2}-1]$
4th order	F_4	$(1-\alpha)^4$	$(1/3)[(1-\alpha)^{-3}-1]$
5th order	F_5	$(1-\alpha)^5$	$(1/4)[(1-\alpha)^{-4}-1]$
Diffusion models			
One-dimensional diffusion (Parabolic law)	D_1	$1/(2\alpha)$	α^2
Two-dimensional diffusion (Valensi)	D_2	$[-\ln(1-\alpha)]^{-1}$	$(1-\alpha)\ln(1-\alpha)+\alpha$
Three-dimensional diffusion (Jander)	D_3	$(3/2)(1-\alpha)^{2/3}[1-(1-\alpha)^{1/3}]^{-1}$	$[1-(1-\alpha)^{1/3}]^2$
Diffusion control (Ginstling-Brounshtein)	D_4	$(3/2)[(1-\alpha)^{-1/3}-1]^{-1}$	$1-(2/3)\alpha-(1-\alpha)^{2/3}$
Nucleation growth models			
Avarami-Erofeev (n=3/2)	$A_{3/2}$	$(3/2)(1-\alpha)[-\ln(1-\alpha)]^{1/3}$	$[-\ln(1-\alpha)]^{2/3}$
Avarami-Erofeev (n=2)	A_2	$2(1-\alpha)[-\ln(1-\alpha)]^{1/2}$	$[-\ln(1-\alpha)]^{1/2}$
Avarami-Erofeev (n=3)	A_3	$3(1-\alpha)[-\ln(1-\alpha)]^{2/3}$	$[-\ln(1-\alpha)]^{1/3}$
Avarami-Erofeev (n=4)	A_4	$4(1-\alpha)[-\ln(1-\alpha)]^{3/4}$	$[-\ln(1-\alpha)]^{1/4}$
Geometrical contraction models			
Contraction flat plate	R_1	1	α
Contraction cylinder	R_2	$2(1-\alpha)^{1/2}$	$1-(1-\alpha)^{1/2}$
Contraction spheroid	R_3	$3(1-\alpha)^{2/3}$	$1-(1-\alpha)^{1/3}$
Mampel power laws			
Power law	P_2	$2\alpha^{1/2}$	$\alpha^{1/2}$
Power law	P_3	$3\alpha^{2/3}$	$\alpha^{1/3}$
Power law	P_4	$4\alpha^{3/4}$	$\alpha^{1/4}$