

A study of the mechanisms associated with CO₂ utilisation via the reverse Boudouard reaction

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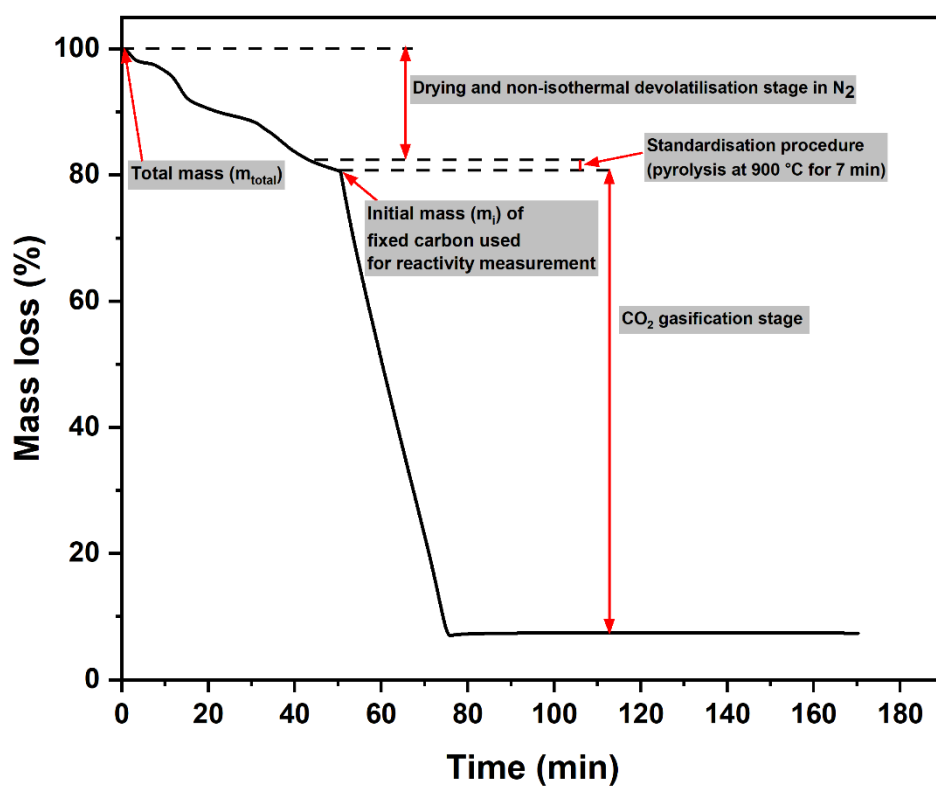


Fig. S 1: Typical TGA curve for isothermal CO₂ gasification test

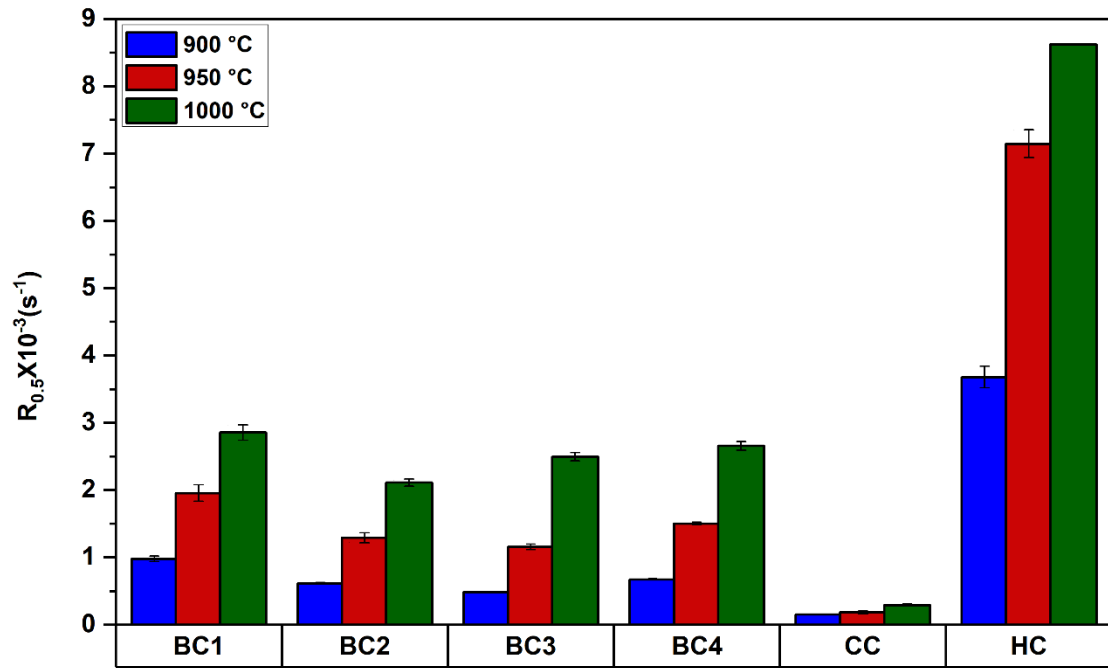
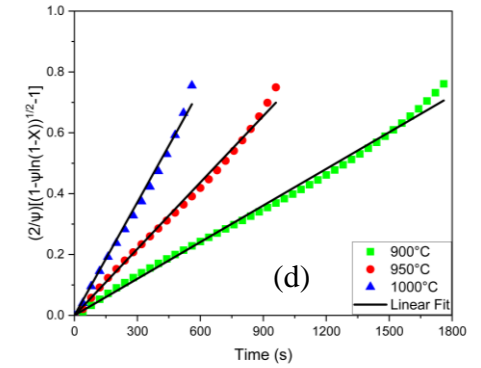
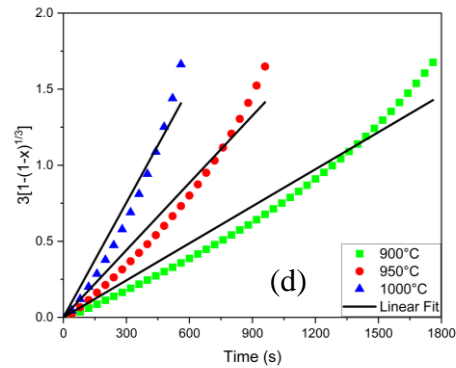
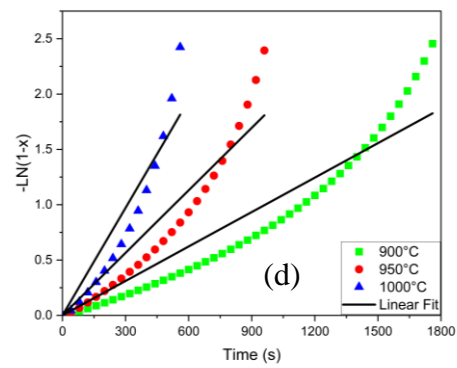
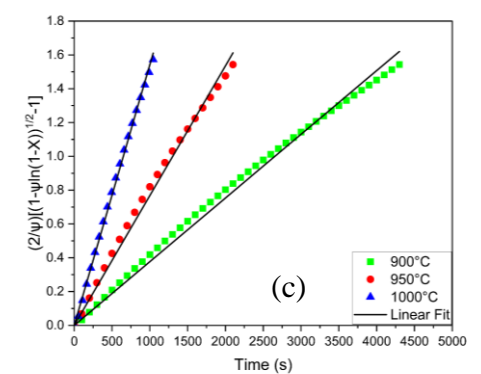
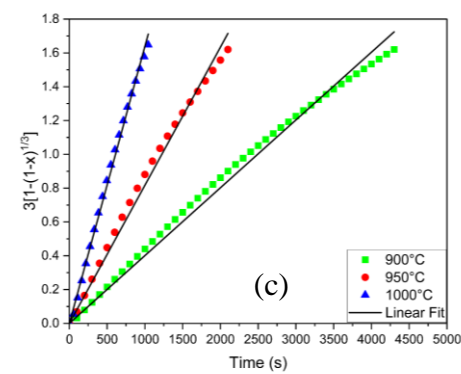
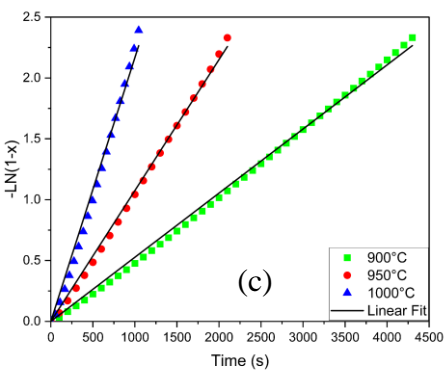
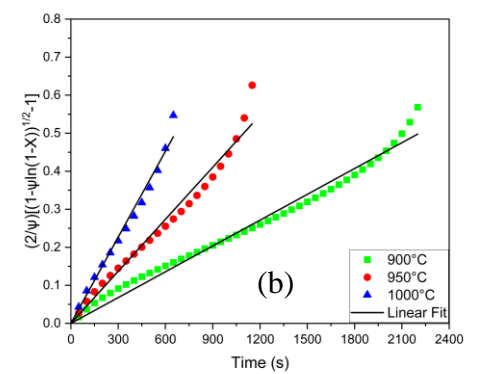
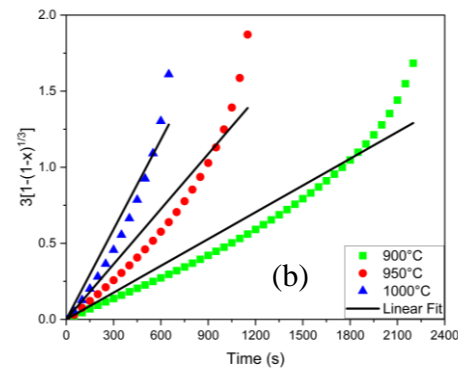
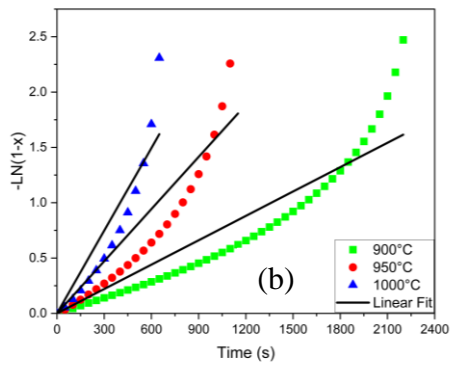
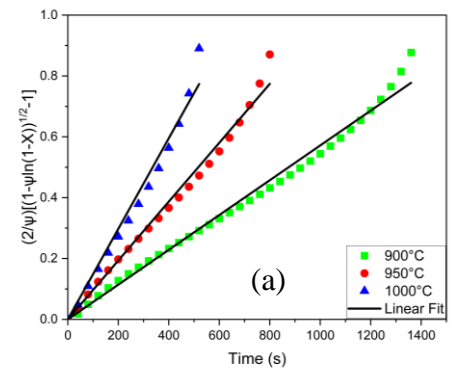
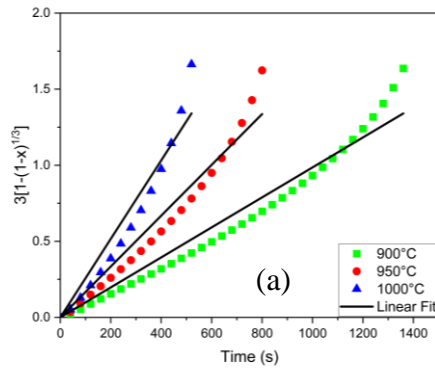
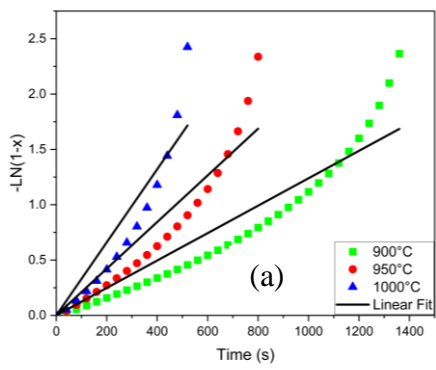


Fig. S 2: CO₂ gasification reactivities of chars at different temperatures with sample mass of 5 mg

Table S 1: Paired t-test parameters for non-demineralised and demineralised char samples at different gasification temperatures

Char sample groups	Gasification temperature (°C)	t-value	p-value
BC1 & BC1HCl	900	21.69	0.0293
	950	13.12	0.0484
	1000	52.52	0.0121
HC & HCHCl	900	51.80	0.0123
	950	137.64	0.0046
	1000	719.22	0.0009



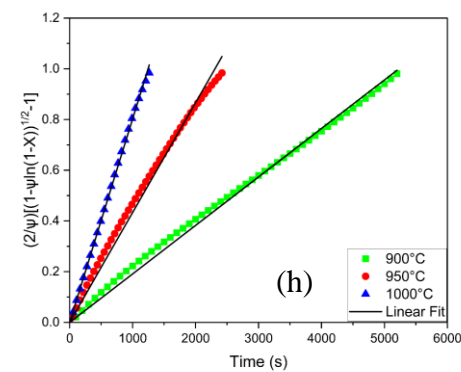
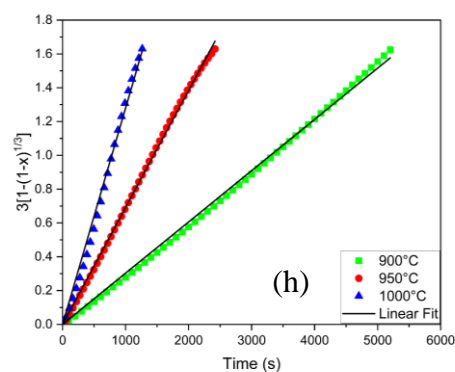
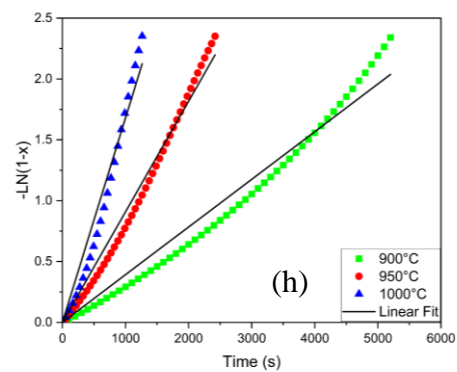
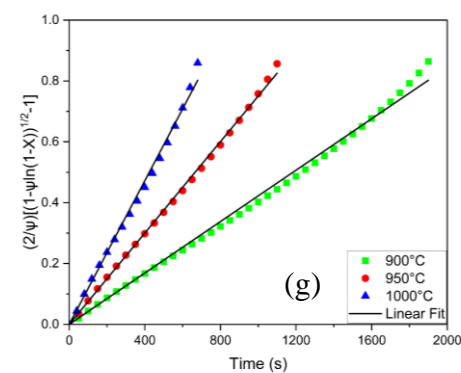
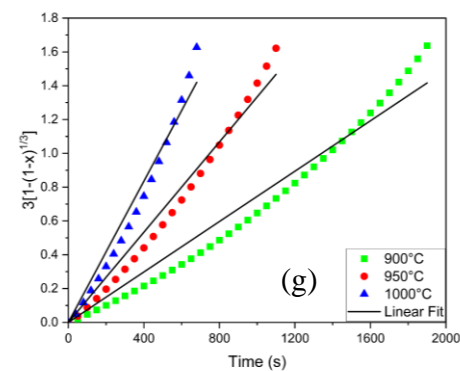
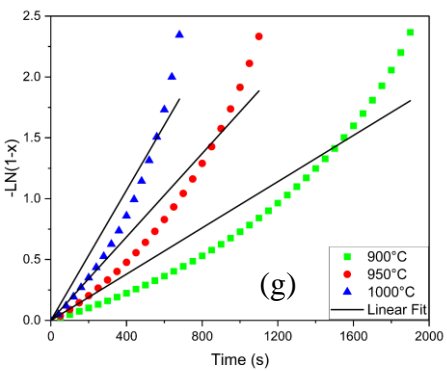
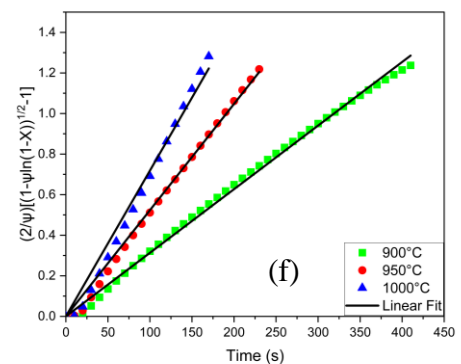
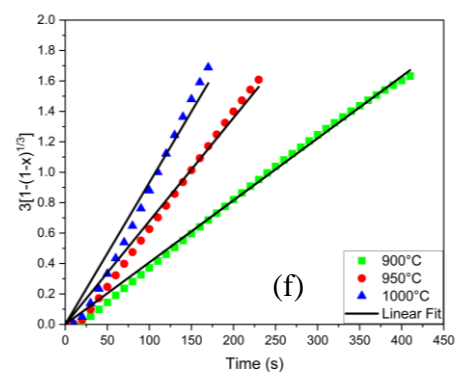
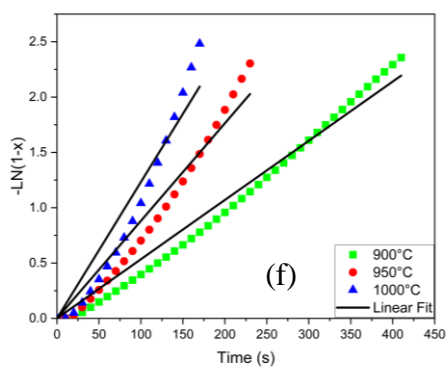
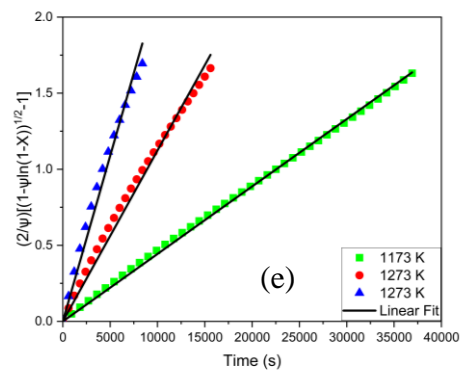
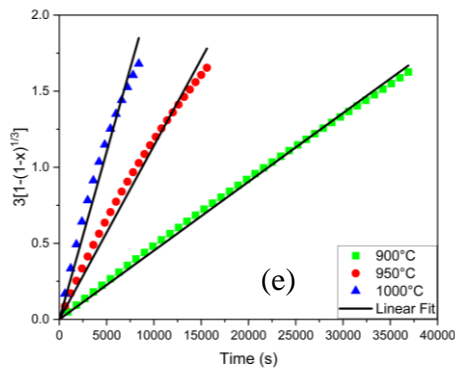
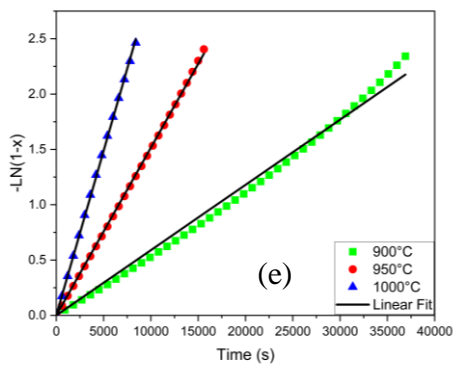


Fig. S 3: Linearisation of the VM, GM and RPM models:(a) BC1, (b) BC2, (c) BC3, (d) BC4, (e) CC, (f) HC, (g) BC1HCl and (h) HCHCl.

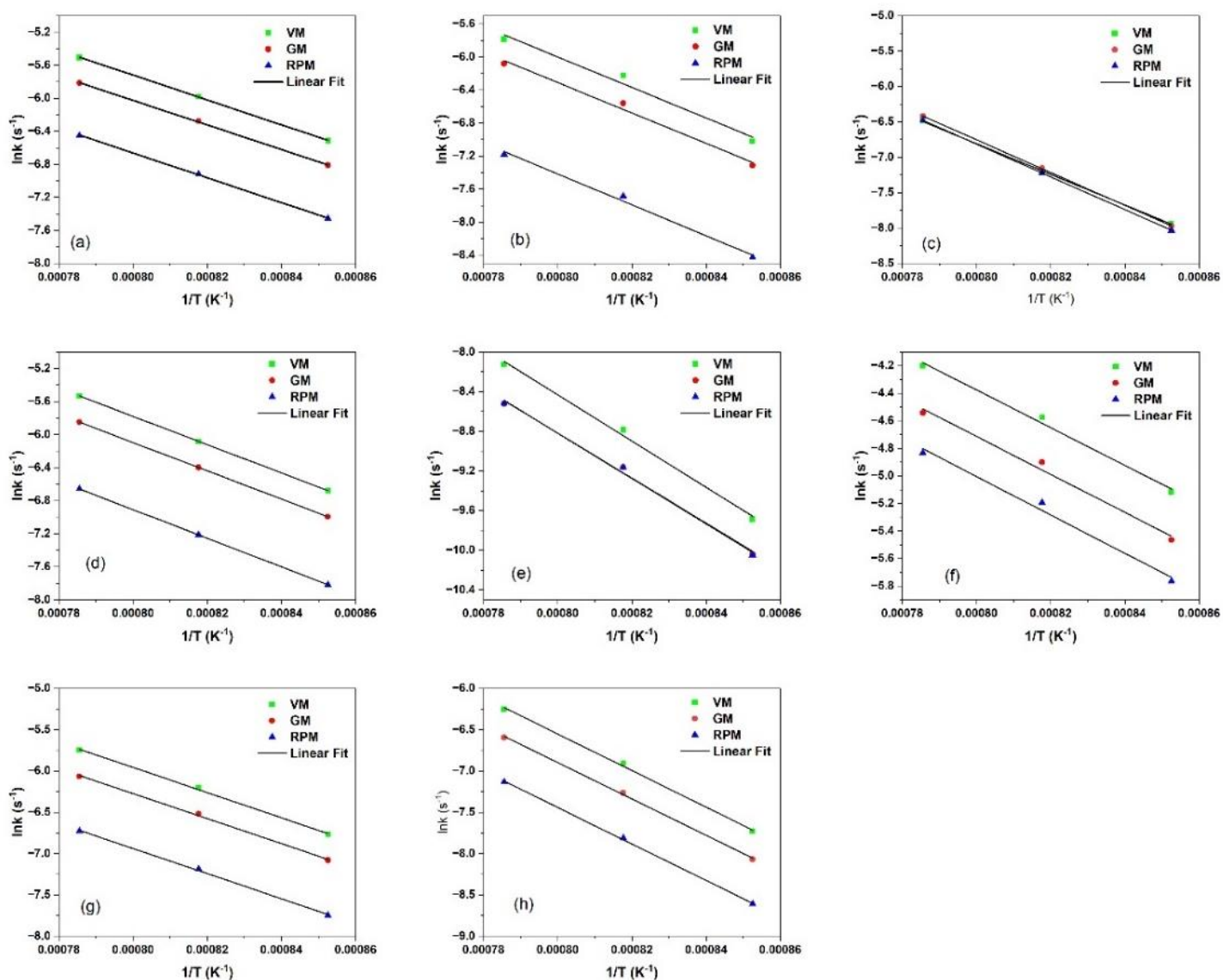


Fig. S 4: Arrhenius plots of different chars obtained by the VM, GM and RPM models:(a) BC1, (b) BC2, (c) BC3, (d) BC4, (e) CC, (f) HC, (g) BC1HCl and (h) HCHCl.

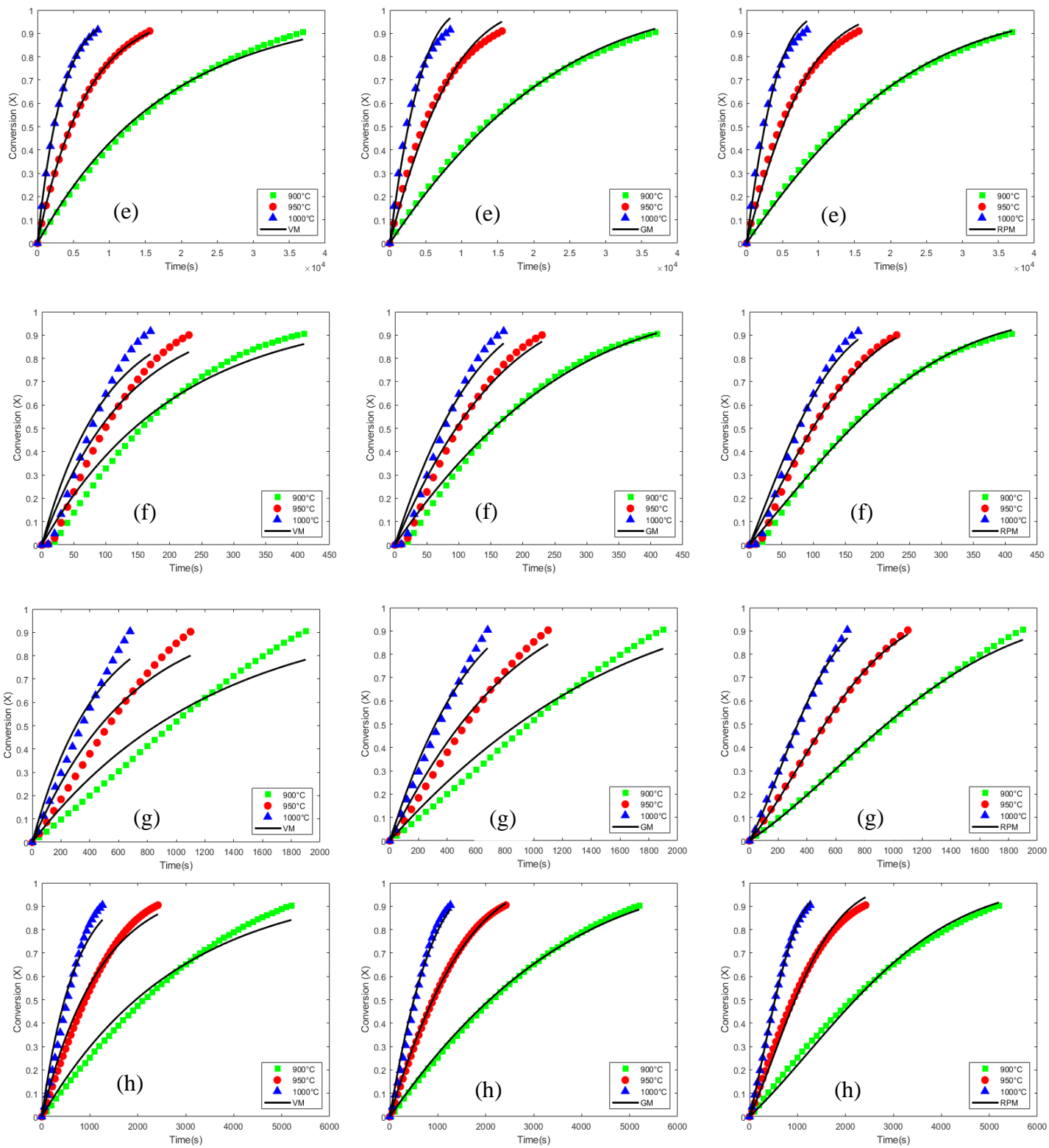


Fig. S 5: Fitting curves of experimental data and predicted values by the VM, GM and RPM models:(a) BC1, (b) BC2, (c) BC3, (d) BC4, (e) CC, (f) HC, (g) BC1HCl and (h) HCHCl.