Kinetic parameters of sewage sludge pyrolysis using Coats-Redfern method

Model	Mechanism	Activation Energy E, kJ mol^{-1}	Pre-exponential factor A, min^{-1}	Regression coefficient R^2
Chemical Reaction				
1	First-order	27.52	205.31	0.984
2	Second-order	30.02	208.12	0.967
3	Third-order	34.89	201.7	0.932
Random nucleation and nuclei growth				
4	Two-dimensional	15.24	200.6	0.912
5	Three-dimensional	11.33	205.12	0.975
Limiting surface reaction between both phases				
6	One dimension	24.68	220.3	0.982
7	Two dimensions	25.61	223.8	0.974
8	Three dimensions	27.2	230.12	0.929
Diffusion				
9	One-way transport	53.28	260.08	0.941
10	Two-way transport	56.7	264.64	0.913
11	Three-way transport	59.21	243.1	0.952
12	Ginstling-Brounshtein equation	45.92	215.5	0.962
13	Zhuravlev equation	48.4	208.6	0.951