

Supplementary Material for

Numerical simulation based targeting of the Magushan Skarn Cu-Mo deposit, Middle-Lower Yangtze Metallogenic Belt, China

Xunyu Hu^{a,b,c}, *Xiaohui Li^{a,b}, *Feng Yuan^{a,b}, Alison Ord^{a,c}, Simon M. Jowitt^d, Yue Li^{a,b},
Wenqiang Dai^{a,b}, Rui Ye^{a,b} and Taofa Zhou^{a,b}

^aSchool of Resources and Environmental Engineering, Hefei University of Technology, Hefei 23009, China

^bAnhui Province Engineering Research Center for Mineral Resources and Mine Environments, Hefei University of Technology, Hefei 23009, China

^cSchool of Earth Science, the University of Western Australia, Perth, Australia, 6009

^dDepartment of Geoscience, University of Nevada Las Vegas, 4505 S. Maryland Pkwy., NV 89154-4010, USA

The description of all important symbols is listed below ([Table S1](#)).

Table S1. Description of symbols (listed in the order of appearance).

Symbol	Description	Unit or value if a constant
T	Temperature	°C
T_0	Room temperature	°C
y	Depth	m
G_T	Temperature gradient	°C/km
P	Pressure	MPa
P_0	Atmospheric pressure	MPa
G_P	Pressure gradient	MPa/km
d_z	Thickness	m
ρ	Density	Kg/m ³
C_p	Heat capacity	J/(kg·K)
t	Time	s
v	Speed of fluid flow	m/s
q	Heat dissipation	J
q_0	Generalized inward heat flux	W/m ²
Q	Reaction heat	J
Q_{vd}	Heat transferred from surroundings	J
ρ_p	Density of porous rock	kg/m ³
θ_p	Volume fraction of porous rock	
$C_{p,p}$	Specific heat capacity	J/(kg·K)
k_{eff}	Effective heat conductivity	W/(m·K)
C_{pr}	Heat conductivity of porous rock	W/(m·K)
C_m	Heat conductivity of the mixture of fluid and chemical reactants	W/(m·K)
k_{disp}	Coefficient of initial heat dissipation to the surrounding environment	
k	Permeability	m ²
ε	Porosity	
μ	Viscosity	Pa·s
Q_m	Source term of fluid	
∇P	Pressure gradient (in Darcy's law)	Pa/m
g	Gravitational constant	m/s ²
ρ_l	Density of the object liquid	kg/m ³
w_i	Ratio fraction of material i	
$C_{p,i}$	Heat capacity of material i	J/(kg·K)
M_i	Molar weight of material i	g/mol
c_i	Concentration of material i	mol/m ³
x_i	Concentration fraction of material i	

$C_{c,i}$	Heat conductivity of material i	W/(m·K)
M_C	Molar weight of chalcopyrite	g/mol
ρ_C	Density of chalcopyrite	kg/m ³
r	Chemical reaction rate	mol/(m ³ ·s)
$C_{c,i}$	Heat capacity of material i	W/(m·K)
η	Fitting factor	
D_i	Diffusion coefficient of reactant i	m ² /s
R_i	Reaction rate of reactant i	mol/(m ³ ·s)
N_i	Reacted amount of reactant i	mol