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NOMENCLATURE

C = Heat capacity
k = constant, k=1,2 for cylinder & sphere respectively
K = thermal conductivity, W/m K
L = latent heat, J/Kg
Q_τ = non-dimensional total heat absorbed
R = radius, m
r_i = inner radius, m
S_t = Stefan number, $\frac{C\,(T_s - T_m)}{L}$
t = time, s
T = temperature, K
T_o = melting temperature, K
T_s = surface temperature, K

Greek symbols

α = thermal diffusivity, m^2/s
δ = Interface location
η = non-dimensional radial distance of phase front, δ/r_i
$\dot{\eta}$ = time rate of non-dimensional radial distance of phase front, d η/d τ
ξ = non-dimensional radial distance within phase change, r/r_i
ρ = density, Kg/m^3
θ = non-dimensional temperature, $\frac{T - T_m}{T_s - T_m}$
τ = non-dimensional time, $\frac{\alpha\, t}{{r_i}^2}$