

Table 1. Values of the sphericity (ϕ) and the shape nanoparticles (m) are.

Shapes	Sphere	Lamina
ϕ	1	0.1857
m	3	16.1576

Table 2. Thermo-physical properties of water (H₂O) and nanoparticles (Al₂O₃- Cu) are.

Physical properties	Al ₂ O ₃	Cu	Pure water
$C_p(J/kg K)$	765	385	4179
$\rho (kg/m^3)$	3970	8933	997.1
$k (W/m K)$	40	400	0.613
$\sigma (\Omega m)^{-1}$	3.5×10^7	5.96×10^7	0.05