Biot Number = Bi

@wikipedia

Dimensionless quantity characterising the heat exchange between solid body and surroundings:

(1) $$\mathrm{Bi} = \frac{U \cdot L}{\lambda}$$

where

U	Heat Transfer Coefficient (HTC) between solid body and fluid
λ	Thermal Conductivity of the solid body
L	Characteristic length of Heat Transfer

It determines the temperature transient behaviour and its gradient inside a solid body while it heats or cools over time.

Relation to Nusselt number

Both numbers naturally arise in modelling the heat exchange between solid body and fluid.

Both numbers have similar definition except that Biot Number is based on thermal conductivity of the solid body while Nusselt number is based on thermal conductivity of the fluid.

Normally Biot Number indicates whether significant thermal gradient will develop inside a solid body based on the ratio of heat transfer away from the surface of a solid body to heat transfer within the solid body.

While Nusselt number indicates whether conductive or convective heat transfer dominates across the interface between solid body and fluid.

See also

Physics / Thermodynamics / Heat Transfer

[Dimensionless Heat Transfer Numbers] [Prandtl number] [Rayleigh number] [Reynolds number] [Nusselt number]