

Spectral Emissive Power

The amount of energy emitted per unit surface area per second, per unit wavelength-range at wavelength λ , is called the spectral emissive power of the surface at that wavelength.

$$\text{SI unit of } E_\lambda = \text{J/m}^2\text{-s-}\overset{\circ}{\text{A}} \quad \text{or} \quad \text{W/m}^2\text{-}\overset{\circ}{\text{A}}$$

Emissivity (ϵ):

$E_b \rightarrow \text{max.}$
 $\begin{matrix} \textcircled{T} & \textcircled{T} & \textcircled{T} & \textcircled{T} \\ \text{black} & \text{yellow} & \text{Red} & \text{Green} \end{matrix}$

* At a given temp. a black body has the max. value of total emissive power E_b

$$\frac{E}{E_b} = \text{const}(\epsilon)$$

" Ratio of emissive power of a body to the emissive power of a black body at the same temp is called emissivity of that body "