

Dominant regime	Equation of state	Energy density	Scale parameter
Radiation	$P = \frac{\rho c^2}{3}$	$\rho \propto R^{-4} \propto t^{-2}$	$R \propto t^{1/2}$
Matter	$P = \left(\frac{2}{3}\right) \rho c^2 \times \left(\frac{v^2}{c^2}\right)$	$\rho \propto R^{-3} \propto t^{-2}$	$R \propto t^{2/3}$
Vacuum	$P = -\rho c^2$	$\rho = \text{constant}$	$R \propto \exp(\alpha t)$