

Prandtl number = Pr

@wikipedia

Dimensionless quantity calculated as the ratio of momentum diffusivity (kinematic viscosity) ν to thermal diffusivity a :

$$(1) \quad \text{Pr} = \frac{\nu}{a}$$

It is dynamic property of the substance at a given pressure and temperature: $\text{Pr} = \text{Pr}(p, T)$.

High values mean that heat convection dominates heat conduction.

| Material | Prandtl number | Conditions |
|-------------|----------------|--|
| Air | 0.71 | STP |
| Oxygen | 0.63 | STP |
| Natural gas | 0.70 ÷ 0.72 | wide range of temperature and pressure |
| Water | 7.56 | STP |
| Light oil | 600 | STP |

See also

[Physics / Thermodynamics / Heat Transfer](#)

[[Dimensionless Heat Transfer Numbers](#)]