

[Engineering & Materials > Aerospace Engineering > Aeronautical engineering >](#)
[Engineering & Materials > Aerospace Engineering > Propulsion >](#)

E ENCYCLOPEDIA ARTICLE

Aircraft fuel

Sections: Piston engine fuels; Turbine engine fuels; Alternative fuels

The source of energy required for the propulsion of airborne vehicles. This energy is released in the form of heat and expanding gases that are products of a combustion reaction that occurs when fuel combines with oxygen from ambient air. The exhaust gases are water vapor formed from hydrogen in the fuel, carbon dioxide formed from carbon in the fuel, traces of carbon monoxide and nitrogen oxides, and heated but uncombusted components of the intake air. Aircraft fuel is burned with ambient air and is thereby distinct from rocket propellants, which carry both fuel and oxidant. An important criterion for aircraft fuel is that its energy density, or heat of combustion per unit of weight, be high. This allows reasonable expenditures of fuel during takeoff, efficient performance in flight, and long range of flight duration. See also: [Propellant](#)

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