



## Jet A-1 航空燃油



**JET A-1**

### (1) 產品簡介

Jet fuel or aviation turbine fuel is a type of aviation fuel designed for use in aircraft powered by gas-turbine engines. It is colorless to straw-colored in appearance. The most commonly used fuels for commercial aviation are Jet A and Jet A-1, which are produced to a standardized international specification. Jet fuel is a mixture of a variety of hydrocarbons, and kerosene-type jet fuel (including Jet A and Jet A-1) has a carbon number distribution between about 8 and 16 (carbon atoms per molecule).

In the United States, ASTM International produces standards for civilian fuel types, while in Russia and the CIS members, grades of jet fuels are covered by the State Standard (GOST) number, or a Technical Condition number, with the principal grade available being TS-1. Jet A specification is usually not available outside the United States, whereas Jet A-1 is the standard specification fuel used in the rest of the world other than Russia and the CIS members.

Jet A-1 噴射燃油是一種航空燃料，專門用於噴射引擎飛機，外觀為無色至稻草色，屬於純煤油燃料，為目前世界民航主要用油，按照國際標準生產。噴射燃油是大量不同碳氫化合物的混合物，純煤油噴射燃料每分子的碳原子數約在



8~16 之間。

現今主流的 Jet A-1 噴射燃油大多參考美國材料試驗協會 (ASTM) 訂定之 ASTM D1655 規格，包括經濟部標準檢驗局的 CNS 2558 檢驗標準。在俄羅斯和前蘇聯國家，噴射燃料的等級由國家標準 (GOST) 編號或技術條件編號規範，主要等級為 TS-1。

## (2) 產品用途

Compatible with most jet aircraft, both civil and military, helicopter turbine engines, turboprops and compression-ignition piston engines  
噴射引擎之燃料

## (3) 產品規格

Properties	Unit
Flash point	38 °C (100 °F)
Auto-ignition temperature	210 °C (410 °F)
Freezing point	-47 °C (-53 °F)
Max adiabatic burn temperature	2,230 °C (4,050 °F)
	open air burn temperature: 1,030 °C (1,890 °F)
Density at 15 °C (59 °F)	0.804 kg/L (6.71 lb/US gal)
Specific energy	43.15 MJ/kg (11.99 kWh/kg)
Energy density	34.7 MJ/L (9.6 kWh/L)

Additives: Antioxidants, Antistatic agents, Corrosion inhibitors, Fuel system icing inhibitor (FSII) agents, Biocides, and Metal deactivator.

特性	Jet A-1 之標準值
酸價 (KOH/g)	最高 0.1
閃點 (°C)	最低 38
凝固點 (°C)	最高 47
黏度 (25°C · mm <sup>2</sup> /s)	最高 8.0



密度 ( 15°C · kg/m <sup>3</sup> )	775 ~ 840
淨燃燒熱 ( MJ/kg )	最低 42.8
添加劑抗氧化劑 ( mg/L )	最高 24.0
芳香族 ( % )	最高 25
硫含量 ( ppm )	最高 0.30

添加劑：抗氧化劑、防靜電劑、腐蝕抑制劑、燃料系統結冰抑制劑、殺滅生物之添加劑及金屬鈍化劑

#### (4) 運送資料

聯合國編號：UN1863

聯合國運輸名稱：航空燃油 Jet-A1 ( Fuel, aviation, turbine engine )

運輸危害分類：第三類易燃液體

包裝類別：III

海洋污染物 ( 是/否 ) : 否

特殊運送方法及注意事項：-

#### (5) 主要出口國

Crude oil refinery capacity worldwide in 2022, by major country:

Rank	Country	Capacity (in 1,000 barrels per day)
1	United States	18,061
2	China	17,259
3	Russia	6,821
4	India	5,045
5	South Korea	3,363
6	Saudi Arabia	3,312
7	Japan	3,164
8	Iran	2,670
9	Brazil	2,304
10	Germany	2,121

The United States had the world's largest oil refinery capacity as of 2022, at nearly 18.1 million barrels of oil per day. Oil refineries process crude oil

into more useful products. Common oil refinery products include diesel fuel, heating oil, and gasoline.

2016 年數據顯示，世界第一煉油大國為美國，總煉油能力達每年 9.05 億噸，以滿足其龐大的汽車和航空市場需求，排名第二的是中國，年產量 4.15 億噸，但此統計不包含中國的民營煉油廠。後八名為俄羅斯、印度、日本、韓國、沙烏地阿拉伯、德國、義大利和伊朗，構成世界煉油前十強。

資料來源：維基百科、中文百科、科技月刊、中油、TotalEnergies、Statista