

		Data	Notes	Reference ID
Origin: Australia				
Data from OGJ 99 were originally published sometime between 1984 and 1992.				
API Gravity		42.3		OGJ 99
Sulphur (weight %)		0.04		OGJ 99
Reid Vapour Pressure (kPa)		31		OGJ 99
Hydrocarbon Groups (weight %)				
	Asphaltenes	0		OGJ 99
Yield on Crude (volume %)				
	<u>Boiling Range (°C)</u>			
	Light naphtha (20-70)	4		OGJ 99
	Heavy naphtha (70-190)	23		OGJ 99
	Kerosene (150-230)	17		OGJ 99
	Kerosene (190-230)	9		OGJ 99
	Gas oil (230-360)	38		OGJ 99
	Heavy gas oil (360-540)	23		OGJ 99
	Residue (540+)	2		OGJ 99
Metals (ppm)				
	Nickel	3		OGJ 99
	Sodium	11		OGJ 99
	Vanadium	0.1		OGJ 99
Other Elements (weight %)				
	Nitrogen	0.05		OGJ 99

Jackson Blend

		Data	Notes	Reference ID
Origin: Australia				
Data from OGJ 99 were originally published sometime between 1984 and 1992.				
API Gravity		41.9		OGJ 99
Sulphur (weight %)		0.03		OGJ 99
Density (g/mL)				
	<u>Temperature (°C)</u>			
	15	0.8155		OGJ 99
Yield on Crude (volume %)				
	<u>Boiling Range (°C)</u>			
	Light straight run (C5-190)	17		OGJ 99
	Gas oil (190-230)	5		OGJ 99
	Heavy gas oil (230-320)	20		OGJ 99
	Residue (320+)	59		OGJ 99

	Data	Notes	Reference ID
Origin: Indonesia			
Data from OGJ 99 were originally published in 1983 as part of a series entitled "Guide to Export Crudes for the '80s".			
API Gravity	29.0		OGJ 99
Sulphur (weight %)	0.07		OGJ 99
Reid Vapour Pressure (kPa)	1		OGJ 99
Pour Point (°C)	43		OGJ 99
Kinematic Viscosity (mm²/s or cSt)			
	<u>Temperature (°C)</u>		
	50	84	OGJ 99
Hydrocarbon Groups (weight %)			
	Waxes	25	OGJ 99
Yield on Crude (volume %)			
	<u>Boiling Range (°C)</u>		
	Gasoline (IBP-100)	4	OGJ 99
	Naphtha (100-175)	8	OGJ 99
	Kerosene (175-250)	7	OGJ 99
	Gas oil (250-350)	13	OGJ 99
	Residue (> 350)	68	OGJ 99

Jet A/Jet A-1

	Data	Notes	Reference ID
Synonyms: Aviation Turbine Fuel (Kerosene Type) Turbo Fuel A/Turbo Fuel A-1			
A petroleum distillate blended from kerosene fractions and used in civil aviation. Jet A-1, the operational fuel for all turboprop and turbojet aircraft requiring a low freezing point product, is similar to Jet A except for a lower freezing point. Data from Shell 1999 were taken from MSDS Number 142-012. The sample analyzed by ESD was Jet A-1, collected in the summer of 1998 at the MacDonald-Cartier International Airport in Ottawa, Ontario. For additional fuel specifications refer to ASTM D1655.			
API Gravity	41.8		ESD 98
Equation(s) for Predicting Evaporation			
$\%Ev = (0.59 + 0.013T)\sqrt{t}$ Where %Ev = weight percent evaporated; T = surface temperature (°C); t = time (minutes)			ESD 98
Sulphur (weight %)			
<u>Evaporation (weight %)</u>			
0	0.03		ESD 99
12	0.03		ESD 99
23	0.04		ESD 99
37	0.06		ESD 99
Water Content (weight %)			
<u>Evaporation (weight %)</u>			
0	< 0.1		ESD 99
12	< 0.1		ESD 99
23	< 0.1		ESD 99
37	< 0.1		ESD 99
Flash Point (°C)			
<u>Evaporation (weight %)</u>			
0	> 38		Shell 99a
	54		ESD 98
12	66		ESD 98
23	71		ESD 98
37	76		ESD 98
Flammability Limits in Air (volume %)			
	0.7 to 5		Shell 99a
Ignition Temperature (°C)			
	210		Shell 99a
Reid Vapour Pressure (kPa)			
	> 1		Shell 99a

		Data	Notes	Reference ID
Density (g/mL)				
<u>Evaporation (weight %)</u>	<u>Temperature (°C)</u>			
0	0	0.8269		ESD 98
	15	0.8159		ESD 98
		0.775 to 0.840		Shell 99a
12	25	0.8086		ESD 98
	0	0.8303		ESD 98
	15	0.8193		ESD 98
23	25	0.8120		ESD 98
	0	0.8327		ESD 98
	15	0.8216		ESD 98
37	25	0.8145		ESD 98
	0	0.8354		ESD 98
	15	0.8244		ESD 98
	25	0.8173		ESD 98
Pour Point (°C)				
<u>Evaporation (weight %)</u>				
0		-55		ESD 98
		< -47		Shell 99a
12		-55		ESD 98
23		-50		ESD 98
37		-44		ESD 98
Dynamic Viscosity (mPa·s or cP)				
<u>Evaporation (weight %)</u>	<u>Temperature (°C)</u>			
0	0	3		ESD 98
	15	2		ESD 98
	25	2		ESD 98
12	0	3		ESD 98
	15	2		ESD 98
	25	2		ESD 98
23	0	3		ESD 98
	15	2		ESD 98
	25	2		ESD 98
37	0	3		ESD 98
	15	2		ESD 98
	25	2		ESD 98
Kinematic Viscosity (mm²/s or cSt)				
	<u>Temperature (°C)</u>			
	-20	< 8		Shell 99a

Jet A/Jet A-1

		Data	Notes	Reference ID
Chemical Dispersibility (volume %)				
<u>Evaporation (weight %)</u>				
0	Corexit 9500	57		ESD 99
23		43		ESD 99
37		50		ESD 99
Hydrocarbon Groups (volume %)				
<u>Evaporation (weight %)</u>				
0	Saturates	94		ESD 99
	Aromatics	6		ESD 99
	Resins	0		ESD 99
	Asphaltenes	0		ESD 99
12	Saturates	98		ESD 99
	Aromatics	2		ESD 99
	Resins	0		ESD 99
	Asphaltenes	0		ESD 99
23	Saturates	96		ESD 99
	Aromatics	3		ESD 99
	Resins	1		ESD 99
	Asphaltenes	0		ESD 99
37	Saturates	98		ESD 99
	Aromatics	2		ESD 99
	Resins	0		ESD 99
	Asphaltenes	0		ESD 99
Adhesion (g/m²)				
<u>Evaporation (weight %)</u>				
0		1	<i>SD = 0</i>	ESD 98
12		0	<i>SD = 0</i>	ESD 98
23		1	<i>SD = 0</i>	ESD 98
37		6	<i>SD = 3</i>	ESD 98

		Data	Notes	Reference ID
Volatile Organic Compounds (ppm)				
<u>Evaporation (weight %)</u>				
0	Benzene	82		ESD 99
	Toluene	800		ESD 99
	Ethylbenzene	604		ESD 99
	Xylenes	3,560		ESD 99
	C3-benzenes	19,255		ESD 99
	Total BTEX	5,047		ESD 99
	Total VOCs	24,302		ESD 99
12	Benzene	48		ESD 99
	Toluene	9		ESD 99
	Ethylbenzene	49		ESD 99
	Xylenes	490		ESD 99
	C3-benzenes	11,820		ESD 99
	Total BTEX	596		ESD 99
	Total VOCs	12,416		ESD 99
23	Benzene	50		ESD 99
	Toluene	9		ESD 99
	Ethylbenzene	1		ESD 99
	Xylenes	22		ESD 99
	C3-benzenes	5,505		ESD 99
	Total BTEX	82		ESD 99
	Total VOCs	5,587		ESD 99
37	Benzene	42		ESD 99
	Toluene	11		ESD 99
	Ethylbenzene	1		ESD 99
	Xylenes	4		ESD 99
	C3-benzenes	1,319		ESD 99
	Total BTEX	58		ESD 99
	Total VOCs	1,377		ESD 99

Jet A/Jet A-1

		Data	Notes	Reference ID
Surface Tension (mN/m or dynes/cm)				
<u>Evaporation (weight %)</u>	<u>Temperature (°C)</u>			
0	0	26.9		ESD 00
	15	26.4		ESD 98
	25	25.5		ESD 00
12	0	27.3		ESD 00
	15	27.2		ESD 98
	25	26.0		ESD 00
23	0	27.6		ESD 00
	15	26.8		ESD 98
	25	26.0		ESD 00
37	0	27.5		ESD 00
	15	27.0		ESD 98
	25	26.2		ESD 00
Oil/Salt Water Interfacial Tension (mN/m or dynes/cm)				
<u>Evaporation (weight %)</u>	<u>Temperature (°C)</u>			
0	0	26.5		ESD 00
	15	31.2		ESD 98
	25	26.4		ESD 00
12	0	26.7		ESD 00
	15	31.0		ESD 98
	25	26.8		ESD 00
23	0	29.5		ESD 00
	15	29.0		ESD 98
	25	25.3		ESD 00
37	0	25.0		ESD 00
	15	29.0		ESD 98
	25	26.0		ESD 00
Oil/Fresh Water Interfacial Tension (mN/m or dynes/cm)				
<u>Evaporation (weight %)</u>	<u>Temperature (°C)</u>			
0	0	27.0		ESD 00
	15	37.0		ESD 98
	25	29.1		ESD 00
12	0	28.7		ESD 00
	15	33.2		ESD 98
	25	28.2		ESD 00
23	0	31.0		ESD 00
	15	33.8		ESD 98
	25	27.8		ESD 00
37	0	25.5		ESD 00
	15	33.1		ESD 98
	25	27.7		ESD 00

		Data	Notes	Reference ID
Boiling Range (°C)		145 to 300		Shell 99a
Metals (ppm)				
<u>Evaporation (weight %)</u>				
0	Barium	0.3		Cao 92
	Chromium	< 2		Cao 92
	Copper	< 0.6		Cao 92
	Iron	39		Cao 92
	Lead	< 3		Cao 92
	Magnesium	10		Cao 92
	Molybdenum	2		Cao 92
	Nickel	< 1		Cao 92
	Titanium	3		Cao 92
	Vanadium	< 0.6		Cao 92
	Zinc	2		Cao 92
46	Barium	< 0.3		Cao 92
	Chromium	< 2		Cao 92
	Copper	< 0.6		Cao 92
	Iron	< 4		Cao 92
	Lead	< 3		Cao 92
	Magnesium	5		Cao 92
	Molybdenum	< 0.6		Cao 92
	Nickel	< 1		Cao 92
	Titanium	< 0.6		Cao 92
	Vanadium	< 0.6		Cao 92
	Zinc	0.8		Cao 92
Acute Toxicity of Water Soluble Fraction (mg/L)				
<u>Test Organism</u>				
48h LC50	Daphnia magna	6	(a)	Harris 94
(a) results based on GC purge-and-trap analysis				

Jet B

	Data	Notes	Reference ID
Synonyms: Turbo Fuel B Wide Boiling Range Aviation Turbine Fuel			
A wide boiling-range petroleum distillate blended from gasoline and kerosene fractions. Operational fuel for many commercial turboprop and turbojet aircraft. Data from Shell 1999 were taken from MSDS Number 141-012. For additional fuel specifications refer to ASTM D1655.			
Flash Point (°C)	-23 to -1		Shell 99a
Flammability Limits in Air (volume %)	1.4 to 7.6		Shell 99a
Reid Vapour Pressure (kPa)	> 6		Shell 99a
Density (g/mL)			
<u>Evaporation (weight %)</u>	<u>Temperature (°C)</u>		
0	0	0.7689	EETD 89
	15	0.7567	EETD 89
		0.750 to 0.801	Shell 99a
63	0	0.8022	EETD 89
	15	0.7915	EETD 89
Pour Point (°C)	< -51		Shell 99a
Dynamic Viscosity (mPa·s or cP)			
	<u>Temperature (°C)</u>		
	0	1	EETD 89
	15	1	EETD 89
Volatile Organic Compounds (ppm)			
	Benzene	5000 to 15000	Shell 99a
Surface Tension (mN/m or dynes/cm)			
	<u>Temperature (°C)</u>		
	0	23.1	EETD 89
	15	23.0	EETD 89
Oil/Salt Water Interfacial Tension (mN/m or dynes/cm)			
	<u>Temperature (°C)</u>		
	0	10.8	EETD 89
	15	10.8	EETD 89
Oil/Fresh Water Interfacial Tension (mN/m or dynes/cm)			
	<u>Temperature (°C)</u>		
	0	10.8	EETD 89
	15	12.4	EETD 89

		Data	Notes	Reference ID
Distillation (°C)				
<u>Total Distillate (volume %)</u>				
	IBP	25		EETD 89
	5	84		EETD 89
	10	94		EETD 89
	15	99		EETD 89
	20	104		EETD 89
	25	109		EETD 89
	30	114		EETD 89
	35	118		EETD 89
	40	123		EETD 89
	45	128		EETD 89
	50	134		EETD 89
	55	140		EETD 89
	60	146		EETD 89
	65	152		EETD 89
	70	157		EETD 89
	75	163		EETD 89
Boiling Range (°C)				
		60 to 260		Shell 99a
Metals (ppm)				
<u>Evaporation (weight %)</u>				
32	Barium	< 0.3		Cao 92
	Chromium	< 2		Cao 92
	Copper	< 0.6		Cao 92
	Iron	13		Cao 92
	Lead	< 3		Cao 92
	Magnesium	4		Cao 92
	Molybdenum	< 0.6		Cao 92
	Nickel	< 1		Cao 92
	Titanium	< 0.6		Cao 92
	Vanadium	< 0.6		Cao 92
	Zinc	0.6		Cao 92
Aqueous Solubility (mg/L)				
	Room temperature	20	(a)	ESD 91
<i>(a) fresh water</i>				
Acute Toxicity of Water Soluble Fraction (mg/L)				
<u>Test Organism</u>				
48h LC50	Daphnia magna	26	(a)	Harris 94
<i>(a) results based on GC purge-and-trap analysis</i>				

Jet B (Alaska)

		Data	Notes	Reference ID
Synonyms: Turbo Fuel B Wide Boiling Range Aviation Turbine Fuel				
This oil was analyzed as part of a project entitled "Assessment of the Freshwater Biodegradation Potential of Oils Commonly Transported in Alaska". The sample was collected at a retail supplier facility in Anchorage.				Blenkinsopp 97
API Gravity		42.9		ESD 96
Equation(s) for Predicting Evaporation				
Short term (<5 days): %Ev = (1.06 + 0.013T)sqrt(t) Long term: %Ev = (7.19 + 0.045T)ln(t) Where %Ev = weight percent evaporated; T = surface temperature (°C); t = time (minutes)				ESD 96
Sulphur (weight %)				
Evaporation (weight %)				
0		0.08		ESD 97
53		0.13		ESD 97
Water Content (weight %)				
Evaporation (weight %)				
0		< 0.1		ESD 98
53		< 0.1		ESD 98
Flash Point (°C)				
Evaporation (weight %)				
0		42		ESD 96
53		86		ESD 96
Density (g/mL)				
Evaporation (weight %)				
Temperature (°C)				
0	0	0.8222		ESD 96
	15	0.8111		ESD 96
53	0	0.8462		ESD 96
	15	0.8354		ESD 96
Pour Point (°C)				
Evaporation (weight %)				
0		-54		ESD 96
53		-44		ESD 96
Dynamic Viscosity (mPa·s or cP)				
Evaporation (weight %)				
Temperature (°C)				
0	0	2		ESD 96
	15	2		ESD 96
53	0	4		ESD 96
	15	3		ESD 96

		Data	Notes	Reference ID
Emulsion Formation				
<u>Evaporation (weight%)</u>				
0	Visual stability	none		ESD 98
53		none		ESD 98
Chemical Dispersibility (volume %)				
<u>Evaporation (weight %)</u>				
0	Corexit 9500	78		ESD 98
53		33		ESD 98
Hydrocarbon Groups (weight %)				
<u>Evaporation (weight %)</u>				
0	Saturates	81		ESD 98
	Aromatics	19		ESD 98
	Resins	0		ESD 98
	Asphaltenes	0		ESD 98
53	Saturates	80		ESD 98
	Aromatics	19		ESD 98
	Resins	0		ESD 98
	Asphaltenes	0		ESD 98
Adhesion (g/m²)				
<u>Evaporation (weight %)</u>				
0		3	<i>SD = 1</i>	ESD 96
53		6	<i>SD = 2</i>	ESD 96
Volatile Organic Compounds (ppm)				
<u>Evaporation (weight %)</u>				
0	Benzene	177		ESD 97
	Toluene	1,670		ESD 97
	Ethylbenzene	1,106		ESD 97
	Xylenes	6,495		ESD 97
	C3-benzenes	20,747		ESD 97
	Total BTEX	9,449		ESD 97
	Total VOCs	30,196		ESD 97
53	Benzene	34		ESD 97
	Toluene	5		ESD 97
	Ethylbenzene	2		ESD 97
	Xylenes	5		ESD 97
	C3-benzenes	222		ESD 97
	Total BTEX	46		ESD 97
	Total VOCs	268		ESD 97

Jet B (Alaska)

		Data	Notes	Reference ID
Surface Tension (mN/m or dynes/cm)				
<u>Evaporation (weight %)</u>	<u>Temperature (°C)</u>			
0	0	27.1		ESD 96
	15	26.3		ESD 96
53	0	28.7		ESD 96
	15	27.8		ESD 96
Oil/Salt Water Interfacial Tension (mN/m or dynes/cm)				
<u>Evaporation (weight %)</u>	<u>Temperature (°C)</u>			
0	0	33.3		ESD 96
	15	39.1		ESD 96
53	0	30.5		ESD 96
	15	30.5		ESD 96
Oil/Fresh Water Interfacial Tension (mN/m or dynes/cm)				
<u>Evaporation (weight %)</u>	<u>Temperature (°C)</u>			
0	0	35.9		ESD 96
	15	39.8		ESD 96
53	0	29.5		ESD 96
	15	29.0		ESD 96
Boiling Point Distribution (weight %)				
<u>Evaporation (weight %)</u>	<u>Boiling Point (°C)</u>			
0	120	2		ESD 96
	140	7		ESD 96
	160	18		ESD 96
	180	33		ESD 96
	200	47		ESD 96
	250	82		ESD 96
	300	99		ESD 96
53	180	1		ESD 96
	200	8		ESD 96
	250	61		ESD 96
	300	99		ESD 96