

	Data	Notes	Reference ID
Origin: Viet Nam			
Synonyms: Big Bear			
Data from OGJ 99 were originally published in 1990.			
API Gravity	36.9		OGJ 99
Sulphur (weight %)	0.08		OGJ 99
Pour Point (°C)	27		OGJ 99
Kinematic Viscosity (mm²/s or cSt)			
	<u>Temperature (°C)</u>		
	40	4	OGJ 99
	50	3	OGJ 99
	60	3	OGJ 99
Hydrocarbon Groups (weight %)			
	Asphaltenes	0	OGJ 99
	Waxes	26	OGJ 99
Yield on Crude (volume %)			
	<u>Boiling Range (°C)</u>		
	C1-C4	1	OGJ 99
	Naphtha (C5-149)	18	OGJ 99
	Kerosene (149-232)	15	OGJ 99
	Gas oil (232-342)	27	OGJ 99
	Residue (>342)	39	OGJ 99
Metals (ppm)			
	Nickel	2	OGJ 99
	Vanadium	2	OGJ 99
Other Elements (weight %)			
	Nitrogen	0.03	OGJ 99

Dan

	Data	Notes	Reference ID
Origin: North Sea, Denmark			
Data from OGJ 99 were originally published in 1983 as part of a series entitled "Guide to Export Crudes for the '80s".			
API Gravity	30.4		OGJ 99
Sulphur (weight %)	0.34		OGJ 99
Pour Point (°C)	< -43		OGJ 99
Kinematic Viscosity (mm²/s or cSt)			
<u>Temperature (°C)</u>			
40	9		OGJ 99
Yield on Crude (volume %)			
<u>Boiling Range (°C)</u>			
C1-C4	1		OGJ 99
Light gasoline (C5-93)	6		OGJ 99
Naphtha (93-207)	20		OGJ 99
Light gas oil (207-343)	27		OGJ 99
Heavy gas oil (343-538)	30		OGJ 99
Atmospheric residue (>343)	47		OGJ 99
Vacuum residue (>538)	17		OGJ 99

	Data	Notes	Reference ID
Origin: North Sea, Denmark			
Data from OGJ 99 were originally published in 1994.			
API Gravity	34.5		OGJ 99
Sulphur (weight %)	0.26		OGJ 99
Water Content (volume %)	0.1		OGJ 99
Density (g/mL)			
	<u>Temperature (°C)</u>		
	15	0.8520	OGJ 99
Pour Point (°C)	< -50 to -30		OGJ 99
Kinematic Viscosity (mm²/s or cSt)			
	<u>Temperature (°C)</u>		
	20	9	OGJ 99
	40	5	OGJ 99
	50	4	OGJ 99
Hydrocarbon Groups (weight %)			
	Asphaltenes	0	OGJ 99
	Waxes	4	OGJ 99
Yield on Crude (weight %)			
	<u>Boiling Range (°C)</u>		
	Light ends (C1-C5)	6	OGJ 99
	C5-65	4	OGJ 99
	65-150	15	OGJ 99
	150-200	8	OGJ 99
	200-250	9	OGJ 99
	250-300	9	OGJ 99
	300-350	9	OGJ 99
	350-370	4	OGJ 99
	370-565	26	OGJ 99
	>565	13	OGJ 99
Other Elements (weight %)			
	Nitrogen	0.12	OGJ 99

Diesel Fuel Oil (Alaska)

	Data	Notes	Reference ID
Synonyms: Automotive Gas Oil			
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
For additional fuel specifications refer to ASTM D975.			
API Gravity			
	38.8		ESD 96
Equation(s) for Predicting Evaporation			
Short term (<5 days): %Ev = (0.51 + 0.013T)sqrt(t) Long term: %Ev = (4.54 + 0.045T)ln(t) Where %Ev = weight percent evaporated; T = surface temperature (°C); t = time (minutes)			ESD 96
Sulphur (weight %)			
<u>Evaporation (weight %)</u>			
0	0.21		ESD 97
37	0.33		ESD 97
Water Content (weight %)			
<u>Evaporation (weight %)</u>			
0	< 0.1		ESD 98
37	< 0.1		ESD 98
Flash Point (°C)			
<u>Evaporation (weight %)</u>			
0	40		ESD 96
37	> 95		ESD 96
Density (g/mL)			
<u>Evaporation (weight %)</u>		<u>Temperature (°C)</u>	
0	0	0.8409	ESD 96
	15	0.8300	ESD 96
37	0	0.8620	ESD 96
	15	0.8515	ESD 96
Pour Point (°C)			
<u>Evaporation (weight %)</u>			
0	-36		ESD 96
37	-22		ESD 96
Dynamic Viscosity (mPa·s or cP)			
<u>Evaporation (weight %)</u>		<u>Temperature (°C)</u>	
0	0	4	ESD 96
	15	2	ESD 96
37	0	7	ESD 96
	15	5	ESD 96

Diesel Fuel Oil (Alaska)

		Data	Notes	Reference ID
Emulsion Formation				
<u>Evaporation (weight%)</u>				
0	Visual stability	none		ESD 98
37		none		ESD 98
Chemical Dispersibility (volume %)				
<u>Evaporation (weight %)</u>				
0	Corexit 9500	70		ESD 98
37		39		ESD 98
Hydrocarbon Groups (weight %)				
<u>Evaporation (weight %)</u>				
0	Saturates	74		ESD 97
	Aromatics	24		ESD 97
	Resins	1		ESD 97
	Asphaltenes	0		ESD 97
37	Saturates	75		ESD 97
	Aromatics	23		ESD 97
	Resins	1		ESD 97
	Asphaltenes	0		ESD 97
Adhesion (g/m²)				
<u>Evaporation (weight %)</u>				
0		2	<i>SD = 1</i>	ESD 96
37		11	<i>SD = 2</i>	ESD 96
Volatile Organic Compounds (ppm)				
<u>Evaporation (weight %)</u>				
0	Benzene	232		ESD 97
	Toluene	1,532		ESD 97
	Ethylbenzene	1,041		ESD 97
	Xylenes	6,118		ESD 97
	C3-benzenes	14,413		ESD 97
	Total BTEX	8,923		ESD 97
	Total VOCs	23,336		ESD 97
37	Benzene	24		ESD 97
	Toluene	4		ESD 97
	Ethylbenzene	1		ESD 97
	Xylenes	6		ESD 97
	C3-benzenes	53		ESD 97
	Total BTEX	34		ESD 97
	Total VOCs	87		ESD 97

Diesel Fuel Oil (Alaska)

		Data	Notes	Reference ID
Surface Tension (mN/m or dynes/cm)				
<u>Evaporation (weight %)</u>	<u>Temperature (°C)</u>			
0	0	28.1		ESD 96
	15	27.4		ESD 96
37	0	29.6		ESD 96
	15	28.5		ESD 96
Oil/Salt Water Interfacial Tension (mN/m or dynes/cm)				
<u>Evaporation (weight %)</u>	<u>Temperature (°C)</u>			
0	0	26.4		ESD 96
	15	34.5		ESD 96
37	0	27.9		ESD 96
	15	21.1		ESD 96
Oil/Fresh Water Interfacial Tension (mN/m or dynes/cm)				
<u>Evaporation (weight %)</u>	<u>Temperature (°C)</u>			
0	0	32.5		ESD 96
	15	35.4		ESD 96
	0	26.8		ESD 96
37	15	28.4		ESD 96
Boiling Point Distribution (weight %)				
<u>Evaporation (weight %)</u>	<u>Boiling Point (°C)</u>			
0	100	1		ESD 96
	120	2		ESD 96
	140	5		ESD 96
	160	12		ESD 96
	180	21		ESD 96
	200	29		ESD 96
	250	56		ESD 96
	300	85		ESD 96
	350	99		ESD 96
37	200	3		ESD 96
	250	32		ESD 96
	300	74		ESD 96
	350	99		ESD 96

Diesel Fuel Oil (Canada)

	Data	Notes	Reference ID
Synonyms: Automotive Gas Oil			
Grade 1-D: straight-run fractions including kerosenes to intermediate distillates from mixed-base crudes; used for mobile service such as trucks, railroads and submarines. Grade 2-D: similar to Grade 1-D but with lower volatility.; used for industrial and heavy mobile service. Grade 4-D: residual fuel oils blended with more viscous distillates; used for larger stationary installations. Data from EETD 85 are for a diesel sample purchased from a service station in the summer of 1984. Data from Shell 1999 were taken from MSDS Number 322-110. For additional fuel specifications refer to ASTM D975.			ASTM D 975
API Gravity			
	39.4		EETD 84
Equation(s) for Predicting Evaporation			
Short term (<5 days): %Ev = (0.31 + 0.018T)sqrt(t) Long term: %Ev = (5.8 + 0.045T)ln(t) Where %Ev = weight percent evaporated; T = surface temperature (°C); t = time (minutes)			ESD 96
Sulphur (weight %)			
	0.10		EETD 86
	0.16	(a)	EETD 86
<i>(a) winter diesel</i>			
Flash Point (°C)			
	> 40		Shell 99a
Flammability Limits in Air (volume %)			
	1 to 6		Shell 99a
Ignition Temperature (°C)			
	250		Shell 99a
Reid Vapour Pressure (kPa)			
	2		ESD 91
Density (g/mL)			
Evaporation (weight %)	Temperature (°C)		
0	0	0.8380	EETD 84
	15	0.8245	ESD 96
		< 0.8760	Shell 99a
	25	0.8171	ESD 96
	40	0.8063	ESD 96
28	0	0.8450	EETD 89
	15	0.8350	EETD 89
Pour Point (°C)			
	-30		EETD 86

Diesel Fuel Oil (Canada)

	Data	Notes	Reference ID
Dynamic Viscosity (mPa·s or cP)			
<u>Temperature (°C)</u>			
0	4		EETD 85
15	2		ESD 96
25	2		ESD 96
40	1		ESD 96
Kinematic Viscosity (mm²/s or cSt)			
<u>Temperature (°C)</u>			
40	1.3 to 4.1		Shell 99a
Hydrocarbon Groups (weight %)			
Waxes	1		ESD 91
Surface Tension (mN/m or dynes/cm)			
<u>Temperature (°C)</u>			
0	27.7		EETD 84
15	26.5		ESD 96
25	23.8		ESD 96
40	22.7		ESD 96
Oil/Salt Water Interfacial Tension (mN/m or dynes/cm)			
<u>Temperature (°C)</u>			
0	28.2		EETD 85
15	28.0		EETD 85
Oil/Fresh Water Interfacial Tension (mN/m or dynes/cm)			
<u>Temperature (°C)</u>			
0	30.1		EETD 85
15	29.4		EETD 85
<i>(a) estimated</i>			
Boiling Point Distribution (weight %)			
<u>Boiling Point (°C)</u>			
40	1		ESD 95
60	1		ESD 95
80	1		ESD 95
100	1		ESD 95
120	1		ESD 95
140	3		ESD 95
160	11		ESD 95
180	23		ESD 95
200	34		ESD 95
250	65		ESD 95
300	91		ESD 95
350	99		ESD 95

Diesel Fuel Oil (Canada)

		Data	Notes	Reference ID
Boiling Range (°C)		246 to 388		Shell 99a
Metals (ppm)				
	Barium	< 0.3		Cao 92
	Chromium	< 2		Cao 92
	Copper	< 0.6		Cao 92
	Iron	5		Cao 92
	Lead	< 3		Cao 92
	Magnesium	12		Cao 92
	Molybdenum	< 0.6		Cao 92
	Nickel	< 1		Cao 92
	Titanium	< 0.6		Cao 92
	Vanadium	< 0.6		Cao 92
	Zinc	1		Cao 92
Aqueous Solubility (mg/L)				
	<u>Temperature (°C)</u>			
	20 (approx.)	39	(a)	MacLean 89
	22	3	(a)	Suntio 86
		2	(b) (d)	Murray 84
		8	(b) (e)	Murray 84
	20 (approx.)	60	(c)	MacLean 89
(a) fresh water; (b) distilled water; (c) salt water				
(d) Gulf P20 diesel; (e) Gulf P40 diesel				
Acute Toxicity of Water Soluble Fraction (mg/L)				
	<u>Test Organism</u>			
48h EC50	Daphnia magna	4	(a)	MacLean 89
		0.3	(b)	EETD 89
	Artemia spp.	22	(a)	MacLean 89
48h LC50	Daphnia magna	0.8	(b)	EETD 89
		7	(a)	MacLean 89
	Artemia spp.	0.5	(b)	EETD 89
		24	(a)	MacLean 89
	Rainbow trout larvae	0.9	(b)	EETD 89
		2	(c)	Lockhart 87
		3	(d)	Lockhart 87

(a) results based on fluorescence spectroscopy; (b) results based on GC purge-and-trap analysis; (c) closed container; (d) open container

Diesel Fuel Oil (Southern U.S.A., 1994)

	Data	Notes	Reference ID
Synonyms: Automotive Gas Oil			
This oil was used in the 1994 mesoscale in situ burning experiments carried out on Little Sand Island offshore of Mobile, Alabama, USA.			
For additional fuel specifications refer to ASTM D975.			
API Gravity			
	37.2		ESD 95
Equation(s) for Predicting Evaporation			
Short term (<5 days): %Ev = (-0.02 + 0.013T)sqrt(t) Long term: %Ev = (2.18 + 0.045T)ln(t) Where %Ev = weight percent evaporated; T = surface temperature (°C); t = time (minutes)			ESD 96
Sulphur (weight %)			
<u>Evaporation (weight %)</u>			
0	0.22		ESD 97
8	0.21		ESD 97
16	0.27		ESD 97
Flash Point (°C)			
<u>Evaporation (weight %)</u>			
0	70		ESD 95
8	> 95		ESD 95
16	> 95		ESD 95
Density (g/mL)			
<u>Evaporation (weight %)</u> <u>Temperature (°C)</u>			
0	0	0.8495	ESD 95
	15	0.8389	ESD 95
8	0	0.8529	ESD 95
	15	0.8427	ESD 95
16	0	0.8551	ESD 95
	15	0.8447	ESD 95
Pour Point (°C)			
<u>Evaporation (weight %)</u>			
0	-7		ESD 95
8	-7		ESD 95
16	-4		ESD 95

Diesel Fuel Oil (Southern U.S.A., 1994)

		Data	Notes	Reference ID
Dynamic Viscosity (mPa·s or cP)				
<u>Evaporation (weight %)</u>	<u>Temperature (°C)</u>			
0	0	7		ESD 95
	15	5		ESD 95
8	0	9		ESD 95
	15	5		ESD 95
16	0	10		ESD 95
	15	6		ESD 95
Emulsion Formation				
<u>Evaporation (weight%)</u>				
0	Visual stability	none		ESD 98
8		none		ESD 98
16		none		ESD 98
Chemical Dispersibility (volume %)				
<u>Evaporation (weight %)</u>				
0	Corexit 9500	52		ESD 98
8		45		ESD 98
16		53		ESD 98
Hydrocarbon Groups (weight %)				
<u>Evaporation (weight %)</u>				
0	Saturates	76		ESD 96
	Aromatics	22		ESD 96
	Resins	2		ESD 96
	Asphaltenes	0		ESD 96
	Waxes	10		ESD 98
8	Saturates	78		ESD 96
	Aromatics	20		ESD 96
	Resins	2		ESD 96
	Asphaltenes	0		ESD 96
	Waxes	11		ESD 98
16	Saturates	78		ESD 96
	Aromatics	20		ESD 96
	Resins	2		ESD 96
	Asphaltenes	0		ESD 96
	Waxes	11		ESD 98
Adhesion (g/m²)				
<u>Evaporation (weight %)</u>				
0		9	<i>SD = 1</i>	ESD 95
8		8	<i>SD = 1</i>	ESD 96
16		15	<i>SD = 2</i>	ESD 96

Diesel Fuel Oil (Southern U.S.A., 1994)

		Data	Notes	Reference ID
Volatile Organic Compounds (ppm)				
<u>Evaporation (weight %)</u>				
0	Benzene	10		ESD 96
	Toluene	900		ESD 96
	Ethylbenzene	260		ESD 96
	Xylenes	2,690		ESD 96
	C3-benzenes	5,290		ESD 96
	Total BTEX	3,850		ESD 96
	Total VOCs	9,130		ESD 96
8	Benzene	0		ESD 96
	Toluene	0		ESD 96
	Ethylbenzene	0		ESD 96
	Xylenes	30		ESD 96
	C3-benzenes	1,150		ESD 96
	Total BTEX	30		ESD 96
	Total VOCs	1,180		ESD 96
16	Benzene	0		ESD 96
	Toluene	0		ESD 96
	Ethylbenzene	0		ESD 96
	Xylenes	0		ESD 96
	C3-benzenes	10		ESD 96
	Total BTEX	0		ESD 96
	Total VOCs	10		ESD 96
Surface Tension (mN/m or dynes/cm)				
<u>Evaporation (weight %)</u>	<u>Temperature (°C)</u>			
0	0	29.1		ESD 95
	15	28.5		ESD 95
8	0	29.8		ESD 95
	15	28.9		ESD 95
16	0	29.9		ESD 95
	15	29.0		ESD 95
Oil/Salt Water Interfacial Tension (mN/m or dynes/cm)				
<u>Evaporation (weight %)</u>	<u>Temperature (°C)</u>			
0	0	24.5		ESD 95
	15	18.8		ESD 95
8	0	19.2		ESD 95
	15	13.7		ESD 95
16	0	19.8		ESD 95
	15	15.1		ESD 95

Diesel Fuel Oil (Southern U.S.A., 1994)

		Data	Notes	Reference ID
Oil/Fresh Water Interfacial Tension (mN/m or dynes/cm)				
<u>Evaporation (weight %)</u>	<u>Temperature (°C)</u>			
0	0	27.1		ESD 95
	15	24.1		ESD 95
8	0	21.7		ESD 95
	15	21.1		ESD 95
16	0	24.0		ESD 95
	15	21.5		ESD 95
Boiling Point Distribution (weight %)				
<u>Evaporation (weight %)</u>	<u>Boiling Point (°C)</u>			
0	120	1		ESD 95
	140	1		ESD 95
	160	3		ESD 95
	180	5		ESD 95
	200	8		ESD 95
	250	27		ESD 95
	300	62		ESD 95
	350	90		ESD 95
	400	99		ESD 95
8	180	1		ESD 95
	200	3		ESD 95
	250	20		ESD 95
	300	58		ESD 95
	350	89		ESD 95
	400	99		ESD 95
16	250	15		ESD 95
	300	54		ESD 95
	350	88		ESD 95
	400	98		ESD 95

Diesel Fuel Oil (Southern U.S.A., 1997)

	Data	Notes	Reference ID
Synonyms: Automotive Gas Oil			
This diesel fuel oil was used during the 1997 fireboom tests carried out on Little Sand Island offshore of Mobile, Alabama, USA.			ESD 97
For additional fuel specifications refer to ASTM D975.			
API Gravity			
	37.6		ESD 98
Equation(s) for Predicting Evaporation			
Short term (<5 days): %Ev = (0.03 + 0.013T)sqrt(t) Long term: %Ev = (-0.02 + 0.013T)sqrt(t) Where %Ev = weight percent evaporated; T = surface temperature (°C); t = time (minutes)			ESD 99
Sulphur (weight %)			
<u>Evaporation (weight %)</u>			
0	0.40		ESD 99
8	0.43		ESD 99
14	0.43		ESD 99
Water Content			
<u>Evaporation (weight %)</u>			
0	< 0.1		ESD 98
8	< 0.1		ESD 98
14	< 0.1		ESD 98
Flash Point (°C)			
<u>Evaporation (weight %)</u>			
0	66		ESD 98
8	95		ESD 98
14	> 95		ESD 98
Density (g/mL)			
<u>Evaporation (weight %)</u>		<u>Temperature (°C)</u>	
0	0	0.8467	ESD 98
	15	0.8362	ESD 98
	25	0.8291	ESD 98
8	0	0.8504	ESD 98
	15	0.8400	ESD 98
	25	0.8330	ESD 98
14	0	0.8524	ESD 98
	15	0.8420	ESD 98
	25	0.8351	ESD 98

Diesel Fuel Oil (Southern U.S.A., 1997)

		Data	Notes	Reference ID
Pour Point (°C)				
<u>Evaporation (weight %)</u>				
0		-14		ESD 98
8		-9		ESD 98
14		-7		ESD 98
Dynamic Viscosity (mPa s or cP)				
<u>Evaporation (weight %)</u>		<u>Temperature (°C)</u>		
0	0	7		ESD 98
	15	4		ESD 98
	25	4		ESD 98
8	0	8		ESD 98
	15	5		ESD 98
	25	4		ESD 98
14	0	9		ESD 98
	15	6		ESD 98
	25	4		ESD 98
Hydrocarbon Groups (weight %)				
<u>Evaporation (weight %)</u>				
0	Saturates	76		ESD 98
	Aromatics	23		ESD 98
	Resins	1		ESD 98
	Asphaltenes	0		ESD 98
8	Saturates	75		ESD 98
	Aromatics	23		ESD 98
	Resins	1		ESD 98
	Asphaltenes	0		ESD 98
14	Saturates	79		ESD 98
	Aromatics	19		ESD 98
	Resins	2		ESD 98
	Asphaltenes	0		ESD 98
Adhesion (g/m²)				
<u>Evaporation (weight %)</u>				
0		6	<i>SD = 1</i>	ESD 98
8		6	<i>SD = 2</i>	ESD 98
14		8	<i>SD = 1</i>	ESD 98

Diesel Fuel Oil (Southern U.S.A., 1997)

		Data	Notes	Reference ID
Volatile Organic Compounds (ppm)				
<u>Evaporation (weight %)</u>				
0	Benzene	94		ESD 98
	Toluene	1,416		ESD 98
	Ethylbenzene	485		ESD 98
	Xylenes	4,855		ESD 98
	C3-benzenes	10,943		ESD 98
	Total BTEX	6,850		ESD 98
	Total VOCs	17,793		ESD 98
8	Benzene	0		ESD 98
	Toluene	2		ESD 98
	Ethylbenzene	7		ESD 98
	Xylenes	154		ESD 98
	C3-benzenes	3,328		ESD 98
	Total BTEX	162		ESD 98
	Total VOCs	3,490		ESD 98
14	Benzene	0		ESD 98
	Toluene	1		ESD 98
	Ethylbenzene	0		ESD 98
	Xylenes	1		ESD 98
	C3-benzenes	269		ESD 98
	Total BTEX	3		ESD 98
	Total VOCs	272		ESD 98
Surface Tension (mN/m or dynes/cm)				
<u>Evaporation (weight %)</u>		<u>Temperature (°C)</u>		
0	0	28.2		ESD 98
	15	27.3		ESD 98
	25	26.9		ESD 98
8	0	28.6		ESD 98
	15	28.5		ESD 98
	25	27.2		ESD 98
14	0	28.5		ESD 98
	15	28.6		ESD 98
	25	27.4		ESD 98

Diesel Fuel Oil (Southern U.S.A., 1997)

		Data	Notes	Reference ID
Oil/Salt Water Interfacial Tension (mN/m or dynes/cm)				
<u>Evaporation (weight %)</u>	<u>Temperature (°C)</u>			
0	0	24.6		ESD 98
	15	22.8		ESD 98
	25	19.7		ESD 98
8	0	22.6		ESD 98
	15	20.5		ESD 98
	25	19.2		ESD 98
14	0	20.3		ESD 98
	15	16.8		ESD 98
	25	16.7		ESD 98
Oil/Fresh Water Interfacial Tension (mN/m or dynes/cm)				
<u>Evaporation (weight %)</u>	<u>Temperature (°C)</u>			
0	0	24.9		ESD 98
	15	24.0		ESD 98
	25	22.3		ESD 98
8	0	23.0		ESD 98
	15	21.9		ESD 98
	25	20.9		ESD 98
14	0	21.0		ESD 98
	15	21.0		ESD 98
	25	19.8		ESD 98

Diesel Fuel Oil (Southern U.S.A., 1997)

		Data	Notes	Reference ID
Boiling Point Distribution (weight %)				
<u>Evaporation (weight %)</u>	<u>Boiling Point (°C)</u>			
0	120	1		ESD 99
	140	2		ESD 99
	160	3		ESD 99
	180	6		ESD 99
	200	11		ESD 99
	250	31		ESD 99
	300	63		ESD 99
	350	89		ESD 99
	400	99		ESD 99
	450	100		ESD 99
8	180	2		ESD 99
	200	5		ESD 99
	250	26		ESD 99
	300	61		ESD 99
	350	89		ESD 99
	400	99		ESD 99
	450	100		ESD 99
14	200	2		ESD 99
	250	21		ESD 99
	300	58		ESD 99
	350	88		ESD 99
	400	98		ESD 99
	450	100		ESD 99

Distillates (Straight Run)

		Data	Notes	Reference ID
Synonyms: Petroleum Distillate Straight Run Gasoline				
Colour		Colourless		CHRIS 91
Flash Point (°C)		-18 to 61		CHRIS 91
Flammability Limits in Air (volume %)		1.1 to 8.7		CHRIS 91
Odour Threshold (ppm)		0.25		CHRIS 91
Surface Tension (mN/m or dynes/cm)				
	<u>Temperature (°C)</u>			
	20	19 to 23		CHRIS 91
Oil/Fresh Water Interfacial Tension (mN/m or dynes/cm)				
	<u>Temperature (°C)</u>			
	20	49 to 51		CHRIS 91
Toxicity (mg/L)				
	<u>Test Organism</u>			
24h TLm	American shad juveniles	90	(a)	CHRIS 91
		91	(b)	CHRIS 91
<i>(a) fresh water; (b) salt water</i>				
Biological Oxygen Demand (%)				
	<u>Time (days)</u>			
	5	8		CHRIS 91
Threshold Limit Values (ppm)				
	TWA	300		ACGIH 99
	STEL	500		ACGIH 99

Djeno Blend

	Data	Notes	Reference ID
Origin: Congo			
Synonyms: Brazzaville			
Data from OGJ 99 were originally published in 1983 as part of a series entitled "Guide to Export Crudes for the '80s".			
API Gravity	26.9		OGJ 99
Sulphur (weight %)	0.33		OGJ 99
Reid Vapour Pressure (kPa)	28		OGJ 99
Pour Point (°C)	3		OGJ 99
Kinematic Viscosity (mm²/s or cSt)			
	<u>Temperature (°C)</u>		
	10	220	OGJ 99
Yield on Crude (volume %)			
	<u>Boiling Range (°C)</u>		
	C1-C5	2	OGJ 99
	Gasoline (15-80)	3	OGJ 99
	Naphtha (80-180)	12	OGJ 99
	Kerosene (180-225)	6	OGJ 99
	Gas oil (225-350)	22	OGJ 99
	Residue (>350)	57	OGJ 99
Metals (ppm)			
	Nickel	23	OGJ 99
	Vanadium	< 1	OGJ 99

	Data	Notes	Reference ID
Origin: Iran			
Synonyms: Darius			
Data from OGJ 99 were originally published in 1983 as part of a series entitled "Guide to Export Crudes for the '80s".			
API Gravity	33.6		OGJ 99
Sulphur (weight %)	2.35		OGJ 99
Reid Vapour Pressure (kPa)	45		OGJ 99
Hydrogen Sulphide (weight %)	0		OGJ 99
Pour Point (°C)	-20		OGJ 99
Kinematic Viscosity (mm²/s or cSt)			
<u>Temperature (°C)</u>			
38	6		OGJ 99
Yield on Crude (volume %)			
<u>Boiling Range (°C)</u>			
C1-C5	6		OGJ 99
Naphtha (C5-160)	23		OGJ 99
Kerosene (160-271)	19		OGJ 99
Gas oil (271-343)	12		OGJ 99
Residue (>343)	45		OGJ 99
Metals (ppm)			
Nickel	8		OGJ 99
Vanadium	23		OGJ 99

Dos Cuadras

		Data	Notes	Reference ID
Origin: California, USA				
API Gravity		25.6		ESD 91
Equation(s) for Predicting Evaporation				
%Ev = (1.88 + 0.045T)ln(t) Where %Ev = weight percent evaporated; T = surface temperature (°C); t = time (minutes)				ESD 96
Sulphur (weight %)				
<u>Evaporation (volume %)</u>				
0		1.24		ESD 93
11		1.17		ESD 93
20		1.42		ESD 93
Water Content (weight %)				
<u>Evaporation (volume %)</u>				
0		0.1		ESD 98
11		< 0.1		ESD 98
20		< 0.1		ESD 98
Flash Point (°C)				
<u>Evaporation (volume %)</u>				
0		< -30		ESD 91
11		53		ESD 92
20		> 90		ESD 92
Reid Vapour Pressure (kPa)				
		32		ESD 91
Density (g/mL)				
<u>Evaporation (volume %)</u>	<u>Temperature (°C)</u>			
0	0	0.9105		ESD 91
	15	0.9000		ESD 91
11	0	0.9380		ESD 91
	15	0.9270		ESD 91
20	0	0.9467		ESD 91
	15	0.9359		ESD 91
Pour Point (°C)				
<u>Evaporation (volume %)</u>				
0		-30		ESD 91
11		-3		ESD 91
20		6		ESD 91

		Data	Notes	Reference ID
Dynamic Viscosity (mPa·s or cP)				
<u>Evaporation (volume %)</u>	<u>Temperature (°C)</u>			
0	0	130		ESD 91
	15	51		ESD 91
11	0	709		ESD 91
	15	187		ESD 91
20	0	3,997		ESD 91
	15	741		ESD 91
Emulsion Formation				
<u>Evaporation (volume %)</u>				
0	Visual stability	none		ESD 98
11		meso		ESD 98
	Viscosity (mPa·s)	800		ESD 98
	Complex modulus (mPa)	3,400		ESD 98
	Water content (wt %)	48		ESD 98
20	Visual stability	meso		ESD 98
	Viscosity (mPa·s)	9,800		ESD 98
	Complex modulus (mPa)	33,000		ESD 98
	Water content (wt %)	69		ESD 98
Chemical Dispersibility (volume %)				
<u>Evaporation (volume %)</u>				
0	Corexit 9500	37		ESD 94
	Corexit 9527	5		ESD 93
	Dasic LTS	5		ESD 93
	Enersperse 700	5		ESD 93
11	Corexit 9500	15		ESD 97
	Corexit 9527	8		ESD 97
	Dasic LTS	8		ESD 97
	Enersperse 700	10		ESD 97
20	Corexit 9500	7		ESD 97
	Corexit 9527	10		ESD 97
	Enersperse 700	0		ESD 97

Dos Cuadras

		Data	Notes	Reference ID
Hydrocarbon Groups (weight %)				
<u>Evaporation (volume %)</u>				
0	Saturates	48		ESD 96
	Aromatics	30		ESD 96
	Resins	17		ESD 96
	Asphaltenes	6		ESD 96
	Waxes	6		ESD 91
11	Saturates	42		ESD 96
	Aromatics	31		ESD 96
	Resins	20		ESD 96
	Asphaltenes	7		ESD 96
	Waxes	4		ESD 98
20	Saturates	41		ESD 96
	Aromatics	31		ESD 96
	Resins	19		ESD 96
	Asphaltenes	9		ESD 96
	Waxes	6		ESD 98
Adhesion (g/m²)				
<u>Evaporation (volume %)</u>				
0		29	<i>SD = 2</i>	ESD 96
11		38	<i>SD = 6</i>	ESD 96
20		56	<i>SD = 9</i>	ESD 96

		Data	Notes	Reference ID
Volatile Organic Compounds (ppm)				
<u>Evaporation (volume %)</u>				
0	Benzene	100		ESD 94
	Toluene	470		ESD 94
	Ethylbenzene	610		ESD 94
	Xylenes	1,600		ESD 94
	C3-benzenes	5,050		ESD 94
	Total BTEX	2,780		ESD 94
	Total VOCs	7,830		ESD 94
11	Benzene	50		ESD 94
	Toluene	410		ESD 94
	Ethylbenzene	520		ESD 94
	Xylenes	1,550		ESD 94
	C3-benzenes	5,230		ESD 94
	Total BTEX	2,540		ESD 94
	Total VOCs	7,770		ESD 94
20	Benzene	0		ESD 94
	Toluene	40		ESD 94
	Ethylbenzene	0		ESD 94
	Xylenes	40		ESD 94
	C3-benzenes	1,070		ESD 94
	Total BTEX	80		ESD 94
	Total VOCs	1,150		ESD 94

Surface Tension (mN/m or dynes/cm)

<u>Evaporation (volume %)</u>	<u>Temperature (°C)</u>		
0	0	28.9	ESD 91
	15	28.1	ESD 91
11	0	30.3	ESD 91
	15	28.7	ESD 91
20	0	NM	ESD 91
	15	30.6	ESD 91

Oil/Salt Water Interfacial Tension (mN/m or dynes/cm)

<u>Evaporation (volume %)</u>	<u>Temperature (°C)</u>		
0	0	20.2	ESD 91
	15	21.2	ESD 91
11	0	23.4	ESD 91
	15	22.6	ESD 91
20	0	NM	ESD 91
	15	21.0	ESD 91

Dos Cuadras

		Data	Notes	Reference ID
Oil/Fresh Water Interfacial Tension (mN/m or dynes/cm)				
<u>Evaporation (volume %)</u>	<u>Temperature (°C)</u>			
0	0	22.4		ESD 91
	15	21.6		ESD 91
11	0	25.2		ESD 91
	15	24.1		ESD 91
20	0	NM		ESD 91
	15	23.1		ESD 91

		Data	Notes	Reference ID
Boiling Point Distribution (weight %)				
<u>Evaporation (volume %)</u>	<u>Boiling Point (°C)</u>			
0	40	2		ESD 94
	60	3		ESD 94
	80	4		ESD 94
	100	6		ESD 94
	120	9		ESD 94
	140	11		ESD 94
	160	14		ESD 94
	180	17		ESD 94
	200	19		ESD 94
	250	28		ESD 94
	300	36		ESD 94
	350	46		ESD 94
	400	54		ESD 94
	450	64		ESD 94
	500	72		ESD 94
	550	80		ESD 94
	600	87		ESD 94
	650	92		ESD 94
	700	96		ESD 94
11	100	1		ESD 96
	120	1		ESD 96
	140	3		ESD 96
	160	5		ESD 96
	180	8		ESD 96
	200	10		ESD 96
	250	19		ESD 96
	300	28		ESD 96
	350	39		ESD 96
	400	48		ESD 96
	450	59		ESD 96
	500	68		ESD 96
	550	76		ESD 96
	600	83		ESD 96
	650	88		ESD 96
20	700	92		ESD 96
	180	1		ESD 96
	200	3		ESD 96
	250	12		ESD 96
	300	22		ESD 96
	350	33		ESD 96
	400	44		ESD 96

Dos Cuadras

		Data	Notes	Reference ID
Boiling Point Distribution (weight %)				
<u>Evaporation (volume %)</u>	<u>Boiling Point (°C)</u>			
20	450	56		ESD 96
	500	66		ESD 96
	550	74		ESD 96
	600	81		ESD 96
	650	87		ESD 96
	700	92		ESD 96

		Data	Notes	Reference ID
Metals (ppm)				
<u>Evaporation (volume %)</u>				
0	Barium	< 0.3		Cao 92
	Chromium	< 2		Cao 92
	Copper	< 0.6		Cao 92
	Iron	42		Cao 92
	Lead	< 3		Cao 92
	Magnesium	16		Cao 92
	Molybdenum	< 0.6		Cao 92
	Nickel	62		Cao 92
	Titanium	< 0.6		Cao 92
	Vanadium	71		Cao 92
	Zinc	< 0.6		Cao 92
12	Barium	< 0.3		Cao 92
	Chromium	< 2		Cao 92
	Copper	< 0.6		Cao 92
	Iron	42		Cao 92
	Lead	< 3		Cao 92
	Magnesium	2		Cao 92
	Molybdenum	< 0.6		Cao 92
	Nickel	51		Cao 92
	Titanium	< 0.6		Cao 92
	Vanadium	64		Cao 92
	Zinc	< 0.6		Cao 92
20	Aluminum	< 5		Cao 92
	Barium	< 0.3		Cao 92
	Cadmium	< 0.5		Cao 92
	Calcium	85		Cao 92
	Chromium	< 2		Cao 92
	Cobalt	2		Cao 92
	Copper	< 0.6		Cao 92
	Iron	47		Cao 92
	Lead	< 3		Cao 92
	Magnesium	7		Cao 92
	Manganese	< 0.3		Cao 92
	Mercury	< 15		Cao 92
	Molybdenum	< 0.6		Cao 92
	Nickel	61		Cao 92
	Strontium	< 0.2		Cao 92
	Tin	< 15		Cao 92
	Titanium	0.7		Cao 92
	Vanadium	74		Cao 92
	Zinc	0.9		Cao 92

Dos Cuadras

		Data	Notes	Reference ID
Metals (ppm)				
Aqueous Solubility (mg/L)				
	Room temperature	12	(a)	ESD 91
<i>(a) fresh water</i>				
Acute Toxicity of Water Soluble Fraction (mg/L)				
	<u>Test Organism</u>			
48h LC50	Daphnia magna	5	(a)	Harris 94
<i>(a) results based on GC purge-and-trap analysis</i>				

	Data	Notes	Reference ID
Origin: United Arab Emirates			
Synonyms: Fateh			
Data from OGJ 99 were originally published in 1983 as part of a series entitled "Guide to Export Crudes for the '80s".			
API Gravity	31.1		OGJ 99
Sulphur (weight %)	2.00		OGJ 99
Reid Vapour Pressure (kPa)	42		OGJ 99
Pour Point (°C)	-9		OGJ 99
Kinematic Viscosity (mm²/s or cSt)			
	<u>Temperature (°C)</u>		
	20	13	OGJ 99
	40	7	OGJ 99
Hydrocarbon Groups (weight %)			
	Asphaltenes	2	OGJ 99
Yield on Crude (volume %)			
	<u>Boiling Range (°C)</u>		
	Naphtha (15-145)	16	OGJ 99
	Kerosene (145-230)	15	OGJ 99
	Gas oil (145-350)	37	OGJ 99
	Residue (>350)	45	OGJ 99
Metals (ppm)			
	Nickel	14	OGJ 99
	Vanadium	42	OGJ 99

Dukhan

	Data	Notes	Reference ID
Origin: Qatar			
Synonyms: Qatar Land			
Data from OGJ 99 were originally published in 1983 as part of a series entitled "Guide to Export Crudes for the '80s".			
API Gravity	41.7		OGJ 99
Sulphur (weight %)	1.28		OGJ 99
Reid Vapour Pressure (kPa)	81		OGJ 99
Pour Point (°C)	-29		OGJ 99
Saybolt Viscosity (SUS)			
	<u>Temperature (°C)</u>		
	27	43	OGJ 99
Yield on Crude (volume %)			
	<u>Boiling Range (°C)</u>		
	Gasoline (4-68)	9	OGJ 99
	Light naphtha (68-129)	12	OGJ 99
	Heavy naphtha (129-177)	11	OGJ 99
	Kerosene (177-260)	16	OGJ 99
	Heavy gas oil (260-343)	15	OGJ 99
	Residue (343-538)	23	OGJ 99
	Pitch (>538)	10	OGJ 99

		Data	Notes	Reference ID
Origin: Malaysia				
Data from OGJ 99 were originally published in 1992 as part of a series entitled "Export Crudes for the '90s".				OGJ 99
API Gravity		39.0		OGJ 99
Sulphur (weight %)		0.04		OGJ 99
Density (g/mL)				
	<u>Temperature (°C)</u>			
	15	0.8299		OGJ 99
Pour Point (°C)		29		OGJ 99
Yield on Crude (volume %)				
	<u>Boiling Range (°C)</u>			
	20-175	12		OGJ 99
	175-295	40		OGJ 99
	295-343	20		OGJ 99
	343-565	26		OGJ 99
	>563	2		OGJ 99
Other Elements (weight %)				
	Nitrogen	0.01		OGJ 99

Dunlin

	Data	Notes	Reference ID
Origin: North Sea, UK			
Data from OGJ 99 were originally published in 1983 as part of a series entitled "Guide to Export Crudes for the '80s".			
API Gravity	34.9		OGJ 99
Sulphur (weight %)	0.39		OGJ 99
Pour Point (°C)	6		OGJ 99
Kinematic Viscosity (mm²/s or cSt)			
<u>Temperature (°C)</u>			
40	5		OGJ 99
Hydrocarbon Groups (weight %)			
Waxes	5		OGJ 99
Yield on Crude (volume %)			
<u>Boiling Range (°C)</u>			
C1-C4	2		OGJ 99
Gasoline (C5-85)	7		OGJ 99
Naphtha (85-165)	15		OGJ 99
Kerosene (165-235)	12		OGJ 99
Gas oil (235-300)	13		OGJ 99
Gas oil (300-350)	10		OGJ 99
Residue (>350)	41		OGJ 99