ENVIRONMENTAL TECHNOLOGY CENTRE / CENTRE DU TECHNOLOGIE ENVIRONNEMENTALE

ETC/CTE

A Catalogue of Crude Oil and Oil Product Properties

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Green Canyon Block 65

Origin: Gulf of Mexico, Louisiana, USA

- High water content. Oil tested as received, unless noted otherwise.

		Reference	ID
		ESD	94

API Gravity

		Reference	ID
	19.5	ESD	94

Equation(s) for Predicting Evaporation

- %Ev = (1.56 + 0.045T)ln(t) Where %Ev = weight percent evaporated; T = surface temperature (°C); t = time (minutes)

		Reference	ID
		ESD	96

Water Content (weight %)

Evaporation (weight %)		Reference	ID
0	7.1	ESD	94
8	4.4	ESD	95
13	1.5	ESD	95
23	0.1	ESD	95

Flash Point (°C)

Evaporation (weight %)		Reference	ID
0	-4	ESD	94
8	59	ESD	94
13	82	ESD	94
23	> 95	ESD	94

Density (g/mL)

Temperature (°C)	Evaporation (weight %)		Reference	ID
0	0	0.9465	ESD	94
15	0	0.9365	ESD	94
25	0	0.9277	ESD	94
0	8	0.9608	ESD	94
15	8	0.9509	ESD	94
25	8	0.9446	ESD	94
0	13	0.9653	ESD	94
15	13	0.9559	ESD	94
25	13	0.9488	ESD	94
0	23	0.9811	ESD	94
15	23	0.9716	ESD	94
25	23	0.965	ESD	94

Pour Point (°C)

Evaporation (weight %)		Reference	ID
0	-28	ESD	94
8	-17	ESD	94
13	-17	ESD	94
23	-6	ESD	94

Dynamic Viscosity (mPa·s or cP)

Temperature (°C)	Evaporation (weight %)		Reference	ID
0	0	514	ESD	94
15	0	177	ESD	94
25	0	102	ESD	94
0	8	1580	ESD	94
15	8	457	ESD	94
25	8	208	ESD	94
0	13	2840	ESD	94
15	13	800	ESD	94
25	13	356	ESD	94
0	23	22100	ESD	94
15	23	4250	ESD	94
25	23	1680	ESD	94

Emulsion Formation

Temperature (°C)	Evaporation (weight %)		Reference	ID
15	0	yes	ESD	94
15	8	yes	ESD	94
15	13	yes	ESD	94
15	23	yes	ESD	94

Emulsion Viscosity (mPa·s or cP)

Temperature (°C)	Evaporation (weight %)			Reference	ID
15	0	2230	• (a)	ESD	94
15	8	5820	• (a)	ESD	94
15	13	4410	• (a)	ESD	94
15	23	10560	• (a)	ESD	94

- (a) shear rate = 1/s

Emulsion Water Content (weight %)

Temperature (°C)	Evaporation (weight %)		Reference	ID
15	0	51	ESD	94
15	8	56	ESD	94
15	13	50	ESD	94
15	23	32	ESD	94

Chemical Dispersibility (volume %)

		Reference	ID
Corexit 9500	15	ESD	95
Corexit 9527	5	ESD	95
Dasic LTS	5	ESD	95
Enersperse 700	10	ESD	95

Hydrocarbon Groups (weight %)

	Evaporation (weight %)			Reference	ID
Saturates	0	38	• (a)	ESD	95
Aromatics	0	40	• (a)	ESD	95
Resins	0	14	• (a)	ESD	95
Asphaltenes	0	8	• (a)	ESD	95
Waxes	0	2		ESD	94
Saturates	8	38		ESD	95
Aromatics	8	42		ESD	95
Resins	8	15		ESD	95
Asphaltenes	8	5		ESD	95
Saturates	13	36		ESD	95
Aromatics	13	44		ESD	95
Resins	13	15		ESD	95
Asphaltenes	13	4		ESD	95
Saturates	23	32		ESD	95
Aromatics	23	45		ESD	95
Resins	23	16		ESD	95
Asphaltenes	23	8		ESD	95

- (a) approximate: corrected for initial water content of oil

Adhesion (g/m^2)

Evaporation (weight %)			Reference	ID
0	41	SD = 23	ESD	95
8	35	SD = 4	ESD	95
13	40	SD = 10	ESD	95
23	77	SD = 8	ESD	95

Volatile Organic Compounds (ppm)

	Evaporation (weight %)		Reference	ID
Benzene	0	140	ESD	94
Toluene	0	420	ESD	94
Ethylbenzene	0	190	ESD	94
Xylenes	0	980	ESD	94
C3-benzenes	0	1580	ESD	94
Total BTEX	0	1720	ESD	94
Total BTEX + C3-benzenes	0	3300	ESD	94
Benzene	8	100	ESD	94
Toluene	8	190	ESD	94
Ethylbenzene	8	190	ESD	94
Xylenes	8	1010	ESD	94
C3-benzenes	8	2020	ESD	94
Total BTEX	8	1490	ESD	94
Total BTEX + C3-benzenes	8	3510	ESD	94
Benzene	13	40	ESD	94
Toluene	13	40	ESD	94
Ethylbenzene	13	80	ESD	94
Xylenes	13	490	ESD	94
C3-benzenes	13	1500	ESD	94
Total BTEX	13	650	ESD	94
Total BTEX + C3-benzenes	13	2150	ESD	94
Benzene	23	0	ESD	94
Toluene	23	0	ESD	94
Ethylbenzene	23	0	ESD	94
Xylenes	23	0	ESD	94
C3-benzenes	23	0	ESD	94
Total BTEX	23	0	ESD	94
Total BTEX + C3-benzenes	23	0	ESD	94

Surface Tension (mN/m or dynes/cm)

Temperature (°C)	Evaporation (weight %)			Reference	ID
0	0	30.2		ESD	94
15	0	29.4		ESD	94
25	0	28.6		ESD	94
0	8	31.3		ESD	94
15	8	30.4		ESD	94
25	8	30		ESD	94
0	13	31.6		ESD	94
15	13	30.8		ESD	94
25	13	30.5		ESD	94
0	23		NM	ESD	94
15	23	31.8		ESD	94
25	23	31.5		ESD	94

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

Temperature (°C)	Evaporation (weight %)			Reference	ID
0	0	19.4		ESD	94
15	0	23.9		ESD	94
25	0	18.3		ESD	94
0	8	19.6		ESD	94
15	8	22.7		ESD	94
25	8	18.4		ESD	94
0	13		NM	ESD	94
15	13	20.6		ESD	94
25	13	16.9		ESD	94
0	23		NM	ESD	94
15	23	22.9		ESD	94
25	23		NM	ESD	94

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

Temperature (°C)	Evaporation (weight %)			Reference	ID
0	0	22.2		ESD	94
15	0	27.6		ESD	94
25	0	21.6		ESD	94
0	8		NM	ESD	94
15	8	26.1		ESD	94
25	8	23.9		ESD	94
0	13		NM	ESD	94
15	13	27.7		ESD	94
25	13	19.3		ESD	94
0	23		NM	ESD	94
15	23		NM	ESD	94
25	23		NM	ESD	94

Boiling Point versus Weight Percent

Boiling Point (°C)	Evaporation (weight %)	Weight %	Reference	ID
60	0	1	ESD	94
80	0	1	ESD	94
100	0	3	ESD	94
120	0	4	ESD	94
140	0	5	ESD	94
160	0	7	ESD	94
180	0	9	ESD	94
200	0	11	ESD	94
250	0	18	ESD	94
300	0	26	ESD	94
350	0	34	ESD	94
400	0	43	ESD	94
450	0	52	ESD	94
500	0	61	ESD	94
550	0	69	ESD	94
600	0	76	ESD	94
650	0	82	ESD	94
700	0	88	ESD	94
120	8	1	ESD	95
140	8	2	ESD	95
160	8	3	ESD	95
180	8	5	ESD	95
200	8	7	ESD	95

250	8	13	ESD	95
300	8	21	ESD	95
350	8	30	ESD	95
400	8	39	ESD	95
450	8	48	ESD	95
500	8	56	ESD	95
550	8	65	ESD	95
600	8	72	ESD	95
650	8	79	ESD	95
700	8	85	ESD	95
160	13	1	ESD	95
180	13	3	ESD	95
200	13	5	ESD	95
250	13	11	ESD	95
300	13	20	ESD	95
350	13	29	ESD	95
400	13	38	ESD	95
450	13	48	ESD	95
500	13	57	ESD	95
550	13	66	ESD	95
600	13	74	ESD	95
650	13	81	ESD	95
700	13	88	ESD	95
250	23	3	ESD	95
300	23	12	ESD	95
350	23	22	ESD	95
400	23	32	ESD	95
450	23	43	ESD	95
500	23	53	ESD	95
550	23	63	ESD	95
600	23	72	ESD	95
650	23	80	ESD	95
700	23	87	ESD	95

Weight Percent versus Boiling Point

Weight %	Evaporation (weight %)	Boiling Point 'C	Reference ID	
5	0	135	ESD	94
10	0	187	ESD	94
15	0	230	ESD	94
20	0	265	ESD	94

25	0	296	ESD	94
30	0	325	ESD	94
35	0	354	ESD	94
40	0	383	ESD	94
45	0	412	ESD	94
50	0	439	ESD	94
55	0	467	ESD	94
60	0	497	ESD	94
65	0	527	ESD	94
70	0	560	ESD	94
75	0	594	ESD	94
80	0	632	ESD	94
85	0	673	ESD	94
90	0	717	ESD	94
5	8	179	ESD	95
10	8	225	ESD	95
15	8	261	ESD	95
20	8	292	ESD	95
25	8	321	ESD	95
30	8	349	ESD	95
35	8	378	ESD	95
40	8	407	ESD	95
45	8	433	ESD	95
50	8	462	ESD	95
55	8	491	ESD	95
60	8	522	ESD	95
65	8	553	ESD	95
70	8	586	ESD	95
75	8	620	ESD	95
80	8	657	ESD	95
85	8	700	ESD	95
5	13	203	ESD	95
10	13	242	ESD	95
15	13	272	ESD	95
20	13	301	ESD	95
25	13	328	ESD	95
30	13	355	ESD	95
35	13	382	ESD	95
40	13	409	ESD	95
45	13	434	ESD	95
50	13	461	ESD	95

55	13	488	ESD	95
60	13	516	ESD	95
65	13	545	ESD	95
70	13	575	ESD	95
75	13	607	ESD	95
80	13	640	ESD	95
85	13	678	ESD	95
90	13	719	ESD	95
5	23	263	ESD	95
10	23	291	ESD	95
15	23	316	ESD	95
20	23	341	ESD	95
25	23	365	ESD	95
30	23	390	ESD	95
35	23	413	ESD	95
40	23	435	ESD	95
45	23	459	ESD	95
50	23	484	ESD	95
55	23	509	ESD	95
60	23	535	ESD	95
65	23	562	ESD	95
70	23	590	ESD	95
75	23	619	ESD	95
80	23	651	ESD	95
85	23	688	ESD	95
90	23	724	ESD	95

Non-Metal Content (weight %)

	Evaporation (weight %)		Reference ID	
Sulphur	0	1.87	ESD	94
Sulphur	8	2.32	ESD	94
Sulphur	13	2.15	ESD	94
Sulphur	23	2.68	ESD	94

Spill
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Databases