Datashare 90

The application of diamondoid indices in the Tarim oils

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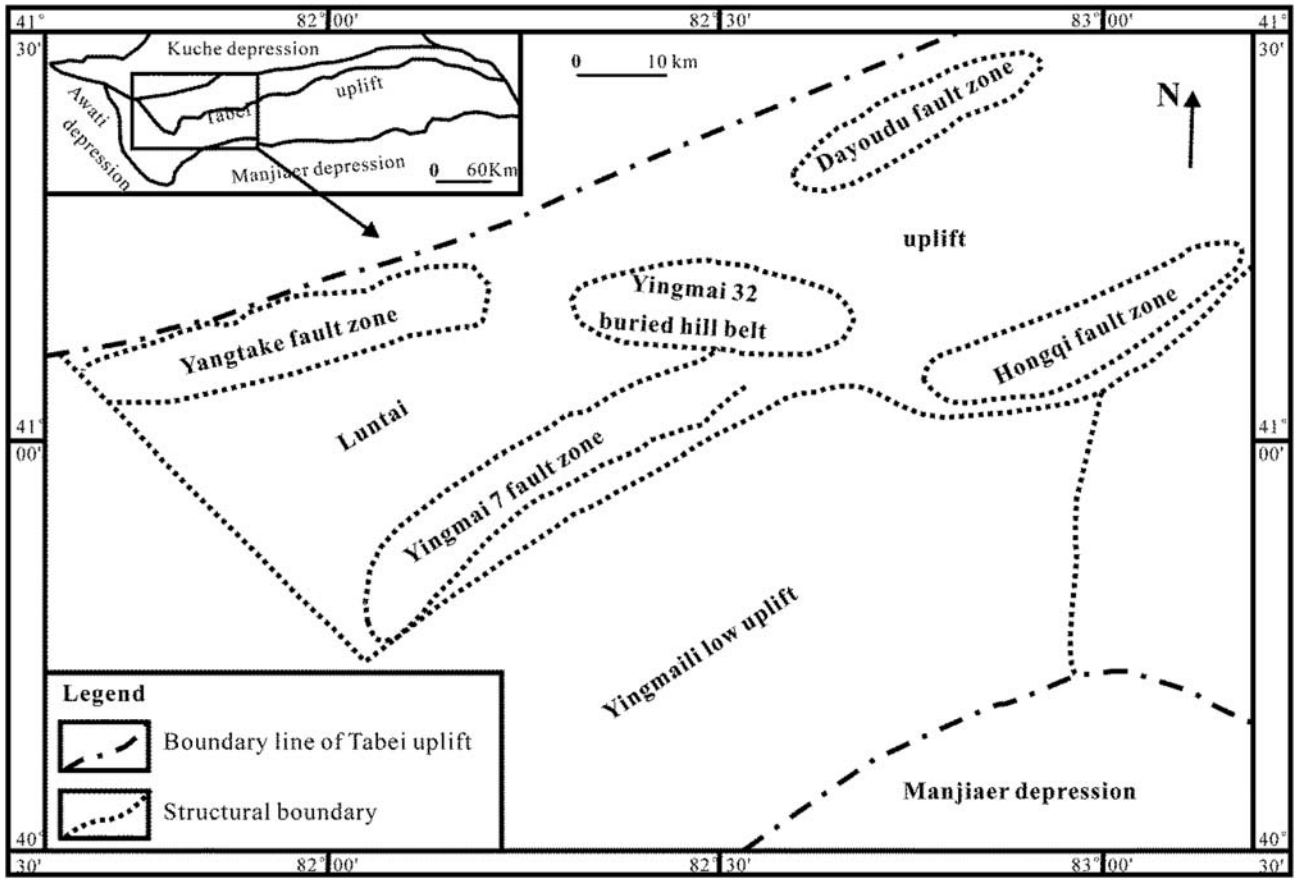

Figure S1. Tectonic units of the Tabei uplift.

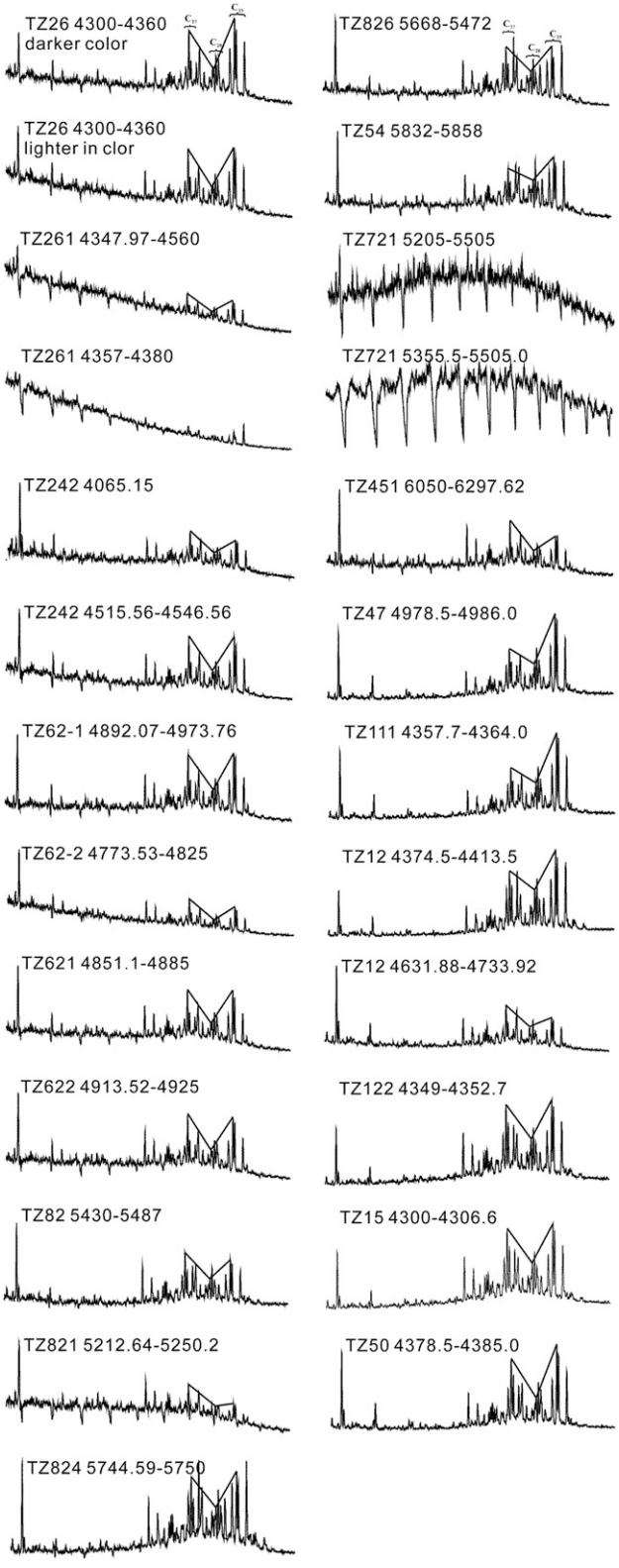

Figure S2. Mass-to-charge ratio 217 mass fragmentograms of saturated hydrocarbon fractions from selected oils, showing representative sterane distributions. TZ = Tazhong.

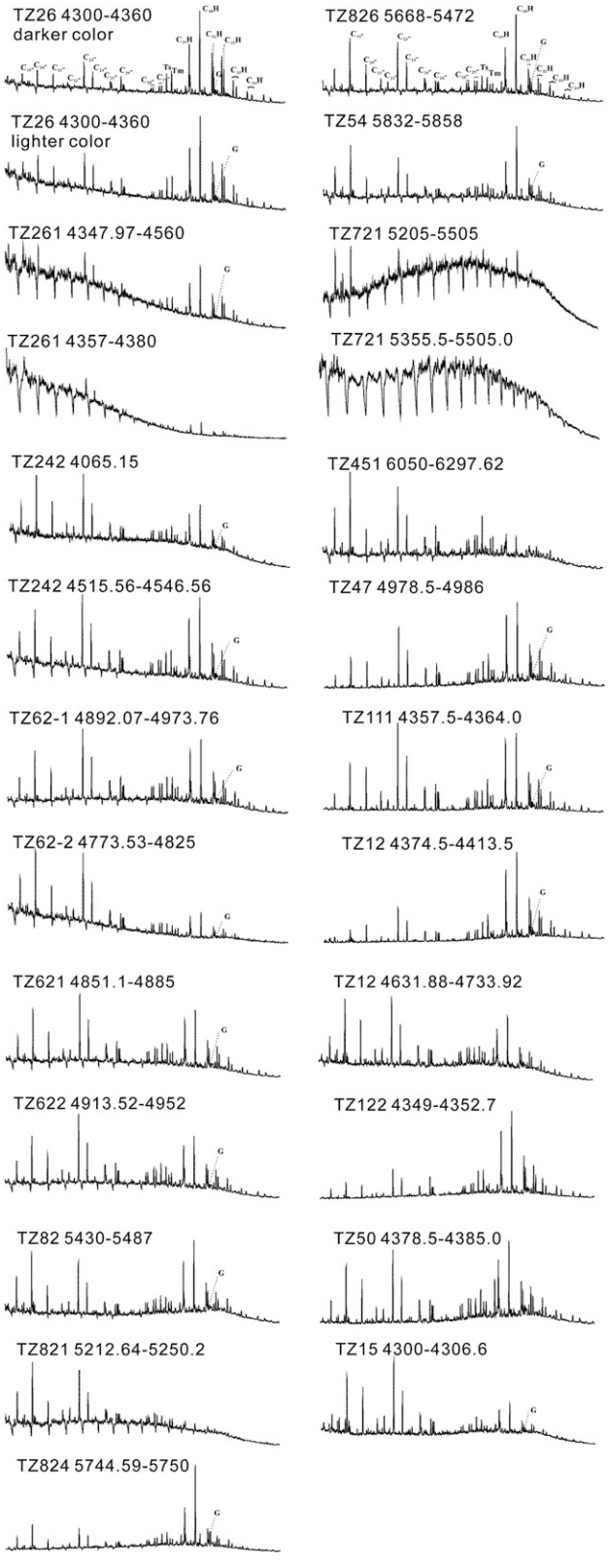

Figure S3. Mass-to-charge ratio 191 mass fragmentograms of saturated hydrocarbon fractions from selected oils, showing representative tricyclic terpane and hopane distributions. C_i = C_i terpane; C_iH = C_i hopane; G = Gammacerane; *Tm* = 18α(H)-22,29,30-Trisnorhopane; *Ts* = 17α(H)-22,29,30-Trisnorhopane; TZ = Tazhong.

Table S1. Concentrations (ppm) of Individual Diamondoid Compounds in Tarim Basin Oils

Sample No.	Well	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	As*	Ds*
1	TZ26-1	206.40	738.90	657.40	210.30	29.50	200.40	239.40	229.50	184.60	228.40	184.70	183.90	145.30	85.80	103.50	154.40	188.80	50.40	70.20	40.70	111.80	136.50	68.80	131.20	39.80	44.60	24.30	22.30	12.20	92.90	59.60	3.11	4380.80	498.81
2	TZ26-2	338.00	1159.00	991.50	308.50	41.80	242.10	292.40	279.10	224.30	273.80	226.40	222.40	181.70	104.30	115.00	184.10	217.70	64.00	76.50	48.70	127.10	155.80	72.90	135.60	43.30	50.80	23.90	22.30	12.90	88.10	58.80	3.06	5874.20	511.66
3	TZ261-1	524.00	1628.00	1261.00	367.70	47.60	159.90	190.10	178.20	150.20	207.40	173.40	166.50	141.90	81.00	71.80	155.60	135.70	57.80	46.50	48.60	85.00	108.70	869.90	820.90	152.70	259.80	97.10	82.70	35.40	173.60	94.90	7.78	5986.60	2594.78
4	TZ261-3	726.50	2284.00	1768.00	508.80	65.50	208.80	248.10	234.60	193.30	262.30	223.80	214.50	182.40	103.50	86.90	198.00	164.50	72.30	57.30	61.00	102.10	122.10	904.50	865.40	164.40	262.20	99.90	82.40	35.90	169.70	94.70	8.00	8088.30	2687.10
5	TZ242-1	120.60	420.40	382.10	133.20	20.50	212.20	223.40	215.70	165.60	214.50	163.80	161.40	126.10	71.50	107.10	120.60	179.40	38.20	71.50	30.80	94.40	124.40	46.00	85.00	27.10	32.50	17.30	17.60	9.92	73.00	44.90	2.45	3397.40	355.77
6	TZ242-2	141.60	473.80	419.90	142.80	22.90	214.90	227.40	216.00	162.50	228.80	174.70	167.70	133.00	77.50	111.10	125.50	178.60	41.30	67.80	35.10	98.60	126.20	67.40	117.50	35.40	54.30	23.80	24.40	13.80	100.00	62.30	2.95	3587.70	501.85
7	TZ62	12.60	33.10	30.20	10.70	1.68	33.30	26.10	25.60	18.10	31.50	18.00	19.80	15.00	12.40	17.60	21.10	25.30	5.29	18.50	5.65	19.70	22.20	19.00	17.60	4.16	14.90	3.56	5.17	0.83	14.50	10.40	0.87	423.42	90.99
8	TZ62-1	81.80	260.10	212.00	65.30	9.35	125.10	122.00	116.70	78.90	127.70	89.70	88.30	62.10	43.10	63.40	65.30	95.00	20.00	40.30	17.20	48.70	63.30	51.50	85.80	22.70	39.80	15.80	16.10	8.86	79.50	44.40	2.33	1895.35	366.79
9	TZ62-2	169.50	568.80	501.50	166.40	25.20	230.80	250.90	238.40	179.50	249.70	192.40	186.20	146.00	82.30	109.70	137.30	180.60	44.60	64.50	39.70	96.50	127.90	61.00	105.10	30.40	59.10	20.80	20.90	12.80	87.30	54.90	2.93	3988.40	455.23
10	TZ62-3	147.70	535.40	474.20	148.80	21.40	214.10	234.10	216.50	165.40	232.30	173.70	168.20	129.10	74.50	103.30	122.50	157.60	39.00	58.50	34.00	81.90	106.60	59.70	108.80	32.30	51.40	22.40	23.50	13.10	96.10	57.30	2.87	3638.80	467.47
11	TZ621	98.30	326.10	267.00	80.70	11.10	156.90	152.60	147.40	99.50	162.10	108.40	106.70	77.70	53.90	81.30	79.80	115.00	23.70	50.20	20.30	61.00	78.60	59.60	106.00	29.00	56.40	20.70	20.90	12.00	97.90	56.50	2.55	2358.30	461.55
12	TZ622	117.30	392.00	322.70	98.50	13.90	172.30	170.10	161.60	112.70	171.80	119.50	117.00	85.70	55.10	83.50	88.70	119.60	25.80	51.80	21.40	60.70	78.60	60.40	104.80	28.20	52.40	19.60	19.30	11.80	91.90	52.00	2.60	2640.30	443.00
13	TZ82	107.50	329.40	260.10	78.60	12.00	170.10	162.80	155.10	105.10	155.50	105.90	104.30	72.40	52.50	78.90	78.40	120.30	21.70	52.50	18.50	60.30	76.10	30.10	47.80	15.20	19.80	10.30	11.50	5.45	46.40	26.00	1.43	2378.00	213.98
14	TZ821	178.00	636.90	564.70	179.60	24.50	228.20	256.10	243.60	189.80	255.20	203.80	199.60	157.40	82.80	104.40	146.00	171.50	46.30	60.80	39.70	90.90	122.30	88.50	158.10	47.60	70.20	34.30	31.80	16.60	128.20	75.50	3.98	4182.10	654.78
15	TZ824	43.30	116.90	83.80	24.20	3.92	80.40	61.50	58.40	34.60	59.10	33.80	36.00	22.30	21.30	36.20	26.30	46.80	6.79	36.40	7.06	21.10	26.90	23.00	32.50	8.62	20.30	5.93	6.72	3.15	30.90	15.10	0.90	887.07	147.12
16	TZ826	151.30	604.00	571.40	186.20	26.70	203.20	245.20	233.60	191.90	240.60	205.70	198.10	165.70	83.50	92.00	149.40	155.80	49.20	54.50	41.00	85.30	113.10	87.50	170.60	51.50	72.70	35.50	33.30	18.20	111.50	68.20	4.12	4047.40	653.12
17	TZ54	65.10	198.40	147.90	42.20	6.55	132.90	106.10	101.80	60.90	105.90	62.00	62.00	38.00	33.20	62.80	43.10	76.60	12.80	51.10	10.00	36.70	47.80	29.60	44.40	11.00	23.00	8.50	10.20	4.45	41.20	22.30	1.00	1503.85	195.65
18	TZ721	204.90	425.10	337.00	112.90	22.10	173.50	141.90	136.50	97.70	167.10	109.30	106.00	0.00	53.20	72.40	92.80	104.20	32.40	40.70	30.80	65.30	87.90	103.30	163.30	44.10	68.00	33.00	32.50	16.20	124.30	69.10	3.25	2613.70	657.05
19	TZ721	188.50	401.50	317.50	108.30	21.60	172.30	140.50	135.90	96.70	159.90	106.60	103.00	88.10	53.90	74.00	87.60	104.80	31.10	43.00	28.80	67.50	91.30	99.30	158.00	44.50	68.30	32.40	31.00	15.90	118.30	65.90	4.21	2622.40	637.81
20	TZ722	72.50	170.80	138.30	47.30	9.05	107.20	91.40	86.90	62.40	93.30	63.40	64.30	0.00	32.20	49.00	52.70	72.80	17.60	32.50	16.10	46.40	60.60	29.20	50.90	14.50	20.10	9.83	11.50	5.49	49.30	27.90	1.17	1386.75	219.89
21	TZ83	74.10	172.20	147.50	47.10	9.01	120.70	97.30	94.30	62.40	100.10	63.00	63.80	45.60	36.30	53.80	52.80	75.70	16.50	40.70	15.40	46.70	62.20	32.50	59.00	14.80	26.60	10.70	13.10	5.30	54.50	30.70	1.52	1497.21	248.72
22	TZ452	50.70	83.70	59.80	18.60	4.12	73.80	46.20	44.10	24.10	47.00	24.40	23.60	16.30	16.00	30.40	21.80	30.30	6.79	28.00	6.22	16.80	21.70	23.00	37.50	9.70	20.30	6.67	9.48	4.33	31.90	18.50	1.87	694.43	163.25
23	TZ451	68.30	127.20	90.10	27.90	5.98	101.60	69.10	68.50	41.60	70.60	39.40	38.20	29.90	25.10	44.30	37.30	51.70	11.00	33.00	9.40	32.10	42.30	19.80	35.60	9.10	17.20	6.61	8.61	3.09	35.70	20.10	1.27	1064.58	157.08
24	ZG17	208.50	385.60	272.50	91.60	21.90	238.60	175.10	168.20	102.00	171.40	98.80	96.10	72.50	51.50	92.20	84.80	111.20	28.30	53.60	21.80	62.00	77.30	60.90	95.40	24.80	39.60	16.90	20.70	11.80	82.40	42.30	2.46	2685.50	397.26
25	TZ47	32.60	64.10	48.50	16.20	3.42	60.30	41.40	41.30	24.50	42.90	24.30	24.20	17.80	16.50	27.30	21.30	31.60	6.95	23.30	6.35	18.80	24.80	17.30	28.00	7.50	14.40	4.93	6.58	2.19	27.40	14.00	0.97	618.42	123.27
26	TZ111	44.60	126.90	118.80	46.20	11.00	94.90	83.20	83.90	58.70	77.40	51.50	55.00	43.00	29.30	45.80	44.80	64.70	15.90	40.20	13.70	42.30	55.40	29.10	48.90	12.10	22.20	8.00	11.20	4.05	41.40	22.90	2.87	1247.20	202.72
27	TZ12-2	36.60	118.90	102.60	33.80	5.87	75.80	67.00	64.00	46.00	70.60	45.90	46.40	33.20	22.60	42.80	32.60	58.40	9.59	29.70	8.92	28.50	41.80	18.50	31.80	8.68	12.80	6.62	7.75	3.69	34.00	19.40	0.91	1021.58	144.15
28	TZ12-1	22.10	66.00	49.60	14.70	2.55	41.40	34.10	32.10	20.70	34.30	20.40	20.60	14.10	12.60	20.50	14.90	26.50	4.65	18.20	3.96	13.60	15.80	21.90	30.10	7.23	11.50	5.43	7.43	3.17	29.70	14.70	0.65	503.36	131.81
29	TZ122-1	30.20	103.60	93.00	32.90	5.40	65.20	63.80	60.60	45.30	64.10	43.50	45.00	31.30	20.70	37.80	32.40	55.00	11.00	26.90	8.93	28.60	37.40	22.60	37.00	10.00	12.80	6.87	8.11	3.91	35.50	20.40	1.00	942.63	158.19
30	TZ122-2	18.80	56.70	42.10	12.50	2.15	35.60	28.90	27.40	17.60	29.10	17.20	17.70	11.60	10.30	17.00	14.00	22.20	3.69	15.60	3.64	10.90	13.90	22.50	28.90	7.31	11.10	4.58	6.53	2.88	29.20	13.40	0.86	428.58	127.26
31	TZ50	47.20	114.70	99.10	30.90	5.44	89.60	71.60	69.10	43.20	72.00	43.50	43.30	31.00	27.70	43.80	37.10	56.60	11.40	33.50	10.90	32.80	44.70	30.10	46.40	12.10	23.30	9.17	9.38	3.18	49.30	24.00	1.29	1059.14	208.22
32	TZ15	118.80	418.30	417.20	149.70	27.50	314.70	291.10	290.30	197.20	301.80	202.40	210.00	151.80	114.10	158.30	175.40	242.70	55.60	86.60	52.20	153.60	209.40	84.10	146.40	51.00	61.50	31.30	29.20	16.70	149.60	92.30	4.18	4338.70	666.28
33	YM7	14.90	31.90	18.30	5.29	0.71	38.10	22.90	21.80	11.40	19.00	9.54	10.10	6.17	6.73	16.00	7.60	18.30	1.68	26.40	1.77	11.60	11.50	7.09	4.61	1.05	2.34	0.59	1.54	0.35	8.19	3.50	0.22	311.69	29.48
34	YM32	30.40	70.30	42.60	11.50	1.52	70.30	46.70	44.40	24.50	37.10	19.30	19.80	13.00	12.30	27.40	13.20	33.90	3.88	36.80	3.72	20.00	19.60	10.90	8.58	1.69	3.55	1.45	2.33	0.75	15.20	6.13	0.29	602.22	50.87
35	YM321-2	19.30	51.90	33.70	10.20	1.33	56.00	39.60	37.80	22.00	33.00	18.50	19.30	13.40	11.90	26.40	13.80	34.80	4.03	34.50	3.89	20.30	21.00	9.69	9.82	2.10	5.69	2.12	2.90	1.13	15.70	6.61	0.32	526.65	56.08
36	YM321-1	25.40	60.10	35.70	9.20	1.21	59.80	39.70	38.20	20.50	31.10	16.80	17.30	10.70	10.40	23.60	11.80	29.00	3.22	31.30	2.60	17.10	16.20	8.52	7.02	1.70	2.54	1.32	2.13	0.75	12.70	5.10	0.13	510.93	41.91
37	YM33	28.60	66.10	38.70	10.40	1.38	67.10	44.40	41.90	22.70	34.10	17.80	19.40	12.40	12.20	26.10	13.40	32.10	3.73	36.90	2.97	19.10	18.60	10.10	7.81	1.63	4.29	0.69	2.38	0.64	13.90	4.92	0.31	570.08	46.67
38	YM34-1	21.40	47.90	27.40	7.77	0.96	52.10	32.40	30.40	16.80	26.10	13.80	14.50	8.88	9.70	21.20	10.20	24.40	2.78	29.70	2.51	14.30	15.20	11.20	5.96	1.57	3.42	1.22	1.97	0.41	12.50	5.08	0.24	430.40	43.57
39	YM35-2	16.70	35.60	20.40	5.89	0.78	40.60	24.50	23.00	12.90	19.60	11.10	11.00	6.81	6.91	16.80	8.09	18.60	2.10	27.30	2.28	12.10	12.30	8.57	4.51	1.13	2.72	0.59	1.75	0.39	9.46	3.69	0.22	335.36	33.03
40	YM35-1	16.90	37.80	22.80	6.62	0.91	42.50	26.30	24.80	14.00	21.60	11.80	13.00	7.31	8.13	17.20	9.17	21.60	2.05	27.90	2.20	13.30	14.10	9.37	7.37	1.98	2.83	1.45	2.68	0.72	10.30	4.37	0.37	361.99	41.44
41	YM41	28.60	71.90	45.60	12.20	1.67	75.10	52.20	49.30	27.50	41.80	22.50	23.40	15.30	13.60	33.00	16.80	40.80	4.51	42.80	3.77	23.40	23.70	11.80	10.20	2.06	5.55	1.93	2.82	0.85	17.10	7.11	0.56	669.45	59.98
42	YM2	7.47	22.20	20.30	8.47	1.77	15.20	13.90	13.40	9.32	12.10	8.38	9.22	6.53	5.85	8.28	7.43	11.20	2.24	9.54	1.88	5.92	7.97	10.60	15.20	5.08	3.68	2.33	6.00	2.21	16.00	8.56	0.37	208.57	70.03
43	TD2	9.48	33.50	28.50	10.20	1.54	27.50	25.60	23.20	17.70	26.30	17.00	18.00	12.60	10.50	18.60	17.70	29.00	4.05	16.20	4.94	14.10	16.40	16.40	12.50	3.22	11.90	2.83	6.18	1.86	20.90	11.30	0.56	382.61	87.65

Abbreviations: As = total concentration of adamantanes; Ds = total concentration of diamantanes; TD = Tadong; TZ = Tazhong; YM = Yingmai; ZG = Zhonggu.

Table S2. Values of Diamondoid Ratios and the Extent of Oil Cracking

Sample No.	Well	MAI	MDI	EAI	DMAI-1	DMAI-2	TMAI-2	A/MAs	MAs/DMAs	MAs/MDs	1-MA/4-MD	A/D	DMAs/MDs	3-+4-MD (ppm)	EOC(%)
1	TZ26	0.79	0.49	0.55	0.74	0.58	0.53	0.22	0.64	3.50	5.63	3.00	5.43	224.10	69.21
2	TZ26	0.83	0.49	0.58	0.78	0.63	0.58	0.24	0.72	5.10	8.55	4.64	7.11	223.70	69.16
3	TZ261	0.91	0.65	0.64	0.86	0.77	0.71	0.29	0.94	1.43	1.98	0.60	1.52	994.50	93.06
4	TZ261	0.92	0.67	0.64	0.87	0.79	0.72	0.29	0.96	1.92	2.64	0.80	2.00	1035.10	93.33
5	TZ242	0.66	0.45	0.50	0.64	0.47	0.45	0.19	0.55	3.32	4.95	2.62	6.00	158.00	56.33
6	TZ242	0.69	0.43	0.53	0.65	0.49	0.47	0.21	0.57	2.53	4.03	2.10	4.43	217.50	68.28
7	TZ62	0.50	0.37	0.40	0.49	0.37	0.37	0.19	0.51	1.41	1.88	-	2.79	32.10	nd
8	TZ62-1	0.68	0.42	0.52	0.62	0.47	0.45	0.21	0.60	1.88	3.03	1.59	3.13	165.30	58.26
9	TZ62-2	0.71	0.42	0.56	0.67	0.51	0.48	0.21	0.59	3.18	5.41	2.78	5.37	192.40	64.14
10	TZ62-3	0.71	0.42	0.56	0.67	0.51	0.47	0.20	0.59	2.92	4.92	2.47	4.92	204.90	66.33
11	TZ621	0.68	0.41	0.52	0.62	0.47	0.45	0.20	0.60	1.86	3.08	1.65	3.11	203.90	66.16
12	TZ622	0.69	0.42	0.52	0.65	0.49	0.47	0.21	0.62	2.27	3.74	1.94	3.65	196.70	64.92
13	TZ82	0.66	0.42	0.50	0.63	0.45	0.43	0.22	0.61	4.38	6.89	3.57	7.13	94.20	26.75
14	TZ821	0.74	0.44	0.58	0.69	0.53	0.49	0.21	0.61	2.43	4.03	2.01	3.99	286.30	75.90
15	TZ824	0.59	0.39	0.37	0.59	0.41	0.41	0.22	0.66	2.36	3.60	1.88	3.57	63.40	nd
16	TZ826	0.75	0.48	0.61	0.70	0.54	0.49	0.19	0.58	2.28	3.54	1.73	3.90	282.10	75.54
17	TZ54	0.60	0.41	0.39	0.58	0.42	0.41	0.20	0.63	3.05	4.47	2.20	4.83	85.60	nd
18	TZ721	0.71	0.46	0.57	0.67	0.55	0.54	0.34	0.70	1.68	2.60	1.98	2.40	287.60	76.01
19	TZ721	0.70	0.46	0.56	0.67	0.53	0.53	0.33	0.69	1.67	2.54	1.90	2.40	276.30	75.03
20	TZ722	0.61	0.42	0.50	0.60	0.44	0.43	0.26	0.61	2.31	3.36	2.48	3.81	100.20	31.14
21	TZ83	0.59	0.42	0.47	0.60	0.43	0.43	0.25	0.59	2.09	2.92	2.28	3.52	113.50	39.21
22	TZ452	0.53	0.42	0.36	0.56	0.40	0.44	0.32	0.69	1.76	2.23	2.20	2.54	69.40	nd
23	TZ451	0.56	0.40	0.43	0.56	0.40	0.40	0.30	0.67	2.59	3.57	3.45	3.87	71.30	nd
24	ZG17	0.62	0.44	0.49	0.61	0.44	0.47	0.33	0.71	2.87	4.04	3.42	4.05	177.80	61.19
25	TZ47	0.52	0.40	0.41	0.53	0.37	0.40	0.26	0.62	1.78	2.29	1.88	2.89	55.40	nd
26	TZ111	0.57	0.43	0.42	0.61	0.42	0.44	0.20	0.54	1.97	2.60	1.53	3.64	90.30	nd
27	TZ12	0.61	0.40	0.43	0.59	0.44	0.42	0.19	0.56	2.48	3.74	1.98	4.41	65.80	nd
28	TZ12	0.61	0.42	0.41	0.59	0.43	0.42	0.21	0.63	1.51	2.19	1.01	2.39	59.80	nd
29	TZ122	0.61	0.43	0.43	0.59	0.43	0.42	0.18	0.53	1.98	2.80	1.34	3.74	72.50	nd
30	TZ122	0.61	0.42	0.40	0.59	0.43	0.42	0.20	0.64	1.33	1.96	0.84	2.09	58.10	nd
31	TZ50	0.56	0.39	0.45	0.58	0.41	0.42	0.23	0.57	1.72	2.47	1.57	2.99	95.70	27.90
32	TZ15	0.57	0.41	0.57	0.58	0.42	0.43	0.16	0.50	2.05	2.86	1.41	4.08	296.00	76.69
33	YM7	0.46	0.30	0.20	0.49	0.29	0.32	0.21	0.71	4.62	6.92	2.10	6.47	12.80	nd
34	YM32	0.50	0.31	0.25	0.53	0.32	0.32	0.22	0.71	5.14	8.19	2.79	7.25	23.78	nd
35	YM321-2	0.48	0.31	0.26	0.51	0.30	0.32	0.18	0.63	3.46	5.29	1.99	5.46	25.52	nd
36	YM321-1	0.50	0.32	0.25	0.53	0.31	0.31	0.21	0.71	5.39	8.56	2.98	7.56	19.72	nd
37	YM33	0.50	0.30	0.25	0.53	0.31	0.31	0.21	0.72	5.12	8.46	2.83	7.12	21.71	nd
38	YM34-1	0.48	0.27	0.25	0.51	0.30	0.32	0.21	0.73	4.57	8.04	1.91	6.28	18.46	nd
39	YM35-2	0.47	0.27	0.20	0.51	0.30	0.31	0.22	0.73	4.57	7.89	1.95	6.25	13.97	nd
40	YM35-1	0.47	0.36	0.23	0.51	0.31	0.32	0.21	0.71	3.92	5.13	1.80	5.50	17.67	nd
41	YM41	0.49	0.31	0.24	0.52	0.31	0.31	0.19	0.66	4.47	7.05	2.42	6.75	27.30	nd
42	YM2	0.59	0.44	0.38	0.63	0.43	0.48	0.20	0.55	1.07	1.46	0.70	1.95	31.20	nd
43	TD2	0.55	0.28	0.39	0.52	0.37	0.37	0.16	0.50	1.35	2.68	0.58	2.70	33.40	nd

Abbreviations: A = adamantane; D = diamantane; DMA = dimethyladamantane; DMAI = dimethyladamantane index; EAI = ethyladamantane index; EOC = extent of oil cracking; MA = methyladamantane; MAI = methyladamantane index; MD = methyldiamantane; MDI = methyldiamantane index; TD = Tadong; TMAI = trimethyladamantane index; TZ = Tazhong; YM = Yingmai; ZG = Zhonggu.