

Geochemical Analysis Data

Samples from Dominican Republic Well Oil Shows and Natural Seeps

Performed by: GeoMark Research LTD

Sample ID	DOM-000008
Lab ID	DR0001

1. Location Information

Type	Oil Seep
Well Name	
Basin	San Juan - Azua Basin
Field	Higuerito Seep
Latitude	18.719
Longitude	-71.08
Upper Depth (ft.)	
Lower Depth (ft.)	
Reservoir Age	
Reservoir Formation	
Operator	
Location Grade	D - Estimated. Block/Field Center (Field/County if 2+ counties)

2. Aromatics

P		1MDBT		#3e		MDR	
3MP		C20TAS		C18		TAS1	
2MP		C21TAS		C19		TAS2	
9MP		C26STAS		C20		TAS3(CR)	
1MP		C26RC27STAS		MPI		TAS4	
C4N		C28STAS		F1		TAS5	
DBT		C27RTAS		F2		DINO3/9	
4MDBT		C28RTAS		P/DBT			
32MDBT		#9b		DBT/C4N			

3. Bulk

API Gravity	11.9	% Sat	32.7	P/N	0.25	CV	-9.38
<C15	8.7	% Aro	46.5	13Cs	-16.64	EOM	
% S	2.19	% NSO	18.2	13Ca	-17.94	Misc	
ppm Ni	10.0	% Asph	2.7	13Cwc			
ppm V	3.0	Sat / Aro	0.70	34Swc			

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4. Gas Chromatography

Biodegraded		20	5.98	28	0.90	Pr/Ph	0.70
15	13.13	21	7.33	29	0.77	Pr/nC17	0.48
16	10.24	22	3.81	30	0.55	Ph/nC18	0.57
17	11.34	23	2.39	31	0.37	nC27/nC17	0.09
Pr	5.43	24	2.24	32	0.62	nC19*2/(n C18+nC20)	
18	13.46	25	1.91	33	0.22	CPI	0.955
Ph	7.71	26	1.37	34	0.28		
19	8.86	27	1.02	35	0.09		

5. Quantitative Biomarkers

C19T	9	ET_C30R		C31R	54	S5B	12
C20T	10	ET_C31S		GA	5	S6	8
C21T	8	ET_C31R		C32S	57	S7	2
C22T	6	Ts	28	C32R	39	S8	2
C23T	21	C27T		C33S	32	S9	4
C24T	9	Tm	72	C33R	21	S9B	7
C25S	4	C28DM	1	C34S	29	S10	4
C25R	4	C28H		C34R	19	S10B	8
TET	62	C29DM	1	C35S	30	S11	3
C26S	3	C29H	173	C35R	20	S12	5
C26R	3	C29D	20	S1	1	S13	9
ET_C28S		C30X	2	S2	1	S13B	15
ET_C28R		OL	26	S3	6	S14	7
ET_C29S		C30H	146	S4	9	S14B	13
ET_C29R		C30M	10	S4B	14	ISTD	16
ET_C30S		C31S	73	S5	7	S15	8

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Sample ID	DOM-000008
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6. Interpretation

Source Rock Type	Marine Carbonate	C19/C23	0.42	OL/H	0.18
Source Rock Type Confidence	probable	C22/C21	0.73	C31R/H	0.37
Source Rock Age	Neogene	C24/C23	0.44	GA/C31R	0.09
Source Rock Age Confidence	suspected	C26/C25	0.83	C35S/C34S	1.04
Source Rock Maturity	higher maturity	Tet/C23	2.91	S/H	0.09
Biodegradation	mild biodegradation	C27T/C27	0.00	% C27	35.9
Biodegradation #	1	C28/H	0.00	% C28	23.7
Study Reference		C29/H	1.19	% C29	40.4
Family Reference		X/H	0.02	S1/S6	0.15
		C29 20S/		C29 Ts/Tm	0.11
		C29 bbS/a		DM/H	0.01
		C27 Ts/T	0.39	C26(S+R) /	

Geochemical Analysis Data

Samples from Dominican Republic Well Oil Shows and Natural Seeps

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Sample ID	DOM-000015
Lab ID	DR0002

1. Location Information

Type	Oil
Well Name	Maleno (PA) 1
Basin	San Juan - Azua Basin
Field	Maleno (Seaboard) 1
Latitude	18.490636
Longitude	-70.816889
Upper Depth (ft.)	1345
Lower Depth (ft.)	1535
Reservoir Age	Miocene
Reservoir Formation	Trinchera
Operator	Petrolera Azuana
Location Grade	A - Validated. Field discovery well

2. Aromatics

P	152730	1MDBT	96444	#3e		MDR	3.87
3MP	84059	C20TAS	42653	C18		TAS1	0.83
2MP	96845	C21TAS	17146	C19		TAS2	0.55
9MP	100854	C26STAS	4379	C20		TAS3(CR)	0.50
1MP	57382	C26RC27STAS	16698	MPI	0.87	TAS4	0.28
C4N	52194	C28STAS	15567	F1	0.53	TAS5	0.64
DBT	181260	C27RTAS	8815	F2	0.29	DINO3/9	
4MDBT	373459	C28RTAS	13770	P/DBT	0.84		
32MDBT	289480	#9b		DBT/C4N	3.47		

3. Bulk

API Gravity	22.6	% Sat	31.9	P/N	0.07	CV	-9.79
<C15	31.3	% Aro	57.6	13Cs	-17.25	EOM	
% S	2.79	% NSO	10.0	13Ca	-18.82	Misc	
ppm Ni	4.0	% Asph	0.5	13Cwc			
ppm V	3.0	Sat / Aro	0.55	34Swc			

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Samples from Dominican Republic Well Oil Shows and Natural Seeps

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Sample ID	DOM-000015
Lab ID	DR0002

4. Gas Chromatography

Biodegraded	Biodegraded	20		28		Pr/Ph	
15		21		29		Pr/nC17	
16		22		30		Ph/nC18	
17		23		31		nC27/nC17	
Pr		24		32		nC19*2/(nC18+nC20)	
18		25		33		CPI	
Ph		26		34			
19		27		35			

5. Quantitative Biomarkers

C19T	9	ET_C30R		C31R	49	S5B	12
C20T	10	ET_C31S		GA	6	S6	9
C21T	8	ET_C31R		C32S	51	S7	
C22T	6	Ts	22	C32R	36	S8	2
C23T	22	C27T		C33S	29	S9	4
C24T	9	Tm	60	C33R	18	S9B	8
C25S	4	C28DM	1	C34S	27	S10	4
C25R	4	C28H	3	C34R	17	S10B	8
TET	55	C29DM	1	C35S	27	S11	3
C26S	3	C29H	138	C35R	18	S12	6
C26R	3	C29D	18	S1	2	S13	10
ET_C28S		C30X	1	S2	1	S13B	16
ET_C28R		OL	29	S3	6	S14	7
ET_C29S		C30H	135	S4	9	S14B	13
ET_C29R		C30M	11	S4B	14	ISTD	14
ET_C30S		C31S	69	S5	7	S15	9

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Sample ID	DOM-000015
Lab ID	DR0002

6. Interpretation

Source Rock Type	Marine Carbonate	C19/C23	0.41	OL/H	0.22
Source Rock Type Confidence	probable	C22/C21	0.74	C31R/H	0.37
Source Rock Age	Neogene	C24/C23	0.41	GA/C31R	0.11
Source Rock Age Confidence	suspected	C26/C25	0.82	C35S/C34S	1.01
Source Rock Maturity	higher maturity	Tet/C23	2.49	S/H	0.11
Biodegradation	heavy biodegradatio	C27T/C27	0.00	% C27	35.6
Biodegradation #	5	C28/H	0.02	% C28	23.9
Study Reference	Central Atlantic Oil Study 2002	C29/H	1.02	% C29	40.5
Family Reference	MC	X/H	0.01	S1/S6	0.17
		C29 20S/		C29 Ts/Tm	0.13
		C29 bbS/a		DM/H	0.01
		C27 Ts/T	0.36	C26(S+R) /	

Geochemical Analysis Data

Samples from Dominican Republic Well Oil Shows and Natural Seeps

Performed by: GeoMark Research LTD

Sample ID	DOM-000027
Lab ID	DR0003

1. Location Information

Type	Oil
Well Name	Maleno (PA) 3
Basin	San Juan - Azua Basin
Field	Maleno (Seaboard) 1
Latitude	18.490636
Longitude	-70.816889
Upper Depth (ft.)	2956
Lower Depth (ft.)	
Reservoir Age	Miocene
Reservoir Formation	Trinchera
Operator	Petrolera Azuana
Location Grade	A - Validated. Field discovery well

2. Aromatics

P	194892	1MDBT	119666	#3e		MDR	3.91
3MP	103152	C20TAS	51986	C18		TAS1	0.81
2MP	122439	C21TAS	21326	C19		TAS2	0.55
9MP	126787	C26STAS	5781	C20		TAS3(CR)	0.50
1MP	73800	C26RC27STAS	20707	MPI	0.86	TAS4	0.32
C4N	67144	C28STAS	18083	F1	0.53	TAS5	0.69
DBT	233231	C27RTAS	12000	F2	0.29	DINO3/9	
4MDBT	467993	C28RTAS	17443	P/DBT	0.84		
32MDBT	362698	#9b		DBT/C4N	3.47		

3. Bulk

API Gravity	22.7	% Sat	34.1	P/N	0.12	CV	-8.29
<C15	30.4	% Aro	57.1	13Cs	-17.86	EOM	
% S	2.81	% NSO	8.1	13Ca	-18.84	Misc	
ppm Ni	3.0	% Asph	0.7	13Cwc			
ppm V	1.0	Sat / Aro	0.60	34Swc			

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Samples from Dominican Republic Well Oil Shows and Natural Seeps

Performed by: GeoMark Research LTD

Sample ID	DOM-000027
Lab ID	DR0003

4. Gas Chromatography

Biodegraded	Biodegraded	20		28		Pr/Ph	
15		21		29		Pr/nC17	
16		22		30		Ph/nC18	
17		23		31		nC27/nC17	
Pr		24		32		nC19*2/(n C18+nC20)	
18		25		33		CPI	
Ph		26		34			
19		27		35			

5. Quantitative Biomarkers

C19T	10	ET_C30R		C31R	49	S5B	11
C20T	10	ET_C31S		GA	5	S6	8
C21T	8	ET_C31R		C32S	51	S7	2
C22T	6	Ts	20	C32R	31	S8	2
C23T	21	C27T		C33S	27	S9	4
C24T	9	Tm	58	C33R	18	S9B	7
C25S	4	C28DM	1	C34S	25	S10	4
C25R	4	C28H	3	C34R	15	S10B	7
TET	54	C29DM	1	C35S	26	S11	3
C26S	3	C29H	139	C35R	17	S12	6
C26R	3	C29D	17	S1	2	S13	9
ET_C28S		C30X	1	S2	1	S13B	15
ET_C28R		OL	26	S3	5	S14	7
ET_C29S		C30H	124	S4	8	S14B	14
ET_C29R		C30M	10	S4B	13	ISTD	14
ET_C30S		C31S	64	S5	6	S15	9

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Sample ID	DOM-000027
Lab ID	DR0003

6. Interpretation

Source Rock Type	Marine Carbonate	C19/C23	0.45	OL/H	0.21
Source Rock Type Confidence	probable	C22/C21	0.75	C31R/H	0.39
Source Rock Age	Neogene	C24/C23	0.42	GA/C31R	0.11
Source Rock Age Confidence	suspected	C26/C25	0.85	C35S/C34S	1.01
Source Rock Maturity	higher maturity	Tet/C23	2.57	S/H	0.11
Biodegradation	heavy biodegradatio	C27T/C27	0.00	% C27	34.6
Biodegradation #	5	C28/H	0.02	% C28	23.2
Study Reference		C29/H	1.11	% C29	42.2
Family Reference		X/H	0.01	S1/S6	0.21
		C29 20S/		C29 Ts/Tm	0.12
		C29 bbS/a		DM/H	0.01
		C27 Ts/T	0.35	C26(S+R) /	