REFERENCE:

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in press

Thermal conductivity of Wilcox and Frio sandstones in South Texas (Gulf of Mexico Basin)

AAPG Bulletin

Table 1

See text from table at bottom of file.

l	D	depth	+	λ	ϕ	ϕ	qtz	qtz	qtz+	fsp	rf	clay	cal	ana	mic	clay	sid/	pyr	fsp	Ti	unid	gra	description
1	2	(m)	or	W/	(sv)	(ts)		cmt	cmt				cmt			cla	ank		og			siz	
			‖	m/K	%b	%b	%s	%s	%s	%s	%s	%s	%s	%s	%s	%s	%s	%s	%s	%s	%s	phi	
1	M	4613.1	+	3.61	19.2	11.5	50.8	3.4	54.2	11.3	6.8	22.0	0.0	0.0	2.3	1.1	1.7	0.0	0.0	0.0	0.6	3.3	massive
2	M	4613.8	+	4.43	16.1	9.0	54.9	12.6	67.6	7.7	5.5	15.9	0.0	0.0	0.0	2.2	0.5	0.0	0.0	0.5	0.0	3.3	massive. minor burrows
3	M	4615.0	+	4.06	13.8	10.0	56.7	7.2	63.9	7.2	10.0	14.4	0.0	0.0	1.7	0.6	0.6	0.0	0.6	0.0	1.1	3.3	massive
4	M	4615.9	+	4.27	15.5	7.5	55.1	11.9	67.0	7.6	3.8	13.5	0.0	0.0	3.8	0.0	2.2	0.5	0.5	0.0	1.1	3.3	massive. minor burrows
5	M	4616.2	+	3.98	17.7	10.5	59.2	8.9	68.2	6.1	9.5	11.7	0.0	0.0	2.2	0.0	1.1	0.0	0.0	0.6	0.6	3.3	massive
6	M	4617.1	+	4.01	17.1	10.5	59.2	7.3	66.5	6.7	8.4	13.4	0.0	0.0	1.7	0.6	1.1	0.6	0.0	0.0	1.1	3.3	massive. minor burrows
7	M	4618.3	+	3.83	16.3	9.0	56.0	2.2	58.2	8.2	9.9	16.5	0.0	0.0	3.8	0.5	0.0	0.5	0.0	0.5	1.6	3.3	massive. minor burrows
8	M	4619.5	+	3.87	16.1	10.0	58.9	3.3	62.2	7.2	9.4	15.0	0.0	0.0	2.2	0.6	1.1	1.1	0.6	0.0	0.6	3.3	massive. minor burrows
9	M	4620.2	+	3.95	16.9	13.5	52.0	8.7	60.7	9.2	10.4	16.2	0.0	0.0	0.0	2.9	0.6	0.0	0.0	0.0	0.0	3.3	massive. minor burrows
10	M	4621.7	+	3.90	16.1	10.0	61.7	7.2	68.9	9.4	6.7	11.1	0.0	0.0	0.0	0.0	1.7	0.0	0.6	1.1	0.6	3.3	massive. minor burrows
11	M	4622.6	+	3.86	16.0	9.0	54.4	9.9	64.3	8.8	8.8	13.7	0.0	0.0	1.6	0.0	2.2	0.0	0.0	0.0	0.5	3.3	massive. minor burrows
12	M	4623.8	+	3.63	18.1	14.5	62.0	6.4	68.4	8.2	7.6	12.3	0.0	0.0	1.8	0.6	0.0	0.0	0.6	0.0	0.6	3.3	massive
13	M	4624.7	+	3.74	18.2	14.0	60.5	4.7	65.1	7.0	6.4	16.9	0.0	0.0	1.2	1.2	0.6	0.0	0.6	0.0	1.2	3.3	massive. minor burrows
14	M	4626.6	+	3.24	20.4	16.0	57.1	0.0	57.1	9.5	11.9	15.5	0.0	0.0	1.2	0.0	1.8	0.0	0.0	0.0	3.0	3.3	massive
15	M	4629.6	+	3.94	17.7	17.0	55.4	1.8	57.2	11.4	12.0	13.9	0.0	0.0	1.8	0.0	1.2	0.6	0.0	0.6	1.2	3.3	massive
16	M	4755.5	+	4.50	12.4	7.0	52.2	14.5	66.7	9.1	10.8	11.8	0.0	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.5	3.3	massive
17	M	4756.1	+	4.88	11.3	8.5	51.9	12.0	63.9	7.7	14.2	7.1	0.0	0.0	1.1	1.1	1.1	1.6	0.5	0.5	1.1	3.3	massive
18	M	4757.0	+	5.11	6.8	2.0	45.9	21.9	67.9	9.2	13.3	5.6	0.0	0.0	0.5	0.0	0.5	0.0	1.0	0.0	2.0	3.3	massive
19	M	4758.2	+	4.72	8.2	0.0	46.5	18.5	65.0	7.0	15.0	9.5	0.0	0.0	0.0	1.0	1.0	1.0	0.0	0.5	0.0	3.3	massive. minor burrows
20	M	4758.5	+	4.72	5.7	0.5	44.2	25.1	69.3	6.0	16.6	7.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	massive. minor burrows
21	M	4761.6	+	3.36	16.7	15.0	58.2	3.5	61.8	7.1	14.7	12.9	0.0	0.0	0.6	0.0	0.0	0.6	0.0	1.8	0.6	3.3	massive
22	M	4762.5	+	4.12	11.5	5.5	46.0	7.9	54.0	7.4	12.7	5.3	0.0	0.0	0.0	0.0	19.0	0.0	0.5	0.5	0.5	3.3	massive
23	M	4763.7	+	4.65	12.3	7.5	55.1	9.2	64.3	5.9	9.7	16.2	0.0	0.0	0.5	0.0	0.5	2.2	0.0	0.0	0.5	3.3	massive. minor burrows
24	M	4769.2	+	5.13	9.1	2.0	45.9	20.9	66.8	8.7	12.8	7.1	0.0	0.0	2.0	0.0	0.0	0.0	0.5	0.5	1.5	3.3	massive. minor burrows
25	G	4902.4	+	5.71	3.9	2.0	48.0	20.9	68.9	6.1	11.7	2.0	0.0	0.0	1.0	0.0	7.1	1.0	1.5	0.5	0.0	3.3	vaguely laminated
26	G	4903.0	+	5.29	3.9	1.0	48.5	20.7	69.2	6.6	11.1	3.0	0.0	0.0	1.0	0.5	4.5	1.0	1.5	1.0	0.5	3.3	vaguely laminated
27	G	4910.9	+	4.48	15.1	10.5	54.2	4.5	58.7	6.7	12.3	14.0	0.0	0.0	2.2	0.0	3.4	1.1	0.0	1.1	0.6	3.3	massive
28	G	4911.5	+	4.34	15.6	14.5	57.9	7.6	65.5	7.6	12.3	11.1	0.0	0.0	0.6	0.0	0.6	0.6	0.0	0.6	1.2	3.3	massive
29	G	4913.4	+	3.59	19.0	12.0	60.2	1.7	61.9	6.8	10.8	15.9	0.0	0.0	1.1	1.1	0.6	0.6	0.0	0.6	0.6	3.3	massive
30	G	4915.2	+	3.81	17.8	11.5	56.5	1.7	58.2	5.6	15.8	13.6	0.0	0.0	1.1	1.1	1.1	1.1	0.6	0.6	1.1	3.3	massive
31	G	4918.9	+	5.39	8.2	2.0	46.4	19.4	65.8	6.6	16.3	8.7	0.0	0.0	0.0	0.0	1.0	0.0	1.0	0.0	0.5	3.3	massive
32	G	4919.8	+	5.22	4.1	0.0	50.5	11.0	61.5	4.0	16.0	16.5	0.0	0.0	0.5	0.0	0.5	0.0	0.5	0.5	0.0	3.3	massive
33	G	4920.7	+	5.73	2.4	0.0	47.5	22.5	70.0	6.5	11.5	4.0	0.0	0.0	1.5	0.5	3.5	0.5	1.0	1.0	0.0	3.3	massive
34	G	4922.5	+	4.80	12.5	10.5	51.4	15.1	66.5	6.1	12.3	8.4	0.0	0.0	1.1	1.7	0.6	0.6	0.0	2.2	0.6	3.3	massive
35	G	4924.3	+	4.70	13.3	12.5	52.6	9.7	62.3	8.0	13.7	9.7	0.0	0.0	1.7	1.1	1.7	0.0	0.0	1.1	0.6	3.3	massive
36	G	4926.8	+	5.10	9.3	4.5	49.7	16.2	66.0	9.4	9.4	10.5	0.0	0.0	1.0	0.0	1.6	0.5	0.5	0.5	0.5	3.3	massive

37	G	4928.3	+	4.91	9.7	4.0	47.9	14.1	62.0	13.5	10.4	8.3	0.0	0.0	1.6	0.0	2.1	0.5	1.0	0.0	0.5	3.3	massive	
38	G	4931.4	+	4.95	7.1	2.0	46.9	17.9	64.8	9.2	14.8	5.1	0.0	0.0	0.5	0.5	2.0	0.5	1.5	0.5	0.5	3.3	massive	
39	G	4933.8	+	4.94	6.9	1.5	44.2	13.2	57.4	11.7	14.2	9.1	0.0	0.0	2.0	0.0	3.6	0.5	1.0	0.5	0.0	3.3	massive	
40	G	4940.5	+	4.58	11.9	4.5	48.7	13.1	61.8	11.0	11.5	11.0	0.0	0.0	1.0	0.5	0.5	0.0	1.0	0.5	1.0	3.3	massive	
41	G	4941.7	+	4.51	11.4	3.5	47.2	5.7	52.8	7.3	18.7	15.0	0.0	0.0	1.6	0.5	1.6	1.0	0.0	0.5	1.0	3.3	massive	
42	G	4942.9	+	5.25	8.9	2.0	44.4	20.4	64.8	9.7	16.8	7.1	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.5	0.0	3.3	massive	
43	G	4953.0	+	5.03	5.6	0.0	51.0	22.0	73.0	7.5	13.5	5.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.5	0.0	3.3	massive	
44	G	4949.6	+	4.73	6.3	0.0	48.0	5.5	53.5	10.5	12.5	14.0	0.0	0.0	2.5	1.5	1.5	2.0	0.0	0.5	1.5	3.3	vaguely laminated	
45	B	2845.9	+	4.18	14.5	6.8	63.5	12.6	76.1	4.2	16.6	0.0	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8	vaguely laminated	
46	B	2907.5	‖	4.02	13.2	10.0	77.8	5.6	83.3	4.2	9.7	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2	vaguely laminated	
47*	B	2913.6	+	4.12	12.2	14.7	65.7	7.0	72.7	5.0	17.2	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.9	3.1	vaguely laminated	
48	B	2913.6	‖	4.60	14.1	14.7	65.7	7.0	72.7	5.0	17.2	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.9	3.1	vaguely laminated	
49	B	2918.2	‖	3.77	12.0	14.2	63.6	9.1	72.7	4.5	22.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	vaguely laminated	
50	B	2929.1	+	3.94	12.3	9.9	67.3	1.7	68.9	12.7	13.4	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	3.1	vaguely laminated	
51	B	2929.1	‖	4.31	11.8	9.9	67.3	1.7	68.9	12.7	13.4	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	3.1	vaguely laminated	
52	B	2932.8	‖	4.37	15.4	9.8	69.3	5.0	74.3	14.9	8.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	1.5	vaguely laminated	
53	C	2609.1	+	2.56	26.1	26.0	56.8	2.0	58.8	13.5	17.6	3.4	4.1	0.0	0.0	0.0	0.0	0.0	1.4	0.0	1.4	3.1	laminated	
54	C	2609.4	+	2.57	25.5	29.5	57.4	3.5	61.0	9.2	22.7	2.8	2.1	0.0	0.0	0.0	0.0	0.0	0.7	0.0	1.4	3.0	massive	
55	C	2661.5	+	3.12	21.5	25.5	51.0	2.7	53.7	7.4	18.8	16.1	3.4	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.1	well laminated	
56	C	2661.5	‖	2.68	24.3	25.5	51.0	2.7	53.7	7.4	18.8	16.1	3.4	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.1	well laminated	
57	C	2663.3	+	2.59	26.0	22.5	43.2	3.9	47.1	11.0	22.6	11.6	1.3	6.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	vaguely laminated	
58	C	2736.2	+	2.59	21.9	17.5	46.1	10.9	57.0	13.3	18.2	9.7	0.1	0.1	0.0	0.0	0.0	0.0	0.6	0.0	1.0	2.8	laminated. minor burrows	
59	C	2736.2	‖	2.79	22.5	17.5	46.1	10.9	57.0	13.3	18.2	9.7	0.1	0.1	0.0	0.0	0.0	0.0	0.6	0.0	1.0	2.8	laminated. minor burrows	
60	C	2742.3	‖	2.97	25.9	17.5	50.9	1.8	52.7	8.5	14.5	23.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	laminated	
61	C	2742.9	+	3.14	24.3	16.0	39.3	1.2	40.5	11.9	18.5	10.7	16.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	3.1	laminated	
62	C	2745.0	+	2.78	27.7	29.5	48.2	12.1	60.3	10.6	18.4	9.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	3.2	massive	
63	C	2747.8	+	2.59	29.6	24.5	50.3	7.9	58.3	15.2	15.9	9.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	3.4	laminated	
64	C	2777.9	+	2.74	25.1	25.0	53.3	5.3	58.7	15.3	14.0	10.7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	3.2	laminated	
65	C	2779.8	+	2.78	25.6	15.1	47.1	11.2	58.3	16.5	19.4	4.1	0.6	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.5	3.1	vaguely laminated	
66	C	2783.4	+	2.90	26.2	20.5	52.2	6.9	59.1	11.9	19.5	9.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	laminated	
67	C	2787.1	+	2.58	28.0	14.0	44.8	14.0	58.7	12.8	15.1	10.5	0.0	1.7	0.0	0.0	0.0	0.0	0.6	0.0	0.6	3.1	laminated	
68	C	2787.4	+	2.56	23.4	15.0	48.2	2.9	51.2	15.9	18.8	13.5	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.5	3.1	massive	
69	C	2449.1	+	2.82	20.1	16.4	29.9	3.0	32.9	11.4	32.3	9.7	12.6	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	2.2	massive	
70	C	2450.6	+	2.40	19.1	18.5	28.8	0.6	29.4	13.5	38.0	3.7	15.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	vaguely laminated	
71	C	2451.5	+	2.06	19.9	13.0	17.2	0.1	17.4	3.4	60.9	6.9	7.5	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.5	2.2	well laminated	
72	C	2451.5	‖	2.09	20.7	13.0	17.2	0.1	17.4	3.4	60.9	6.9	7.5	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.5	2.2	well laminated	
73	C	2452.7	+	2.11	20.1	22.5	23.9	1.9	25.8	13.5	48.4	5.2	5.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	1.3	2.0	well laminated	
74	C	2453.3	+	2.18	21.5	14.5	20.5	0.6	21.1	10.5	44.4	1.8	14.6	7.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	massive	
75	C	2453.9	+	2.50	23.0	17.0	31.9	0.1	32.0	11.4	38.0	2.4	7.8	5.4	0.0	0.0	0.0	0.0	0.0	0.0	2.9	2.0	laminated	
76	C	2455.5	+	2.42	19.6	8.5	31.1	0.5	31.7	14.2	37.2	9.3	6.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	2.3	massive	
77	C	2455.5	‖	2.42	18.8	8.5	31.1	0.5	31.7	14.2	37.2	9.3	6.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	2.3	massive	
78	C	2737.4	+	2.60	17.9	2.0	35.2	3.1	38.3	10.2	13.8	36.2	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.9	3.4	burrowed	
79	C	2737.4	‖	2.82	17.9	2.0	35.2	3.1	38.3	10.2	13.8	36.2	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.9	3.4	burrowed	
80	C	2767.3	+	3.09	15.7	15.8	48.1	3.6	51.7	10.1	11.9	26.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.1	burrowed	
81	C	2777.3	‖	2.88	21.6	18.5	50.3	1.8	52.1	10.4	9.8	25.2	0.1	0.0	0.0	0.0	0.0	0.0	0.6	0.0	1.7	3.0	burrowed	
82	C	2781.6	+	3.01	2.6	2.0	37.3	1.0	38.3	6.6	15.8	3.1	32.2	3.5	0.0	0.0	0.0	0.0	0.5	0.0	0.0	3.0	laminated	
83	M	4613.5	+	3.91	15.3	8.0	50.5	3.8	54.3	9.8	5.4	24.5	0.0	0.0	1.6	1.1	1.1	0.5	0.0	0.0	1.6	3.3	massive. burrowed	

Table 1. Thermal conductivity, porosity, and petrographic data. Column abbreviations and units: ID 1 = unique sample number; ID 2 = Well ID (shown in Figure 1); depth in meters;

orientation of measurement with + meaning perpendicular to bedding and || meaning parallel to bedding; measured effective thermal conductivity (l) in W/m/K; porosity as measured in a saturation vessel (fsv) in percent of bulk rock (%b); porosity as measured in thin section (fts); quartz grains (qtz) in percent of solid component (%s); qtz cement (qtz cmt); quartz grains plus qtz cement (qtz+cmt); feldspar (fsp); rock fragments (rf); clay; calcite cement (cal cmt); analcime (ana): mica (mic); minor clay clasts (clay cla); siderite/ankerite cement (sid/ank); pyrite (pyr); TiO2 (Ti); unidentified minerals (unid); grain size in phi units; and a description of the sedimentary structures.

Clean WILCOX SANDSTONES (quartz > 35%, clay < 25%, calcite < 20% of solids; n = 52; ID # 1-52)

Clean, quartzose FRIO SANDSTONES (quartz > 35%, clay < 25%, calcite < 20% of solids; n =16; ID # 53-68)

Clean, quartzose FRIO SANDSTONES (quartz < 35%, clay < 25%, calcite < 20% of solids; n = 9; ID # 69-77)

Muddy, quartzose FRIO SANDSTONES (quartz > 35%, clay > 25%, calcite < 20% of solids; n = 4; ID # 78-81)

Calcite-rich, clean, quartzose FRIO SANDSTONE (quartz > 35%, clay < 25%, calcite > 20% of solids; n = 1; ID # 82)

Muddy WILCOX SANDSTONE (quartz > 35%, clay > 25%, calcite < 20% of solids; n = 1; ID # 83)