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Table 2.--Summary of usability tests for clay samples in the Pine Ridge Indian Reservation, S. Dak. (Continued)

Sample No.	Constituents (percent; tr., trace)										Properties											Test bricks				Pottery															Bloating	Potential use
											Raw				Slow fired											Unfired									Fired (2000°F)						
	Montmorillonite	Mixed layer clay	Illite	Chlorite	Kaolinite	Quartz	Feldspar	Calcite	Zeolite	Glass	Working (p, plastic; s, smooth; f, fatty; g, gritty; m, mealy; st, sticky; sh, short; v, very)	Water of plasticity (percent)	Drying defects (* must be dried slowly)	Shrinkage (percent)	Firing temperature (°F)	Hardness	Shrinkage (percent)	Porosity (percent)	Specific gravity	Firing temperature (°F)	Shrinkage (percent)	Porosity (percent)	Specific gravity	Water (percent)	Workability	Smoothness	Displacement	Water acceptance	Wet strength	Dry strength	Drying characteristics	Shrinkage (percent)	Shrinkage (percent)	Absorption (percent)	Color		
(F)$_{70}$ Sand$_{30}$	----	----	----	----	----	----	----	----	----	----	----------	-----	--------	----	------	----------	-----	-----	----	1900 2000	3.3 3.6	8.6 7.9	2.62 2.61	32	Good-----	Smooth--	Excellent-	Good--	High----	High---	Good-	15	4.7	1.6	Red---	----------	Excellent pottery.
13-2 (G)	45	15	10	----	----	25	5	----	----	----	p, s, f----	41	Slow dry none.	13	1800 2000 2100 2200	Very------ Steel----- Expand---- ---do-----	16.0 18.5 ----- -----	7.9 2.8 .3 52.6	2.51 2.45 1.67 1.71	----	---	----	----	---	---------	--------	----------	------	--------	-------	-----	-----	----	----	------	Slight----	None--shrinkage too high.
(G)$_{80}$ Sand$_{20}$	----	----	----	----	----	----	----	----	----	----	p, s, g-----	29	None----	6	1500 2000 2100 2200 2300 2400	Crumbly--- ---do----- Glazed---- Expand---- ---do----- ---do-----	8.5 10.0 9.0 4.0 ----- -----	14.6 9.1 6.6 15.0 13.1 32.0	2.63 2.54 2.18 2.06 1.69 1.43	----	----	----	----	----	---------	--------	----------	------	--------	-------	-----	-----	-----	-----	------	---------	None--cracks when fired.
(G)$_{60}$ Fla.$_{40}$ [1/]	----	----	----	----	----	----	----	----	----	----	----------	-----	--------	----	-----	----------	-----	-----	-----	----	----	----	----	----	---------	--------	----------	------	--------	-------	-----	-----	-----	-----	------	---------	-Do.
(G)$_{60}$ Flint$_{40}$	----	----	----	----	----	----	----	----	----	----	----------	-----	--------	----	-----	----------	-----	-----	-----	2050	1.0	16.0	2.43	----	---------	--------	----------	------	--------	-------	-----	-----	-----	-----	------	--------	
2-8 (H)	40	25	15	----	----	15	5	----	----	----	sh, f, m---	40	None-----	4/ 5.5	1800 2000 2100 2200	Fair------ Steel----- Glazed---- Expand----	12.5 19.0 ----- -----	14.3 3.2 .1 1.82	2.43 2.37 1.91 ----	----	---	-----	---	----	---------	--------	----------	------	--------	-------	-----	-----	-----	-----	------	Slight----	None--shrinkage too high, cracks when fired.
18-1 (I) [2/]	25	40	20	-----	-----	10	tr.	(2/)	(2/)	(2/)	p, s, f----	57	Must dry slowly.	15.5	1800 2000	Steel----- Expand----	22.0 -----	.9 31.4	2.33 1.57	----	----	-----	---	----	---------	--------	----------	------	--------	-------	-----	-----	-----	-----	------	Negative-	None--oil bleach test negative.
2-10 (J)	10	15	15	----	----	15	15	----	----	30	sh, g------	32	None----	2.0	1800 2000 2100 2200	Crumbly--- ---do----- Steel----- Expand----	5.5 11.5 17.0 -----	27.8 13.6 1.4 2.4	2.49 2.48 2.20 1.34	----	----	-----	----	----	---------	--------	----------	------	--------	-------	-----	-----	-----	-----	------	Negative-	None.
19-1 (K) [3/]	10	10	5	----	----	5	tr.	----	25	45	----------	-----	--------	----	1800 2000 2100	Fair------ Hard------ Expand----	14 20 14	-----	-----	----	---	-----	---	----	---------	--------	----------	------	--------	-------	-----	-----	-----	-----	------	---------	
17-4 (L) [3/]	45	15	10	----	----	10	5	5	10	----	----------	-----	--------	----	1800 2000 2100	Fair------ Hard------ Expand----	17 22 10	-----	-----	----	---	-----	---	----	---------	--------	----------	------	--------	-------	-----	-----	-----	-----	------	---------	
16-2 (M) [3/]	30	25	15	----	5	25	tr.	----	----	----	----------	-----	--------	----	1800 2000 2100 2200	Hard------ Steel----- Expand---- ---do-----	15 17 12 5	-----	-----	----	---	-----	---	----	---------	--------	----------	------	--------	-------	-----	-----	-----	-----	------	---------	
17A-1 (N) [3/]	30	10	15	----	----	15	5	20	5	----	----------	-----	--------	----	1800 2000 2100	Hard------ ---do----- Melt------	13 16 ----	-----	-----	----	---	-----	---	----	---------	--------	----------	------	--------	-------	-----	-----	-----	-----	------	---------	
24-1 (O) [3/]	20	20	15	5	tr.	30	10	----	----	----	----------	-----	--------	----	1800 2000 2100	Fair------ Hard------ Glazed----	14 17 17	-----	-----	----	---	-----	---	----	---------	--------	----------	------	--------	-------	-----	-----	-----	-----	------	---------	
3-2 (F) [3/]	----	20	15	----	35	30	----	----	----	----	----------	-----	--------	----	1800 2000 2100 2200 2300 2400	Fair------ Hard------ Steel----- ---do----- Glazed---- Expand----	11 14 16 17 16 12	-----	-----	----	---	-----	---	----	---------	--------	----------	------	--------	-------	-----	-----	-----	-----	------	---------	Good pottery with sand added.
(F)$_{60}$ Sand$_{20}$ [3/]	----	----	----	----	----	----	----	----	----	----	----------	-----	--------	----	1800 2000 2100 2200 2300 2400	Fair------ Hard------ Steel----- ---do----- ---do----- Expand----	6 11 12 12 12 10	-----	-----	----	---	-----	---	----	---------	--------	----------	------	--------	-------	-----	-----	-----	-----	------	---------	
(F)$_{70}$ Sand$_{30}$ [3/]	----	----	----	----	----	----	----	----	----	----	----------	-----	--------	----	-----	----------	-----	-----	-----	1900 2000	2.9 3.0	9.6 9.2	2.69 2.69	31	Excellent-	Smooth--	Excellent--	Good--	High----	High---	Good-	12.5	4.0	5.0	Red----	----------	
(F)$_{50}$ (N)$_{50}$ [3/]	----	----	----	----	----	----	----	----	----	----	----------	-----	--------	----	1800 2000 2100	Hard----- ---do---- Steel----	10 11 14	-----	-----	----	---	-----	---	----	---------	--------	----------	------	--------	-------	-----	-----	-----	-----	------	---------	

1/ Florida clay is 90 percent fine sand and 10 percent clay.

2/ Five percent cristobalite.

3/ Data for slow-fired properties of samples K, L, M, N, O, and P were obtained by the writer from test pieces supplied by the Bureau of Mines.

4/ The value of 5.5 percent for shrinkage, although confirmed by the Bureau of Mines, seems inexplicably low for such a montmorillonitic sample.