

TABLE 3—(Continued)

	MEDINA COUNTY				NUECES COUNTY												
Min. Tech. Lab. No.	60217	60218	60219	60220	60286	60287	60288	60289	60290	60291	60292	60293	60294	60295	60296	60297	
Field locality No. ^a	1A	1B	1C	1D	1	2	4	6	7	8	9	10	11	12	13	14	
Free lime (carbonates)	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive	Positive	
Benzidine test	Faint blue	Faint blue	Faint blue	Faint blue	Slight greenish blue	Slight greenish blue	Slightly greenish blue	Slightly blue	Slightly blue	Slightly blue	Slightly blue	Slightly blue	Slightly blue	Slightly blue	Slightly blue	Slightly blue	
Color (air-dried)	Greenish dark buff	Greenish dark buff	Greenish dark buff	Greenish dark buff	Dark buff	Tan	Buff	Dark gray	Dark gray	Gray	Gray	Gray	Gray	Buff	Buff	Gray	
Oil absorption—																	
Calcare 450°C	Slow	Slow	Slow	Slow	Medium	Medium	Medium	Fast	Medium	Medium	Medium	Medium	Medium	Medium	Slow	Medium	
Air-dried	3.29	3.70	3.55	3.05	6.69	6.59	5.53	5.11	4.18	7.03	6.44	6.19	4.46	6.57	6.48	4.02	
Moisture (H ₂ O-) (%)																	
Ignition loss—																	
300–600°C (%)	5.74	5.12	4.90	4.90	3.94	3.91	2.78	4.68	5.50	4.61	5.00	4.43	2.60	2.79	9.28	7.80	
105–1050°C (%)	13.38	10.60	10.89	12.10	9.35	9.99	5.93	8.45	8.58	7.96	9.06	7.06	4.40	4.63	11.82	11.67	
Water of plasticity																	
(Atterberg test)—																	
Average (%)	62	71	69	63	57	60	67	52	51	78	73	69	41	66	97	57	
Difference (%)	69	65	59	47	63	69	61	57	55	93	89	83	42	74	96	63	
Swelling test (percent increase in volume)—																	
In distilled water	144	121	126	104	125	109	63	109	157	157	141	272	95	245	447	125	
In salt water	109	108	96	79	100	86	45	59	81	83	87	91	67	91	108	85	
Slaking test (–100 mesh) (%)	58	67	62	80	28	21	4	25	26	37	39	40	74	41	39	24	
Bloating test: 10 minutes at—																	
2000°F	....	....	....	....	Negative	Negative	....	....	....	....	Negative	Positive	....	....	Negative	....
2200°F	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
2400°F	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Yield of 15 cp. drilling mud (bbl. per ton)—																	
Untreated	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Treated with soda ash	....	....	....	....	....	....	....	....	....	Very low	Low	Low	....	49	Very low	....
pH value	8.6	8.4	8.5	8.7	8.1	8.1	9.0	9.6	9.6	9.6	9.6	9.4	8.9	9.1	9.2	9.5	
Decolorizing efficiency compared to AOCS official clays—																	
Natural with natural (%)	....	....	....	....	....	....	....	....	....	Very low	....	....	....	....	30	....
Activated with activated (%)	....	....	....	....	....	....	....	....	....	....	....	....	....	....	49	....
Firing test—																	
Powder—2200°F (1204°C)	Black Fused	Dark brown Vitrified	Tan Sintered	Tan Sintered	Dark brown Fused	Dark brown Fused	Dark gray Fused	Dark buff Fused	Dark buff Fused	Dark brown Fused	Dark brown Fused	Brown Fused	Red brown >Steel hard	Red brown Vitrified	Dark brown Fused	Buff Fused	
2400°F (1316°C)	....	Dark brown Fused	Dark brown Fused	Dark brown Fused	....	....	....	....	....	....	....	....	Dark brown Fused	....	....	....
2600°F (1427°C)	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Disks, ½-inch diameter—																	
(Approx. cone 02) 2000°F (1093°C)	Light brick red	Dark brown Vitrified	Brown >Steel hard	Buff Vitrified	....	....	....	....	....	....	....	....	Brick red Steel hard	....	....	....
(Approx. cone 7) 2200°F (1204°C)	Steel hard	Softened	Dark brown Fused	....	....	....	....	....	....	....	....	....	Dark brown Vitrified	....	....	....
(Approx. cone 15) 2600°F (1427°C)	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Loss on ignition at—																	
105–300°C	1.54	1.54	1.49	1.15	2.75	2.91	2.12	1.91	1.65	2.18	1.79	1.86	1.36	1.49	1.94	1.58	
300–450°C	2.05	2.07	1.86	1.65	1.00	1.81	1.68	1.68	1.79	1.95	1.88	1.93	2.17	2.56	3.47	1.76	
450–600°C	3.69	3.05	3.04	3.25	2.94	2.10	1.10	3.00	3.71	2.66	3.12	2.50	0.43	0.23	5.81	6.04	
600–900°C	5.90	3.89	4.42	5.97	2.66	3.17	1.03	1.86	1.43	1.17	2.27	0.77	0.44	0.35	0.65	2.29	
900–1050°C	0.20	0.05	0.08	0.08													
Neutralization value as CaCO ₃	20.0	14.1	16.9	18.6	11.0	11.4	5.5	11.8	12.7	9.6	12.6	7.8	3.7	3.0	15.9	20.0	

Remarks^b (samples arranged by Min. Tech. Lab. numbers)—

No. 60217 NIIU as a clay ECB. A calcareous clay containing 20.0% carbonates NV.

No. 60218 NIIU as a clay ECB. A calcareous clay containing 14.1% carbonates NV.

No. 60219 NIIU as a clay ECB. A calcareous clay containing 16.9% carbonates NV.

No. 60220 NIIU as a clay ECB. A calcareous clay containing 18.6% carbonates NV. According to the statements received with samples 60217, 60218, 60219, and 60220 these clays are blended and then used for the manufacture of brick. The high lime content of these clays would normally tend to shorten the firing range.

No. 60286 NIIU as a clay. A silty calcareous clay containing 11.0% carbonates NV.

No. 60287 NIIU as a clay. A silty calcareous clay containing 11.4% carbonates NV.

No. 60288 NIIU as a clay. A sandy clay containing 5.5% carbonates NV.

No. 60289 NIIU as a clay. A silty calcareous clay containing 11.8% carbonates NV.

No. 60290 NIIU as a clay. A silty calcareous clay containing 12.8% carbonates NV.

No. 60291 NIIU as a clay. Low oil decolorizing capacity. Low yield of drilling mud. A silty clay containing 9.6% carbonates NV.

No. 60292 NIIU as a clay. Low yield of drilling mud. A silty calcareous clay containing 12.6 % carbonates NV.

No. 60293 Pellets of this clay bloated to an apparent density of less than 50 lbs. per cu. ft. when heated for 10 minutes at 2200°F. This material should be further tested by a specialized laboratory as a raw material for lightweight concrete aggregate. Low yield of drilling mud.

No. 60294 NIIU as a clay ECB. A silty clay containing 3.7% carbonates NV.

No. 60295 A silty bentonite capable of yielding 49 barrels of 15-cp drilling mud per ton of clay treated with sodium carbonate. FTR.

No. 60296 A bentonite capable of yielding 54 barrels of 15-cp drilling mud per ton of clay treated with sodium carbonate. FTR. The oil decolorizing capacity after acid-activation is 49% compared with the AOCS official activated earth. Contains 15.9% carbonates NV.

No. 60297 NIIU as a clay. A silty calcareous clay containing 20.0% carbonates NV.

^a See Plate 2 for location.

^b The following abbreviations are used:

AOCS= American Oil Chemists' Society.

FTR= Further testing by a specialized laboratory is recommended.

NIIU= No important industrial (or commercial) use.

NV= Neutralization value expressed as calcium carbonate.

ECB= With the possible exception of common brick. Clays containing as high as 20% carbonates have been included in this classification because there are several plants in operation in Texas producing brick from such clays. Normally it is not desirable to use clays containing more than 3% carbonates (U.S. Bureau of Mines Bulletin 565). The presence of excessive carbonates (lime and magnesia) causes undue shrinkage and shortening of the firing range. Closely regulated firing is required to overcome the latter.

15-CF= 15-centipoise.