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Reg. Nos. 998 and 999

THE EFFECT OF FINE CRUSHING OF RAW MATERIALS ON BRICK STRENGTH

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SUMMARY

Material previously crushed to minus one-eighth of an inch was used to prepare finer products for brickmaking tests by semi-dry pressing. Three different methods were used in crushing, and no claims are made regarding the relative efficiency of these methods, although the greatest size reduction was obtained by roll crushing after the addition of tempering water.

Bricks made from these finer materials were stronger, and better in appearance than those made from minus one-eighth materials. Green strength was similar, and the only disabilities noted were very slight warping at 1100°C, and slight adherence of bricks in contact during firing.

DESCRIPTION

Reg. No. 998. Very hard grey Claremont mudstone.

Reg. No. 999. Buff coloured detrital clay and gravel from Claremont.

Blend No. B16. Composite of Nos. 998 and 999, (approximately four parts to five respectively).

PREPARATION AND TESTING

Minus one-eighth of an inch prepared material was further crushed by:—

- (1) Screening on a 10 mesh B.S. sieve, and roll crushing all oversize to pass through.
- (2) Adding 8% tempering water, mixing thoroughly and passing once through high speed rolls without screening.
- (3) Feeding as fast as possible through a disc pulverizer, set with a gap of one-sixteenth of an inch.

Each product obtained thus was sized on 18 and 60 mesh B.S. sieves, and after tempering where necessary, bricks were formed by semi-dry pressing from No. 999 and the blend B16. Partially dried bricks were then fired for six hours at 1100°C.

RESULTS

Material	Per Cent		
	+18 Mesh	-18 +60 Mesh	-60 Mesh
998/1	36½	37½	26
998/2	26	48	25½
998/3	43½	30	26½
999/1	21	36	43
999/2	15½	37½	47
999/3	25	31	44

Material	Per Cent	Strength	
	Total Contraction after Firing	Green	Fired
999/1	1½	Rather poor	Fairly good
999/2	2½	Rather poor	Good
999/3	2½	Rather poor	Fairly good
B16/1	2½	Rather poor	Good
B16/2	1½	Rather poor	Good
B16/3	0	Rather poor	Rather poor