

TR13-176-177 23. R. 562

WYNYARD BRICK COMPANY

Samples

The following materials were supplied by the Wynyard Brick Company:—

1. King's clay.
2. King's clay containing some overburden.
3. Marshall's clay (in current use).
4. Calder Road sand.

The King's clay came from a newly opened pit near Wynyard aerodrome.

Investigation

Various mixtures of the above materials were made and pressed into specimen bricks. All mixtures processed well, showing no signs of laminating, and were readily ejected from the mould. After marking for shrinkage measurements, the sample bricks were air dried for one week and then fired at 800° C. with a four hour soaking at this temperature.

Results

Material (1) King's clay. Air dry shrinkage of 3 per cent, with no further shrinkage on firing. Brick has a pinky white appearance, and good mechanical strength.

Material (2) King's clay containing overburden. Air dry shrinkage 2 per cent, with no further shrinkage on firing. Appearance and strength as for (1). These two materials differ in one respect, that is, the overburden causes some edge crumbling of the air dried brick.

Mixture (1) 50 per cent King's clay plus 50 per cent Marshall's clay. No significant difference from material (1) except dry shrinkage only 2 per cent.

Mixture (2) 50 per cent King's clay containing overburden, plus 50 per cent Marshall's clay. Similar to material (2) in all respects.

Mixture (3) King's clay plus 25 per cent sand. Air dry shrinkage 2 per cent with no further shrinkage on firing. Somewhat darker pink colour, but no mechanical strength whatsoever.

Mixture (4) King's clay containing overburden plus 25 per cent sand. As for mixture (3) in all respects.

Conclusion

The King's clay deposit seems ideally suited for brick manufacture with its good plasticity and low firing range. Incorporation of thinning agents in the form of local clay can be tolerated, but if dilution with sand is attempted, a much higher firing temperature will be required.

Recommendation

It is recommended that King's clay be used alone or with up to 50 per cent of Marshall's clay. Such mixtures should produce good bricks when fired at 800° C.