

Once-Fire Glazes

'Once-fire' is the term given to glazes applied to clay rather than bisque-fired ware. This may seem to be the ideal way to work, especially in this time of rapidly increasing power costs. It works, and is a cheaper and faster way to make pottery. So why doesn't everyone once-fire? The fact is that once-fire glazes are very tricky to get right, and there are a number of reasons for this as described below:

1. Un-fired clay pots may be damaged by handling in the glazing process: Water absorbed by the pot from the glaze will soften the clay, making it difficult to handle. For this reason, once-fire pots are often of a robust design.
2. The moisture absorbed from the glaze can cause the dry clay to swell, which can lead to layers of clay separating and falling off the pot.
3. 'Crawling' is very common with once-fire glazes: This is where the glaze does not adhere to the surface of the pot and 'rolls up' leaving bare patches. This is because the surface of the clay is often dusty, making a barrier between pot and glaze.
4. Pinholes and blisters are often found on once-fire pots. These are caused when combustible matter in the clay produces gasses as it burns away. The gasses penetrate through the glaze disrupting the surface. These gasses would normally have been safely driven off in a bisque firing.
5. Clay will shrink as it is fired, so it is important that the glaze also shrinks at the same rate otherwise the glaze will not bond to the surface of the pot and in some cases can fall off. This could cause considerable damage to kiln shelves and the kiln itself as the glaze melts.
6. In order to get better adhesion to the clay as it shrinks, once-fired glazes will have a high proportion of clay - usually 25% to 50%. This may limit the available range of colours and effects.
7. As with any bisque firing, the early heating ramps must be slow to drive out moisture safely. With once-fired ware it is important to continue the slower heating ramp beyond 600°C, (the point where normally the speed of firing would be increased), in order to allow gasses from combustible matter to leave the pot before being trapped by the glaze sealing off pores in the clay as it melts. A heating ramp of around 50°C per hour from 600°C to 1000°C is recommended.

There are some ready-mixed Once-Fire glazes available which simplify the procedure. They are carefully formulated to match a wide variety of clays. In particular Mayco's Stroke & Coat glazes from Potclays offer a large range with a wide firing temperature span.

Disclaimer: Technical advice

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