

# HOW DO YOU LOW-FIRE?

Success for using today's low-fire  
Earthenware clay bodies and glazes  
(... psst - the Gnome knows!)



Over the past 3 years, there has been a series of changes to low-fire clay bodies due to the raw material industry. The white bodies that we relied on and loved had a primary mineral ingredient 'TALC', which is a magnesium silicate, and fairly common in the mineral world. The one we used was low in iron, producing a very white body and was also a SAFE talc, having a partial shape not relating to health issues. The mine abruptly closed 3½ years ago leading to searching, testing, and reformulating both bodies and glazes to work in the ways you have been accustomed to: in schools for handbuilding, throwing on the wheel, tilemaking, and casting. The challenges have been many and continue as "nothing is the same and everything matters", a quote from Patrick Horsely.

The new talc is safe and the whitest possible, but it is not as white or bright, and it's also (in a non-technical term) "cranky". The new bodies have been greatly reduced in their talc content to improve whiteness and increase pasticity and workability.

## Moist Clay bodies - Georgies ^06 Low-Fire

CC547CT New Wonder White

CC546 Cherry Creek, CC546G Cherry Creek w/Grog, CC546SC Cherry Creek Sculptural

CC553 Vortex

## Casting bodies - Georgies ^06 Low-Fire

CL130CT Blanco

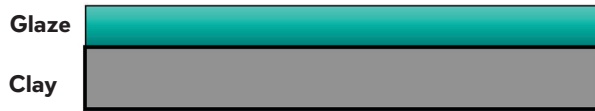
CL130CW Pearl White

We are working on some new "No-Talc" moist clay and casting bodies as well as a Terra Cotta/Vortex casting body. These will hopefully be ready in the early Fall of 2023.

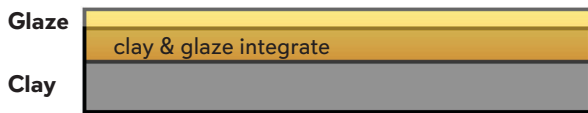
Ceramics has 3 distinct firing ranges (a technical side of ceramics and clay) ... Low-Fire Earthenware bodies differ from Mid-Range Stoneware and High-Fire Porcelain bodies.

Low-Fire bodies are **Bisque Fired** (1st firing) hotter to ^04 (1971°F)  
then **Glaze Fired** (2nd firing) cooler to ^05 (1951°F)

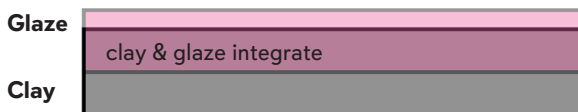
The hotter bisque tightens and strengthens the clay body. Although clay requires a great deal of heat, even with low-fire, these bodies remain fairly open, having low shrinkage (4-8%) and higher porosity rates (9-18%) depending on the unique formula of the body and controlled by the firing.



Low-Fire bisque fired to ^04. Glaze fired to ^05. Glaze only bonds to the body substrate, but does not integrate.



Mid-Range clay bisque fired to ^04. Glaze fired to ^5/^6. Clay body and glazes are interacting and bonding. This interface means that the clay you choose will have a great influence on the outcome of your glaze in fit and color. It also increases the strength of the piece.



High-Fire ^10 bisque is traditionally done at ^06. Glaze fired to ^9/^10. High-Fire will have many variables with the type of glaze firing; oxidation/fossil fuel, gas, wood, or soda/salt and wood. Bisque can be done at ^08, keeping the bisque more open for a greater interface & interaction. The long slow firing cycle, together with a glaze that begins its melt later, allows most impurities from the body to escape and not be trapped in the glaze.

The system for firing every clay range determines a great deal in the success of any given piece. Bisque firing needs to be slow to rid the body of unknown organic materials, as well as the physical and chemically bonded water.

These trapped items, if retained in the ware, create glaze flaws in the second firing.

A proper bisque temperature also assures the correct amount of glaze that the body can support.

Too much (over-application) of a glaze can result in shivering or crawling.

Along with the changes in raw materials and minerals in the past 3 years, we have also seen the loss of Duncan, one of the oldest and largest glaze manufacturers of low-fire glazes in our industry. Duncan sold to Mayco, which has retained a portion of the Duncan line, but where duplications existed, we now have a very similar product in Mayco. Low-fire commercial products have been developed over the years for both ease and dependability. You still need to read and follow directions, understand the product you choose and the limitations it may have.

Mayco has 3 lines of low-fire color, each intended to be applied to ^04 bisque:

**Stroke & Coat** - Originally developed as a hybrid underglaze, this is a highly pigmented glaze that is glossy when fired. Mayco states that it may be used on greenware, but you need to understand the risk of doing so. 1 coat will be translucent, and 2-3 coats will become opaque.

The colors can be mixed for even more options.

Can fire up to ^6, but go to their website to see what happens to the colors at the higher temperatures.

You can choose to use a clear glaze or not with this product. Test to see what you prefer.

**Fundamental Underglazes** - Bright, strong color which can be applied to greenware or bisque. Fires to ^06 - ^10 with a soft matte finish. Apply a clear glaze for a glossy finish. Can be applied to greenware with the first coat being water-thinned as a primer. These glazes like heat! Recommended to fire at ^03-^04.

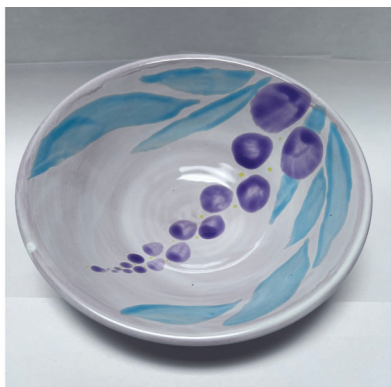
**Foundations Glaze** - Available in different finishes: Gloss (opaque), Translucent (sheer), and Matte. Can be applied to greenware as long as an area is left unglazed to allow for outgassing. Test first!

You can visit our website [www.georgies.com](http://www.georgies.com) for more Mayco glazes including specialty glazes with crystals, crackles, designer liners, and sculpting medium.

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**Amaco** manufactures the oldest line of underglazes called **Velvets**. These can be applied to greenware or bisque, they fire between ^06 up to ^10, and require a clear glaze to become glossy. Apply 2-3 coats for an opaque finish.

Because we get quite a few calls regarding expectations and outcomes, we thought we'd share some results with the variety of Georgie's Low-Fire clay bodies using Mayco's Stroke & Coat and Fundamental underglazes. We bisque fired the clay to ^04, and applied the underglazes and then fired to ^05 with NO clear glaze.



Because these underglazes are opaque with 2-3 coats, a base color such as white can be applied and a design can be added. The 1 coat design shows the painterly brushstrokes.

The white underglaze is rarely, fully opaque. On this Cherry Creek clay body, the high and low points of the texture show through.



Opacity of color and the color of the clay body ... yes, they make a difference!

On the underside of the watermelon dish, the same underglazes were used. The brightness of the color is due to the clay body interaction.



Both the red and green underglazes require higher percentages of pigment, resulting in greater opacity.

Please understand that all colors will not, nor can they be, totally opaque. There are limits to how much pigment can be added to a glaze and have it fit the clay body.

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Some colors melt at different times in the firing and can offer a textural effect ... like the white over the black on the left image.



Texture on a piece will cause a glaze to break. It can be a desired effect, or in the case of clear glazes, they can become milky where they are a bit thick.

Clear glazes need a light hand with application for best results.



Looking for a WOW?  
This is Mayco's Marshmellow Satin glaze with Stroke & Coat applied on top. It creates a depth of texture and color!

### Garden/Lawn Gnome

Cast in Blanco Low-Fire casting slip

Decorated entirely with Mayco Stroke & Coats (no clear glaze applied)

SC33 Fruit of the Vine - jacket

SC74 Hot Tamale - hat

SC14 Java Bean - bag, pipe, & stick

SC20 Cashew Later - skin

SC34 Down to Earth - bag, stick, beard details

SC6 Sunkissed - belt buckle

SC1 Pink-A-Boo - lips

SC16 Cotton Tail - eyes, hair, beard

SC10 Teal Next Time - pants

SC8 Just Froggy - grass

SC7 Leapin' Lizrd - grass highlights

SC9 Jaded - iris

SC15 Tuxedo - shoes, belt, eyelashes & pupil



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