



Beginners Guide: Ceramic Glaze & Underglaze

Important Terms:

Glaze: A liquid. Composed of a mixture of glass-forming materials like silica/frits, along with fluxes and refractory materials such that the glaze becomes a durable, non-porous layer that makes the ceramic item waterproof and food-safe. Normally applied in multiple coats. **Warning:** not all glazes are food safe, so attention to detail matters.

Underglaze: A liquid. Underglazes are heavily pigmented ceramic clay compounds, normally applied by brushwork, to leather hard clay, dry greenware, or fired bisqueware. While similar in consistency to glaze, wet slip or engobe, underglaze is different as it fires like bisqueware and is applied with a brush, in multiple coats to form a final pigmented clay piece. Once fired, they have matte finish, with the hardness and qualities of bisqueware. They can be glazed after firing (NOT before).

Stroke & Coat: A Specialty **Glaze** By Mayco, branded as "WonderGlaze"): Mayco's Stroke and Coat are **NOT underglazes**. These are very versatile **glazes** (cone 06 to 5-6), with some unique qualities for performing very detailed design in glazing. ***Apply and use them exactly as you would a low or mid fire glaze.***

Low Fire (Bisque Fire): Our studio performs kiln low-fire/bisque-fire to Cone 04 (1945 degrees F). Used for firing greenware into bisqueware, as well as firing underglaze and in some cases cone 04 low fire glazes.

Some glazes are formulated for use in a low fire, and are **NOT** to be combined with mid-fire glazes on a ceramic piece. Always know the characteristics of your glaze, particularly when using multiple glazes on one ceramic piece.

Note: low fired ceramic pieces are generally not food safe and are not waterproof (that includes low fired Mayco Stroke&Coat).

Mid Fire: Our Studio performs kiln mid-fire to cone 5-6 (2232 degrees F) Used for final firing of a ceramic piece after a mid-fire glaze has been applied.

Note: Mid fired ceramic pieces are generally waterproof, and with the correct glaze can be food safe as well.

Using Underglaze and Glaze Products:

Use of Underglaze: apply one or more underglaze products when you wish to apply fine detail and/or coloring of a ceramic piece before final glazing. They can be applied to leatherware and greenware, as well as bisqueware. They generally offer you opportunity for fine lines and other detail work not achievable with a firing glaze. If applying to large areas, multiple coats are generally recommended. It is common (but not mandatory) once a piece is under glazed and cone 04 fired, to apply a final clear or translucent glaze and fire to finish the piece. ***ALWAYS fire an underglazed item before applying a final glaze for your final fired finish.***

Use of Glaze: Glazes are applied as the final step in firing and finishing most ceramic pieces, particularly if they are to be used for food or liquids. Typically 3 coats are applied before firing, but some glazes require more coats and some less coats, so always read the glaze supplier recommendations, and make use of test tiles first if in doubt (to avoid spoiling a ceramic piece you have crafted).

Warning: Not all glazes are food and beverage safe, so you must check carefully to ensure a glaze is indeed food/liquid safe, NEVER make assumptions.

*Again - Note: Some glazes are formulated for use in low fire, and are **NOT** to be combined with mid-fire glazes on a ceramic piece. Always know the characteristics of your glaze, particularly when using multiple glazes on one ceramic piece.*

Unlike underglazes, it is extremely difficult to perform fine line or other detail work on a ceramic piece with glazes (the exception being the Mayco Stroke & Coat products, see below).

Note: there are a wide range of different glaze manufacturers and glazes. Some are very well behaved and do not run or blur together. Some will fire translucent and others will fire opaque or will float into unique color patterns in firing. Some are considered serious "runners" and hence pose

*risks of ruining a piece during firing due to sticking to a kiln protection cookie. **Know your glaze before committing to glaze a piece.** It is strongly advised to test a glaze that is new to you with a test piece of ceramic before committing it to a crafted piece.*

Use of Mayco Stroke & Coat Glazes (branded as WonderGlaze by Mayco): If you are an artist who aspires to make watercolor like art or fine art patterns on a crafted ceramic piece, or want very vibrant colors, Stroke&Coat products are a very good option. They can be thinned with water to a watercolor consistency. They can be applied using stencils or applied with a fine needle dispenser to create very detailed lines and art on a ceramic piece. You can apply a single coat for some transparency or multiple coats for an opaque final glaze. You can paint one color over another, and they will generally not blur together, and the top color will be predominant. They are very stable in firing and will not blur and run together. They are designed primarily for low fire (cone 04) use but can be fired mid fire as well. (Mayco includes notes on any color shift if mid fired on each bottle). Note: They are waterproof and food safe ONLY if mid fired to cone 5-6.

Mayco offers a very good guide document on this line of products to assist with a range of artistic uses on ceramic as well as accurate color images for cone 04 firing.

Lastly: if in doubt, consult with one of the studio monitors to understand use, limits of use, and risks of any particular underglaze or glaze you desire to use. ***Studio monitors are available to provide guidance and assistance for you.***