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Ceramic Surfaces

Introduction

From clay we derive form: once that form is created, however, we usually manipulate it in some way in order to enrich the surface. To a degree unmatched by any other artistic medium, we ceramists manipulate both form and surface - it is our job to balance the two as best we can. This is a difficult task, rendered even more difficult by the fact that form and surface in ceramics are almost always created at two separate times using very different methods for creation. The intertwining of form and surface is the engine that drives our medium and gives the best ceramic pieces a tension, a restless energy, and a sense of resolution. In our time, with its emphasis on the experimental and the personal, there is a great deal of interest in the wide range of surfaces open to the ceramist.

No one ceramic surface finish is universally useful or “good.” The rule is, if it meets our needs, it’s good and should be used. Each ceramist’s needs are unique - for one the most desired characteristic will be the ability to withstand the stress of cooking and cleaning, for another, a rich texture or color, and for a third, exciting application possibilities. The potter who wishes to create durable, useful, and easily cleaned vessels will have a very different idea of what constitutes a good surface than the ceramist who wants to apply a complex, highly textured surface on a sculptural nonfunctional form. The ceramist has to give weight to the character of the form, the purpose of the piece, and the nature of the materials and tools at hand. The ceramist can also use the choice of surface finish to convey intangibles, such as adherence to a particular artistic creed. Surface treatments go in and out of fashion; the surface treatment on a piece may follow the current fashion or perhaps be in the advanced guard of contemporary practice. Or it may harken back to a traditional practice or more rarely be completely independent of both fashion and tradition. There is no one standard we can all accept, nor should there be.

Ceramic finishes intended for application to the surface are perhaps the most complex and interesting part of our technology, rooted in our medium’s past and at the same time constantly evolving and shifting direction. Most of our surface finishes are fired and are unique to our medium.

Clay Surfaces

It is possible to leave all or most all of the clay surface showing - free from any application of a surface finish. This is especially appropriate for sculpture or sculptural pottery in which form is at the heart of the piece. An applied surface on a piece of this sort may seem to be an unwelcome distraction. Such simple clay surfaces can also be useful for work with a clay body whose color or texture is interesting enough to require no added coating.

Applied Surfaces

Most ceramic pieces, however, are finished by covering them with a mixture that modifies the surface of the piece. This may be made from paints, which are composed of a colorant and a glue binder that dries in contact with air. Paints do not have the durability of most fired materials, nor do they bond with the clay body as intimately as fired mixtures. On the other hand, they are easily controlled and flexible in use.

Most often, however, the ceramist uses mixtures that are fired on the piece. These create durable surfaces that are tightly bonded to the clay body. Ceramic surfaces are divided into two main types, those which are vitreous or glassy, and those which are nonvitreous and essentially clay-like. The vitreous surfaces are further divided into glazes, vitreous slips and engobes, and the nonvitreous surfaces into washes, slips, engobes, and terra sigillatas.



Paula Winokur, "Segments Erraticus," each segment 22" x 22" x 5", 1999. Three segments of nine. Winokur made these segments with a slab formed, porcelain clay body, unglazed and fired to cone 10. Photo by John Carlano.



Richard Notkin, "Legacy," 1999. Notkin says of this work: "I made the ears from about 50 different stoneware bodies, with all kinds of aggregates mixed in, like sawdust, vermiculite, perlite, chunk feldspar (up to 20 mesh), eggshells, etc. I made these pieces in two-piece press molds (I made the molds from carved clay originals). There are more than 20 different ears, right and left, they range in size from 1" to 24". I tumbled some of the ears with gravel, sand, and water in a cement mixer (with the blades removed) after firing to give them a worn, eroded look. There is no glaze or wash or stain added to any of the surfaces. I fired these at cone 10 in a reduction atmosphere." Courtesy of Garth Clark Gallery, New York City.



Richard Notkin, "Legacy" detail.

Nonvitreous Surfaces

Vitreous means glassy. Some of our most interesting and exciting ceramic surfaces are not glassy. The most common of these are colorant washes, slips, and engobes. Generally these surfaces are not glassy, nor do they run and flow in the fire. Some ceramists use these surfaces under glazes to create imagery that would not be possible using glazes alone. The combination can be used to create an imagery which is quite graphic and hard edged; unlike that from glazes used alone, it will not blur or run. Other ceramists use nonvitreous surfaces as the final finish for the piece. There are times when a normal glassy surface finish is not

quite right. Many pieces don't require the durable, smooth surfaces we get from glazes and don't look well when they are used. The dry, mat surface of an unglazed engobe can be far preferable to the shiny surface of a transparent glaze or even the satin surface of a glaze which is translucent. We have a number of alternatives open to us, surfaces whose character is very varied. We benefit if we are familiar with these alternate possibilities. We should not fall into the trap of using a glaze finish just because "this is the way it is supposed to be done."

Washes

Washes are made from dark-colored clays, stains, or oxide colorants. They are very thin and reveal a great deal of the character of the clay beneath them. They are easy to use and quite durable. Their surface tends to be mat (sometimes with a barely discernible sheen). Their color tends to be darker than the body they are applied to in a manner similar to wood stains. These surfaces work well when used by themselves or in conjunction with other surfaces such as glazes.

Finishing a Piece With Glazes and Washes

This is a very useful method for finishing a piece whose clay surface has been ornamented with intaglio and/or relief imagery. The glaze is used in the interstices of the piece and the colorant wash is then sprayed over its surface. It is an especially useful method for beginners because it is essentially WYSIWYG, meaning what you see before firing is pretty much what you get after the firing is complete.

You Will Need

- Bisque-fired piece whose surface has been modified with scratched, impressed, or relief imagery
- Small amount of glaze(s)



Barbara Frey, "Let's Go Teapot #2," 5¼" x 9" x 3", 1999, cone 6 porcelainous, colored clay body. This piece is on the frontiers of utility/nonutility. It is a working teapot. It has, however, not been created with the intention of use but rather its identity is in the inventive character of its imagery. Photo by Harrison Evans.

- Wash solution
- Sponge
- Sprayer
- Turntable to turn the piece during the spraying process

The Procedure

- If you want the interior of the piece to be glazed, do so at this point.
- Dip a sponge in the glaze and daub the glaze in the interstices created by the intaglio or relief imagery. Allow the glaze to dry for a few minutes.
- Wash off any excess glaze from the surface of the piece, leaving the glaze only in the interstices. Let the piece dry for 30 minutes.
- Place the piece on the turntable and spray the wash solution over its surface.
- Clean the foot of the piece.
- The piece is now ready for firing.

Slips and Engobes

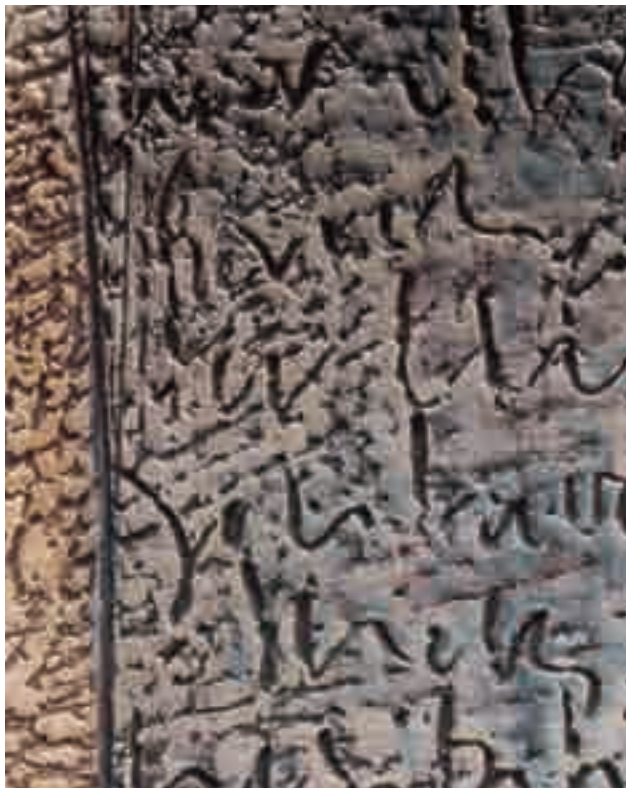
Slips and engobes have little of the flowing characteristics and the active visual textures which distinguish glazes. Both slips and engobes are high-clay formulations. If a recipe has a high proportion of clay, it will have a high viscosity and will not flow and blur during the firing. Furthermore, it will not be marked by visual texture. These characteristics insure that high-clay surfaces look very different from glazes. There is some confusion as to the differences between slips and engobes. Many contemporary ceramists have found it useful to define the two in the following manner. If the clay materials comprise 21% to 50%, it's classified as an engobe; if 51% or more, it's a slip. Engobes, having a higher percentage of nonclay materials, are more refined in character than slips.



Turker Ozdagan, "My Friend Dr. O.," 52" x 18" x 11", 1984. Ozdagan made this piece with a stoneware clay body. Quite often ceramic sculpture requires no glaze. Forms and textures vary a great deal and this alone creates a rich surface. Glazes may cover the clay surface unnecessarily. Furthermore, we identify glazes with the vessel form, unless very carefully handled they may not look "right" on a sculptural form.



Mary Barringer, "Conversation Platter," 9" x 15½", 1999, stoneware clay body. Barringer uses washes to enrich the surfaces of her pieces without shrouding any of the details of the clay surface. She creates these surfaces layer by layer, they are a very important part of the piece and go well with her highly resolved forms. Photo by Wayne Fleming.



Mary Barringer, "Conversation Platter" detail. Photo by Wayne Fleming.

Using Slips and Engobes

Because slips and engobes do not flow in the fire they can be used for complex, graphic images which, if they were painted with glazes, would not survive the firing. To take advantage of the image creation possibilities of slips and engobes, they are generally applied in ways that would be inappropriate for glazes. Brushes are the most frequently used application tool for these surfaces but airbrushes and airbrush and stencil methods are also used a great deal. In fact, any strategy that can be used to create imagery is appropriate for the application of slips and engobes.

Finishing a Piece With a Nonvitreous Surface - Brush Application

You Will Need

- Leather-hard or dry clay piece
- Nonvitreous surface mixture (wash, underglaze stain, slip or engobe, or group of slips or engobes)
- Brush or group of varied brushes
- Turntable to turn the piece during the slip painting process

The Procedure

- Apply the nonvitreous surface(s) to the piece. You may find it useful to vary the size and type of brushes to achieve different brush effects. It can



Kathryn Lawrence, "Drifted," diameter 30 cm, 1999. Lawrence used Jasper slips to create the imagery we see here. These are slip bodies pioneered by the English ceramist Josiah Wedgwood. They contain melting materials that create a durable slip. (Wedgwood used barium as a flux, now different fluxes are used.) The surface is rock-like and the color is rich and saturated.

also be useful to use sgraffito techniques with the slips. The linear imagery of the sgraffito line works well with the brush-applied nonvitreous surface. The engraved sgraffito line contrasts well with the softer brush effects.

- When the piece is completely dry, it is ready for firing.

Applying Glazes Over Nonvitreous Surfaces

Often washes, stains, slips, and engobes are covered with a glaze: this protects their surfaces which otherwise are not as durable as glazes. Furthermore, because nonvitreous surfaces do not run in the fire, they allow for imagery that is difficult to achieve with glazes used alone. You may apply the glaze over the dry nonvitreous surface or fire the piece to bisque and then apply the glaze. The results combine advantages from each surface type.

Finishing a Piece Using Engraved Slip Imagery Covered by a Clear Glaze

You Will Need

- Leather-hard or dry clay piece with light or medium light body color
- Dark-colored slip that contrasts with the body color
- Brush or group of varied brushes

- Sprayer (an atomizer sprayer will work well for most pieces - see page 232)
- Turntable to turn the piece during the slip painting process

The Procedure

- Apply the slip to all or part of the surface of the piece.
- Carve into the surface of the slip using engraving and sgraffito techniques. You will be able to create detailed drawings in the slip using these techniques.
- You now have a choice: you may single fire the piece or use a bisque fire to ready it for the glaze. If using a bisque fire, when the piece is completely dry, fire it to bisque, then glaze the interior and spray the slip painted areas with a coat of glaze and fire the piece to maturity. If using a single-fire procedure, pour the glaze into the interior of the piece while it is still moist. A dry clay piece may break apart when filled with wet glaze.
- While the piece is still moist, pour the glaze into its interior. Cover the interior with glaze and pour out the excess.
- Allow the piece to dry and apply the slip. Allow the piece to dry again.
- Spray the piece with a light coating of glaze and fire it.



Joanne Hayakawa, "Spine," 22" x 6" x 28", 1993-4, made from a stoneware clay body and bones. Hayakawa does not like to shroud her forms and clay surfaces with thick surface coatings so she avoids thick glaze surfaces. Here she has colored the clay with a series of stains and washes. They work very well with the sculptural form.



Nick Starr, “Verdigris Bowl,” diameter 17¼”, low fire vitreous engobes with a very light coating of a clear glaze. The artist states that vitreous engobes give him an excellent level of control over the imagery on his pieces and that he values this greatly.

Vitreous Engobes

Vitreous means glass-like. A vitreous engobe is an engobe with a glaze-like surface: however, it still will have the smooth surfaces and nonflowing character of a normal engobe. The principal behind vitreous engobes is very simple. The refractory quality of these high-clay recipes is offset by powerful melters. Vitreous engobes are hybrid formulations - they look and act like slips. They do not act like glazes, nor do they look very much like glazes, but they do have the shiny surface of glazes. Furthermore, they have much of the durability of glazes. In other words, there are many good arguments for using them.

Like normal engobes, vitreous engobes should contain from 25% to 50% clay. The rest should be frits, feldspars, and fluxes. Make sure these materials encourage strong melts at the firing temperature you are using (for guidance on this see the fluxing power notations in the section on intuitive glaze analysis, pages 222-224).

If these surfaces are applied exactly like glazes they will rarely be successful: their surfaces will seem flat and lifeless. If, on the other hand, they are applied like an engobe or a slip, perhaps with a brush or a painting knife, they are likely to be very lively and successful. (A painting knife is a tool that looks like a miniature trowel used by artists to apply heavy layers of paint.)

The ceramic artist Susanne Stephenson has worked with vitreous engobes for many years. In the essay on page 120 she explains her work with these surface treatments.

Vitreous Engobe Recipes: Cones 04/03

Material	R1	R2	R3
Ferro Frit 3124	38	44	50
Nepheline syenite	12	11	10
Tenn ball clay (OM4)	31	28	25
Flint	19	17	15
	100	100	100

Problems Posed by Slips and Engobes

Slips and engobes (including vitreous slips) are prone to pinholes and crawling. Pinholes are very small openings that appear on the surface of the glaze or engobe and reveal the clay body. They are artifacts of reactions at the height of the fire - openings in the surface that have not melted and healed. They are far less likely to heal in high-clay, vitreous slips and engobes than in glazes because of clay's high