

Vince Pitelka, 2016

Engobes and Underglazes

We have explored slips intended for application to wet or leather-hard clay, and the recipes for such slips are usually very closely related to plastic claybodies. Just as you cannot adhere wet plastic clay to dry or to bisque, those slips do not work well on dry or bisque. **Engobes** are specialized slips formulated for application to bone-dry or bisque-fired wares, and **underglazes** are commercially-made engobes that tend to be very stable and reliable. The nature and performance of an engobe or underglaze lies somewhere between a plain clay slip and a glaze. Except in the case of green-glazing and single-firing, glazes are formulated to be applied to bisque-ware without peeling or flaking during drying or firing. Like most glaze recipes, engobes and underglazes contain higher percentages of non-plastic materials (calcined clay and additional fluxes) that decrease drying shrinkage and create a strong bond with the bisque-fired clay surface during firing. All engobes and underglazes can be used on greenware at any stage, but usually only for slip-painting, sgraffito, and shallow sponged or scraped inlay, and are rarely appropriate for thicker-application techniques. Some engobes and commercial underglazes can be trailed on bisqueware, but if you care to try this, test-fire some sample pieces to see if it works with a certain engobe or underglaze.

Homemade Engobes or Commercial Underglazes?

You can make your own underglazes using the Mason Underglaze Recipe handout, but it is a lot of trouble. Generally underglazes are used in fairly small quantities, and almost invariably, professional ceramic artists who seriously employ engobes or underglazes choose to use commercial products. Commercial underglazes are available in a dizzying spectrum of colors and most give good color stability at all firing ranges.

Amaco Velvet Underglazes

There are many brands of underglazes available, but for the sake of illustration I am focusing on Amaco Velvets, one of the most popular brands. If you are looking at this handout online, click [here](#) to view the PDF chart of Amaco Velvet Underglaze samples fired to cone-05, cone-5, and cone-10. If you're looking at it as a printed handout, go to Amaco.com, put your cursor over "Glazes and Underglazes" in the banner, click on "Underglazes" in the drop-down menu. scroll down and click on "Velvet Underglazes," scroll down to where it says "Velvet Underglazes at Cone 05, 5 and 10," and click on the image to see the PDF. Move your cursor to the lower right corner and click the disk icon to save the PDF to your computer. Note on the sample chart that the brightest colors are achieved at lowfire, but of course you get far greater durability at midrange and highfire. Note that most of the Velvets still give bright colors at midrange, and many do very well at highfire. From these samples, it is easy to see why sculptors who want the very brightest colors choose lowfire, while artists who want a broad palette of underglaze colors but are unwilling to sacrifice durability choose midrange oxidation firing.

Note that half of each sample tile is glazed. In the unglazed half, it is apparent why Amaco calls these underglazes "Velvet." Many ceramic artists choose to use Velvets with no clear glaze over, but of course that is appropriate only on non-food-contact surfaces. Amaco says that all their Velvets are dinnerware safe, and I believe them, but I do not think most users of utilitarian ware would respond well to completely matt unglazed food-contact surfaces.

Effects with Underglazes

- Brush-painted pattern/imagery, glazed with transparent glaze.
- Sponge-stamped pattern/imagery, glazed with transparent glaze.
- Underglazes over removable resist (masking tape, stickers, latex – peel off resist before glazing), glazed with transparent glaze.
- Underglazes applied to relief surface and then sponged off high spots, glazed with transparent glaze.
- Trailed underglaze effects, applied with a slip-trailing bulb or gravity-feed container. Note: as mentioned above, do some test tiles before using this technique on work you care about, because some underglazes work for this while others do not.
- Commercial underglaze applied over a glaze coating (not on food-contact surfaces). The outcome depends on the mobility of the glaze beneath, and on the particular underglaze.
- Underglaze applied to bisqueware in several contrasting-colored layers and sanded or scraped.
- Wax-mishima on glazed bisqueware. Apply a coat of glaze and then a coat of wax resist. Carve/scrape back through the wax and glaze, apply underglaze to the carved/scraped areas, and carefully sponge residue from waxed areas. Dip in clear glaze and sponge away glaze residue from waxed areas. Or, leave with just underglaze in carved/scraped areas as long as it is a non-food-contact surface.
- Wax-mishima with underglaze on leather-hard greenware. Apply wax resist over leather-hard surface (or over colored slip ground dried to leather hard), carve/scrap pattern or imagery. Miniature band-loop trimming tools work great. Apply underglaze to carved/scraped areas, and carefully wipe residue from waxed areas. Apply more wax and repeat if additional pattern or imagery is desired in areas intersecting the previous application.

Keep in mind that underglazes work fine on greenware at any stage from wet to bone-dry. Homemade slips are far less expensive, and a lot of ceramic artists prefer the earthy colors provided by the ceramic oxides, but if you want the breadth of color available with underglazes and happen to have them around, there are certain effects that work very well on greenware. For example, the technique above suggesting applying layers of underglaze and sanding or scraping often works best when the underglaze is applied to greenware, bisque-fired, and then sanded or sandblasted. Also, various inlaying and scraping effects can work very well with commercial underglazes. Look at Lana Wilson's current work to see excellent examples. Using commercial underglazes with the wax mishima technique on leather-hard greenware gives you the advantage of the broad palette of colors compared to the range of slips available in most studios.

Several years ago, a student of mine named Malory Rose did her BFA thesis project about the various branches of her family in the American Southeast. She made vessels representing historic crocks, churns, and jugs, and applied surface imagery using the wax mishima technique. Some of the imagery represented old hand-lettered parchment or faded legal documents, while other was in the form of historical maps, complete with all the symbols, images, and trim we often see on such documents. Still other examples had reproductions of standard USGS topographic maps of the areas of the South where different branches of her family lived. In all cases, the background and detail colors were remarkably true to the actual documents, and the work was all done with Amaco Velvet and Speedball underglazes and a clear glaze, fired to cone-6. A major collector of historic Southeastern "Jugtown" pottery heard about the work, and showed up early at her BFA thesis exhibition and purchased all the best examples. If you like detailed full-color imagery and are not already familiar with the wax mishima technique using commercial underglazes, you are in for a real treat.