JUST PAINT

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Welcome to *Just Paint #32*. Several readers have asked for articles less technical in nature. We hear you and recognize our responsibility to our customers. Our online videos attempt to provide artists with clear directions and approaches to working with our materials. We will continue to provide these resources, reducing the complexity of our materials and how to use them. Visuals for visual artists certainly make sense. *Just Paint* allows our techy side to come out. I hope it continues to be a valuable resource and provides interesting ways for artists to engage with materials.

In this issue, Ulysses Jackson introduces Williamsburg Special Edition Colors while Sarah Sands shares what continues to make this line so unique. We invited Working Artist Kevin Greeland, to share insights on using OPEN Acrylics for monoprinting. The introduction of QoR© Watercolor has raised questions about their lightfastness. Sarah Sands shares how ASTM standards work and lightfastness studies we are doing to bring some pigments into conformance. Issue 32 also gives us a chance to thank many *Just Paint* readers for responding to an email survey we sent on the issues of whether Cadmiums will remain on the artist's palette in Europe. Ben Gavett, Regulatory Affairs Director, updates us on where this issue stands. Continuing the tradition of highlighting each of our Materials Support staff, I share my interview with Stacy Brock. Debuting a new series, Amy McKinnon highlights the historical significance of a specific color in each issue. Finally, with April approaching and a new Artist Residency season, the Golden Foundation announces its third 'Made In Paint' show.

As always, we welcome your feedback and hope it might just ignite the geeky part of your own curious nature.

Warmest regards,
Mark

VERY FINE	FINE	MEDIUM	COARSE
Ultramarine Blue	Cad. Yellow Extra Deep	Sap Green	Italian Pink

A Palette of Textures

By Sarah Sands

"Do you like oil paint?" It's a seemingly, almost deceptively simple question, and one that I use at the start of almost every Williamsburg lecture and demo. It's adapted from an anecdote in *The Writing Life* by Annie Dillard, where a young student, wanting to know if they could become a writer, is asked: "do you like sentences?" The overriding point is that there are many ways to tell stories – from film to comics, from plays to dance – but what ultimately makes a writer a writer is falling in love with the very stuff of their craft; the mechanics of word following word, sentence placed after sentence. Something very similar is true about painters. We become painters at some deep level not out of a love of images – after all, there are many ways to create those. Instead, at some point, we fall in love with the very stuff of our chosen medium. And if that happens to be oils, then our love is with the silky, dense, slippery, and intractable mud we spend our lives trying to master. We fall in love with those materials that speak to our sensibilities and souls; to being lost within the muddle of the mess of it all.

At the heart of Williamsburg is a dialog between a painter and their materials which began some thirty years ago with Carl Plansky's first batches of paint from Milton Resnick's three-roll mill that we still use to this day. It was a conversation baked into the daily feedback loop of piles of freshly made paint being pushed across wide expanses of canvas. In that exploration was a love not just of color but of the very physicality of the paint itself; of color embodied, made thick or stringy, glossy or matte, smooth or coarse. It opened up into a palette of textures as much as a palette of colors. Painting was and will always be as much a tactile experience as a visual one, and that connection is important to hold onto because ultimately it is one of the essential things that makes Williamsburg special.

What follows is a brief overview of how pigments impact paint, and in

particular, how they define a range of textures within the Williamsburg line. Along the way we will also need to touch on history, define terms and take a brief glance at some issues.

Pigment Grinds and History

It all started with the chimps. At least that is where *The History of Grinding* (Lynch, 2005) places the origin story by which we owe not just our flour, chocolate, coal, and metal ores, but of course the very pigments we so lovingly attend to in our studios as paint. From those first primates who could hold a rock and deliver a crushing blow to crack open nuts, to the industrial crushers that break apart mined minerals, the production of fine powders and pastes has always required tremendous amounts of effort and energy. By the time we get to the Renaissance, a general process for making paint is largely in place with small amounts of pigments being hand mulled on an as-needed basis with a variety of binders, in a process that could stretch out over many hours if not days. With an obvious touch of hyperbole, Cennino Cennini even comments in *The Craftsman's Handbook*, about the preparation of vermilion: "If you grind it every day for twenty years, the color would still become finer and more handsome."

During this period artists also developed a very intimate and direct relationship to the making of their products; if not personally, or via an assistant or apprentice, then through a close relationship to the abundance of small color merchants that sprung up prior to the latter 19th century. We know from records, as well as conservation studies, that paint throughout this time was much more individualized and had a much wider range of textures and feels, running from extremely smooth to very coarse.

Probably the watershed moment when paint manufacturing takes a big turn is in the mid to late 19th century when the rise of larger commercial paint companies and mechanical milling machines moved the production of paint further away from the experience of the studio. If initial complaints were that these newer, machine milled paints were too coarse and crude, in just a handful of years they would soon be seen as over milled and far too homogenous. As one went from color to color the very material basis of the paint seemed to recede as the unique characteristics of particular pigments were lost altogether.

Williamsburg

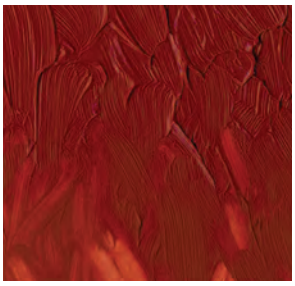
Part of Williamsburg's legacy is a reaching back to just that moment when 19th century artisanal paintmaking gave way to a more industrialized process and to reimagine it from a much more intimate, studio-based perspective. In the right hands of a painter-turned-paintmaker, such as Carl Plansky, the three-roll mill became tied not to efficiencies in process or standardization across a line, but guided by an open exploration into how the various settings and mill passes could help push and keep the range of possible textures and feels at their maximum. The fact of differing sheens and the physical sense of the underlying pigment that sometimes came to the fore were embraced not as distractions from the color, but extension and supplements to it. Color and the physical nature of the underlying pigment were synonymous.

With that legacy firmly in place, the task we face is not simply maintaining those intuitions and dialogs that formed the line in the first place but to constantly keep opening it up to new ranges, such as the Special Edition Transparent Iron Oxides featured elsewhere in this issue.

The Williamsburg Range

Williamsburg paints can be roughly divided into four groupings of different textures created by both the inherent grind of the pigments as well as how the paints are milled.

VERY FINE: Silky smooth, glossy, with little to no hint of texture. Home to most of the colors based on organic pigments such as our Quinacridones, Phthalos, Diarylides, and Dioxazine, as well as various inorganic pigments that are manufactured to very small particle sizes such as Titanium White, Ultramarines, synthetic iron oxides, Prussian Blue, and Lamp Black. The rheology, or feel, can run the gamut from the very long and ropey feel of Mars Red, the soft but still firm body of Ultramarine or Cobalt Blue, all the way to the short, buttery, and dense feel of things like Permanent Crimson or Titanium White.



FINE: While still experienced as smooth, with just a touch less gloss, some sense of pigment starts to be felt even if individual grains cannot be seen. Home to all of the Cadmiums and most of our regular earth colors, like Yellow Ochre, Burnt Sienna, as well as the Umbers, the organic pigments have dropped out for the most part, with Fanchon Red and Indian Yellow being rare exceptions. Other core colors in this group include such well known anchors to the traditional palette as Viridian Green and Cerulean Blue (Genuine).

MEDIUM: A clear and definite feel of the underlying pigment, in the form of texture, starts to be both felt and seen. While we feel 'gritty'is too strong of a description for these, a sense of grain is definitely part of the experience. Most of the colors have a satin or matte appearance. This is where all the imported French and Italian Earths will be found, as well as our particular take on Alizarin Crimson. Other colors like Sap Green or Quinacridone Gold Brown are here mostly as they include these coarser pigments in their mix, giving them a particularly wonderful play between grainy and smooth, dark and bright, that can only come from blending the smooth organic colors in the first groupings with these larger iron oxides.

COARSE: An unusual and small group of colors that define the coarsest and grainiest of our paints. You will not find anything approaching this coarseness elsewhere and they provide an expression of texture that has been a unique aspect of Williamsburg from its earliest days. A mix of small and large particle sizes give these paints an intriguing interplay of light, with very bright shimmering undertones contrasting simultaneously with very dark, gritty, light absorbing masstones. If you are drawn to the smooth undertones in these colors, but need something more suitable for smooth glazes and blends, our newest Special Edition Transparent Iron Oxides, which are based on the same pigments, would be a perfect match.

Coming to Terms

Move even slightly into the world of pigments and powders and you quickly bump up against a handful of basic terms and concepts, which we want to briefly touch on in the sections ahead.

Grind vs Mill

It is habitual to talk about paintmakers 'grinding' pigments, and to think that the goal of the muller or the mill is to literally crush pigment particles into ever finer sizes. But this is not actually the case, and even a powerful mill cannot bring enough force to bear to accomplish that. Rather the sheering action of the pigment paste being sent through the rolls of the mill, or being compressed between the flat surfaces of the muller and glass, is simply to break apart loose clumps of pigments, called agglomerates, that are formed during storage and processing. Referred to as 'milling', this process is quite distinct from grinding, which really only happens at the level of the pigment manufacturer when reducing the raw pigment to a specific size range.

Primary Particles, Aggregates and Agglomerates

As pigments are processed or manufactured they take on different groupings:

• Primary particles are singular grains of crystalline matter but are almost never encountered or seen, not even when squinting closely at the thinnest layer of powder spread out on glass. For the vast majority of pigments they occur below the threshold of human sight, at the extreme sub-micron level, and represent the core building blocks of the pigment's mass.

• Aggregates are a group or cluster of primary particles bound together by powerful chemical and electromagnetic forces and forming a common crystalline structure. For most of us, when we think we are thinking about pigment particles, we are actually thinking of aggregates. These tightly joined particles are incapable of being broken apart during the process of milling paint. To give a dramatic sense of the force that would be required, particles on the scale of .1 microns, such as synthetic iron oxides, Prussian Blue and Quinacridones, would require 105 times the accelerative force of gravity (32 ft/s^2) to pull them apart. That would equal an astounding 3,215,223 ft/s^2, well more than four times the accelerative force of a bullet fired from a typical rifle! Not exactly a doable proposition on a three-roll mill, or any other equipment a paint manufacturer might have laying around. For all intents and purposes, the particles at this scale are irreversibly fused together.

• Agglomerates, on the other hand, are loosely associated groups of primary particles and/or aggregates joined at their corners and edges, making them relatively easy to break apart and disperse. In fact, when talking about dispersing a pigment, and reducing particle sizes in the process, what one is really talking about is the breaking up of agglomerates, which allows for a fuller and more efficient wetting of the pigments. And unlike aggregates, agglomerates represent an area where paintmakers can exert much more control over the final feel of the paint, with mill settings and the number of passes deciding just how much they are broken down.

The Impact of Particle Size

Particle size is one of the single most important physical properties of any pigment, impacting almost every aspect of how paint feels and performs. A large part of what drives that is the simple fact that the smaller a pigment becomes, the more its surface area grows exponentially. As a thought experiment, imagine having a one inch cube of some mineral and brushing a thin layer of oil over the entire surface. If we then cut the cube in half, additional oil would be needed to coat the newly exposed sides. Now imagine cutting these halves in half, and half again, repeating this process until we have a very fine powder. At each step, you would be forced to continuously coat the freshly exposed surfaces with additional oil. But the total volume of the pigment - namely the initial one square inch - has not changed, simply the surface area that is exposed and the increasing amount of oil needed to fully wet it out. The implications of this are huge, however, since each division means there is much more opportunity for the particles to interact with the binder, with each other, and even respond to light in a very different way. What follows is a brief look at some areas where particle size matters.

Oil Absorption

As the immediate thought experiments proved, as pigments get smaller the amount of oil needed to make a workable paint grows dramatically. This means that all the possible chemical interactions between the oil and pigments increase as well, and that impacts drying time, yellowing, and fat over lean issues, to

name just a few. It is also why the oil absorption rate for a specific pigment is typically reported as a range and can vary widely.

Tint Strength

The smaller the particle, the greater the tint strength. This is again linked to the surface area. The one inch cube in our thought experiment would not be particularly effective at tinting a volume of liquid because the majority of its mass is below the surface and does not interact with light. As you reduce the cube into a powder, one is exposing more of its surface to light and so its tint strength, or how much a specific amount of pigment can color a material, will naturally increase.

Opacity/Transparency

Opacity arises mostly from a pigment's ability to absorb or scatter light (the K/S variables of Kubelka-Munk Theory) and confusion arises because we commonly think of those properties as intrinsic to a pigment and operating independently from its particle size. However, as particles move up and down in scale, the way they interact with light, and even which light waves they can interact with, changes. As a simple illustration, consider that a large half inch crystal of titanium dioxide would actually appear completely transparent, but ground to a powder of a certain size it becomes the opaque white pigment we know so well. To add to the mystery, grind it further still, down to a nanoscale range, and the pigment will become increasingly transparent again.

A detailed explanation of what is happening is beyond the scope of this article, but in general, pigment particles scatter light most effectively when their size equals half the size of the dominant wavelength they reflect. Go much below this size, and the pigment will scatter less and less, until finally - if dipping below .2 microns (half the wavelength of the shortest violet light) - it will slowly cease to scatter light altogether and will simply absorb or transmit the light it encounters. This is the "secret" behind transparent synthetic iron oxides, which have extremely small particle sizes, and how they differ from their very opaque cousins, the Mars colors, which have the exact same chemical makeup but possess a larger particle size that is optimized for scattering. It is also why the rougher ground Italian and French Earths will display more transparency as well, since they also move out of this optimized scattering range, and absorbency can again take on increasing importance. Colors like our Stil de Grain and Brown Pink are examples where we use this to our advantage. In these cases, we adjust the mill setting and number of passes to prevent breaking down the clumps of pigments too much, keeping the range of particle size much broader than normal. While this results in a much coarser feel, it introduces a wonderful interplay between the bright transparency of the smaller aggregates and the darker masstone of the larger ones. Bear down with a palette knife while working the paint on a hard surface and one can see the undertone develop and deepen even further as additional agglomerates are broken apart, giving the painter the ability to manipulate this to their advantage.

Viscosity and Rheology

In general as particles get smaller, the thickness or viscosity of paint will increase, which only makes sense. Increased surface area means increased friction, not simply with the surrounding medium but because smaller particles will collide and rub against each other more often. There is also an increase in how tightly the particles can be packed together. However, one must be careful about applying this too rigidly past a simple, idealized model, as there are a host of ways to manipulate and control viscosity in an actual paint formulation. In addition, the chemistry itself of each pigment also contributes to the building of both viscosity and rheology of the resulting paint.

The final measure of these choices of grind, viscosity, color development is successful only to the extent by which they meet each artist's sensibility. The Williamsburg range of colors extends the options for exploration and in the simplest of terms, offers the artist an even wider array of choices. For us as paint manufacturers, this was why we have been so excited by Carl's paint, as artists have shared their enthusiasm with these choices. It has been our delight, not only to make these colors with this diverse palette, but to amplify the range and continue to offer artists even more options.

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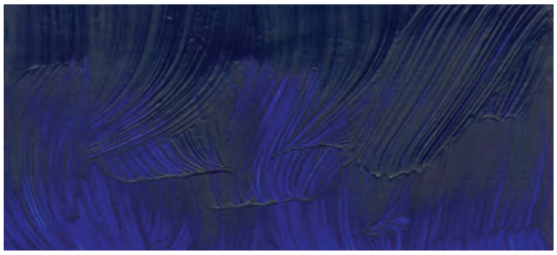
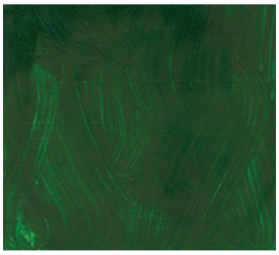
Textures of Williamsburg Handmade Oil Colors






○ VERY FINE		○ FINE	◉ MEDIUM	● COARSE
Alizarin Orange	Permanent Yellow Deep	Brown Umber	Alizarin Crimson	Brown Pink
Brilliant Yellow Extra Pale	Permanent Yellow Light	Burnt Sienna	Alizarin Yellow	Dutch Brown (Transparent)
Brilliant Yellow Pale	Permanent Yellow Medium	Burnt Umber	Bohemian Green Earth	Italian Pink
Carl's Crimson	Persian Rose	Cadmium Green	Brown Ochre	Olive Green
Cerulean Blue French	Phthalo Blue	Cadmium Green Light	Cyprus Orange	Stil De Grain
Chromium Oxide	Phthalo Green	Cadmium Lemon	Earth Green	Van Dyke Brown
Cinnabar Green Light	Phthalo Green-Yellowish	Cadmium Orange	French Ardoise Grey	
Cobalt Blue	Phthalo Turquoise	Cadmium Purple	French Brown Ochre	
Cobalt Blue Deep	Provence Violet Bluish	Cadmium Red Deep	French Burnt Ochre	
Cobalt Green	Provence Violet Reddish	Cadmium Red Light	French Burnt Umber	
Cobalt Teal	Prussian Blue	Cadmium Red Medium	French Cassel Earth	
Cobalt Teal Deep	Quinacridone Magenta	Cadmium Red Purple	French Light Sienna	
Cobalt Turquoise Bluish	Quinacridone Red	Cadmium Red Vermilion	French Noir Indien	
Cobalt Turquoise Greenish	Quinacridone Violet	Cadmium Yellow Deep	French Ochre Havane	
Cobalt Violet Deep	Sevres Blue	Cadmium Yellow Extra Deep	French Raw Sienna	
Cobalt Violet Light	SF Cerulean Blue French	Cadmium Yellow Light	French Raw Umber	
Courbet Green	SF Cobalt Violet Light	Cadmium Yellow Medium	French Rouge Indien	
Dianthus Pink	SF Flake White	Canton Rose	French Terre Verte	
Egyptian Violet	SF Porcelain White	Cerulean Blue (Genuine)	French Yellow Ochre Deep	
Flake White	SF Silver White	Cobalt Yellow	German Earth	
Green Gold	SF Titanium White	Cold Black	Graphite Grey	
Jaune Brilliant	SF Titanium-Zinc White	Davy's Grey Deep	Interference Blue	
King's Blue	SF Ultramarine Blue	Fanchon Red	Interference Green	
Lamp Black	SF Ultramarine Blue French	Indanthrone Blue	Interference Red	
Manganese Violet	SF Ultramarine Pink	Indian Yellow	Interference Violet	
Mars Black	SF Ultramarine Violet	Indigo	Iridescent Bronze	
Mars Red	Silver White	Ivory Black	Iridescent Copper	
Mars Red Light	Spanish Earth	Mars Orange	Iridescent Pale Gold	
Mars Violet	Titanium - Zinc White	Mars Orange Deep	Iridescent Pearl White	
Mars Yellow Deep	Titanium White	Naples Yellow Italian	Iridescent Pewter	
Mars Yellow Light	Turquoise	Payne's Grey	Iridescent Silver	
Montserrat Orange	Ultramarine Blue	Perylene Crimson	Italian Black Roman Earth	
Naples Yellow	Ultramarine Blue French	Raw Sienna	Italian Burnt Sienna	
Naples Yellow Reddish	Ultramarine Pink	Raw Umber	Italian Green Ochre	
Nickel Yellow	Ultramarine Violet	Red Ochre	Italian Lemon Ochre	
Payne's Grey (Violet)	Unbleached Titanium	Red Umber	Italian Orange Ochre	
Permanent Crimson	Unbleached Titanium Pale	Turkey Umber	Italian Pompeii Red	
Permanent Green	Veronese Green	Viridian	Italian Pozzuoli Earth	
Permanent Green Light	Zinc Buff	Yellow Ochre (Domestic)	Italian Raw Sienna	
Permanent Lemon	Zinc Buff Yellow	Yellow Ochre Burnt	Italian Raw Umber	
Permanent Orange	Zinc White		Italian Rosso Veneto	
Permanent Red-Orange			Italian Terra Rosa	
			Italian Terra Verte	
			Italian Yellow Ochre	
			Quinacridone Gold Brown	
			Sap Green	
			SF French Ardoise Grey	
			SF Italian Terra Verte	
			Slate Black	

A variety of OPEN Acrylics are used to create an abstract image on a Gelli™ Plate by painting directly onto the plate in a painterly fashion. High Flow Turquois (Phthalo) was used to create the circles and spheres in the final image. You can also register your plate and pull a ghost print. With each successive print pulled, more and more paint is removed from the plate. Any number of objects can be used to create patterns and various types of textures. There are also plenty of tutorial videos online, each showing its own unique twist.

Monoprinting with OPEN Acrylics – Endless Exploration!

A foray into printmaking using OPEN Acrylics as the primary printing ink and because the possibilities don't stop there, a few experiments with High Flow Acrylics and QoR® Watercolors as inks. This foray is by no means comprehensive, but rather a journey of possibilities and experimentation.

By Kevin Greeland
GOLDEN Certified Working Artist

Our adventure begins with OPEN Acrylics as our "ink." OPEN Acrylics are a line of professional artist acrylics with a uniquely slow-drying formulation. The increased working time of these colors expands their range to include more traditional techniques once only possible with oils. While the formulation is water-based, these paints do not act like any acrylic you may have tried before. Unlike standard acrylics, OPEN Acrylics have the ability to keep moving; they won't quickly lock up or drag. Best in thin applications, OPEN Acrylics are ideal for glazing, shading, wet blending and subtractive techniques. The "stay wet" quality of OPEN makes it a perfect paint for printing techniques; thin layers stay wet longer.

With a longer working time, OPEN Acrylics are a perfect water-based option for printmaking and more comparable to oils in this application. The ease of soap and water cleanup eliminates some of the health and environmental concerns sometimes associated with oil-based inks for printmaking. Available in 80 colors, OPEN Acrylics can be used with either synthetic or natural fiber brushes and provides many more options beyond printing, but since their introduction they have found a unique niche as a Monotype printing ink.

Monotyping is a type of printmaking made by drawing or painting on a smooth, non-absorbent surface. The image created is then transferred onto a sheet of paper by pressing the two together, sometimes with the aid of a printing press. There are a number of non-absorbent matrices used to make monotypes and they certainly can be used with OPEN Acrylics. These include glass and/or plastic supports, but our focus here is mostly on Monotypes using the Gelli™ Plate. The gel printing plate is made of a unique plastic that contains mineral oil. The gel plate will leach a small amount of harmless mineral oil when left sitting on an absorbent surface; the plate is also latex free. To learn more visit www.gelliarts.com.

The monotype process requires that Monotypes can also be created by inking an entire surface and then using brushes or rags to remove ink, creating a subtractive image (i.e. creating lights from a field of opaque color). GOLDEN OPEN Acrylics are ideal for this subtractive process as the paint can stay "wet" for quite some time and is therefore, easily manipulated on the plate surface, Gelli Plate or otherwise.

In the past the inks used were oil-based and in more recent times, came the development of water-based inks. With oil-based inks, the paper may be dry, in which case the image has more contrast, or the paper may be damp, in which case the image has roughly a 10 percent greater range of tones.

Detail of a monotype pulled from a Gelli Plate.

These remain rather true using OPEN Acrylics as well. Dry printing gives the greater contrast. Using an atomizer to dampen the paper before printing with water gives the image a slightly greater range of tones and can vary to a more dreamy quality depending on the amount of water on the surface of the paper. Also for further consideration, try experimenting using OPEN Thinner to dampen the surface of the paper, which has a tendency to "wisp" out the finer lines, giving a certain kind of airy, dreamy quality to the print. While water is a common medium for reducing the viscosity of a standard acrylic paint, water works very aggressively with OPEN paints. Using OPEN Thinner is a better choice when a more fluid viscosity for this painterly approach is desired.

Mentioned before, Monotyping produces a unique print, a "monotype", because most of the ink is removed during the initial pressing. Although subsequent reprints are sometimes possible, they differ greatly from the first print and are generally considered inferior. A second print from the original plate is called a "ghost print" or "cognate". Stencils, watercolors, brushes, and other tools are often used to embellish a monotype. Monotypes are often spontaneously executed and with no preliminary sketch.

Furthermore, monotypes are the most "painterly" method among printmaking techniques, a unique print that is essentially a printed painting. This is what a Gelli Plate print truly is. The principal characteristic of this medium is found in its spontaneity and its combination of printmaking, painting, and drawing media. One advantage of the Gelli Plate over a traditional copper or zinc plate is the transparency; this allows you to place a reproduction or an original drawing under the plate as a guide. Just remember that you are working in reverse so what's painted on the right side of your plate will appear on the left side of your print/paper. You can correct this by selecting 'mirror image' on some copiers or 'rotate image' in Photoshop®. If you're working abstractly or free form it may not be a concern. Simply use OPEN to paint onto the surface of the Gelli Plate, cover your image with suitable paper and rub with even, moderate pressure to transfer the paint from plate to paper. There are a number of options available to both the painter and printmaker with Gelli Plates. One option is that of collage or faux Chine-collé. Chine-collé is a printmaking technique where lightweight paper is adhered to heavier printmaking paper as it's passed through a press with an inked plate. The result is a print on a collage. With the Gelli Plate this can be achieved by using GOLDEN Soft Gel or Matte Medium to glue your image to the paper first and then printing on the collage image. There is also room for experimentation with GOLDEN High Flow on the Gelli Plate because they remain wet a little longer than traditional Fluids Acrylics. They can be used in conjunction with OPEN Acrylics. All GOLDEN products work together as part of an Acrylic System.

A colored pencil drawing can act as a template under the Gelli plate since it is transparent.


A Chine-collé, combining the element of collage with printmaking using GOLDEN Soft Gel and OPEN Acrylics.

Monoprinting is a form of printmaking that uses a matrix such as a woodblock, litho stone, or copper plate, but produces multiple impressions that are unique. Multiple unique impressions printed from a single matrix are sometimes known as a variable edition (i.e. ten prints pulled from a zinc plate). There are many techniques used in monoprinting, including collographs and hand-painted additions, and a form of tracing by which thick ink (OPEN Acrylics) is laid down on a plate or table and rolled out. Paper is then placed on the ink and the back of the paper is drawn on, transferring the ink to the paper. Traditional printmaking

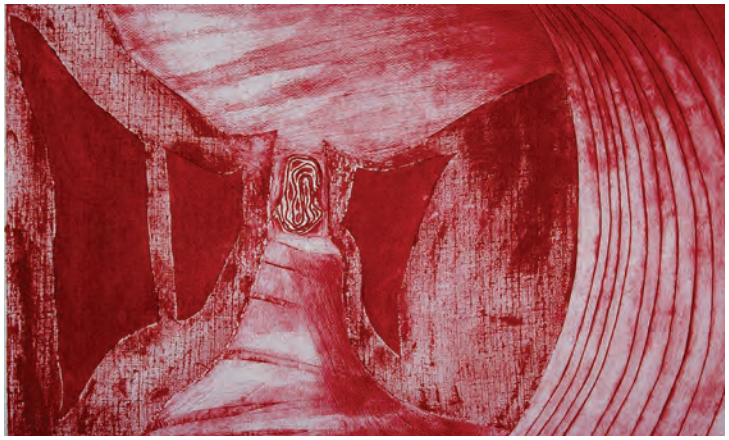
Inking copper and zinc plates with OPEN Acrylics requires a little practice to perfect the wiping technique. On the left side of the image the final print is mounted to a wood panel using Soft Gel and then several thin coats of "acrylic encaustic" were added.

techniques such as lithography, woodcut, and intaglio, can be used to make monoprints.

Monoprints can also be made by altering the type, color, and viscosity of the ink used to create different prints. Again, using OPEN Thinner in varying amounts with OPEN Acrylics can change the viscosity of the "inks". In general, you will achieve a more ink-like substance if you permit the OPEN Acrylics to sit out for a full day in the studio before using them. I've found this stiffening process to be beneficial in achieving that desired ink-like consistency, but this is not necessary for Monotyping in the more painterly technique described in the previous paragraph.

Regarding inking the plates – in some sense, not as much OPEN paint needs to be applied as with traditional inks. The old adage, "a little goes a long way," applies here. In terms of wiping down the plates before printing, traditionally this is much like an intaglio wiping process, however you'll need to adapt the wiping technique. Since OPEN Acrylics are water-based, they don't react the same way to wiping as petroleum based inks. The trick to printing here with a Monoprint style plate and OPEN paint is to combine intaglio-wiping methods with a more Monoprint approach. Traditional wiping is done with a tarlatan, a very absorbent cotton cloth, which is slightly too absorbent for OPEN, so it tends to wipe too much OPEN off the plate. Wrapping the tarlatan in a shell of tulle can solve this problem. The tulle is nylon netting and less absorbent than cotton tarlatan. Also the plastic nylon packaging for potatoes and onions works well as a shell, and then placing inside this nylon shell, a sheet of Brawny Dine-A-Cloth®. Try varying combinations to see what works best for you. Using these methods reduces the problem of wiping too much OPEN paint from the plate and this can also be used to your advantage by selectively drawing into the plate using cotton swabs and small daubers constructed from the Brawny Dine-A-Cloth.

As you can see, there is a tremendous amount of experimentation that can take place when creating both Monotypes and Monoprints. There are some water-based printmaking inks on the market today that use Gum Arabic as the base binder. With the introduction of GOLDEN QoR® Modern Watercolor using Aquazol® as a binder, I started to ponder the new potential of QoR as a printing ink. Think of the possibilities of working with OPEN alone on a Gelli Plate or in combination with QoR in any number of combinations of Monotype or Monoprint techniques. The possibilities for your journey into printmaking with GOLDEN's contemporary materials are endless – take the first step and twist off a cap to begin your adventure!



A Collograph print created from a textured bas-relief plate, constructed like a collage. The plate is "inked" with Open Acrylics and the image is transferred to paper with the aid of a hand baren.

New Special Edition Colors from Williamsburg

By Ulysses Jackson

Williamsburg Handmade Oils announces the release of five Special Edition colors that continue to expand the range and options for oil painters. As mentioned previously in this edition of *Just Paint*, Williamsburg is proud to have one of the broadest variations of pigment grinds available in artist oil paints. This allows artists to determine what paint qualities work best for their needs. Additionally, control of grind allows us as paintmakers to honor the unique personalities evident in each pigment. It was our intention with these new Special Edition colors to further develop particular aspects of a few pigments, focusing on inherently small particle sizes, deep masstones and rich undertones.

Intense Black* (6001782 – PBk7, PBr7) is a joy to reintroduce; a very finely ground color which Carl Plansky described as, "the absolute blackest black, like looking into a black hole." Some may remember this color, which has been absent from the Williamsburg line for a number of years. However, with the incorporation of the smallest amount of an earth color to assure consistent drying, we can debut this color anew. Intense Black, being a fine particle size Carbon Black, offers very jet masstones and super strong cool, gray tints. * *Temporarily Unavailable*

Transparent Yellow Iron Oxide (6001920 – PR42) could also have been called Stil De Grain (Fine). With this version, as well as the four other special edition iron oxide colors, we are utilizing the same pigment from the standard Williamsburg product but processing the pigment particles further, bringing the glazing ability of these colors to the forefront. Williamsburg Transparent Yellow Iron Oxide is a color that offers interesting qualities as both a body color, or in smooth translucent glazes. When extended with Medium, Transparent Yellow Iron Oxide contains tones similar to those of light yellow amber. It has a dark yellow brown masstone and the tint is a clean orange, trending toward that of light ochre pigments.

Transparent Orange Iron Oxide (6001921 – PY42, PR101) is based on Williamsburg Italian Pink with a fine grind. It is created by blending two separate synthetic iron oxide pigments to produce a very deep red-orange masstone with a satin finish. This material offers rich orange-red glazes and slightly yellow biased red tints.

Transparent Red Iron Oxide (6001922 – PR101) is a finer version of Brown Pink. It presents a masstone that is a very deep reddish brown, with a moderate even gloss. When let down using medium, it offers smooth, red tones reminiscent of stained cherry wood. Transparent Red Iron Oxide, when mixed with white offers a wide range of bright pink flesh tones.

Transparent Brown Iron Oxide (6001923 – PR101) finds its origins in Williamsburg's Dutch Brown (Transparent). It provides a masstone that is a very deep brown/black with a satin finish. Tints created using Transparent Brown Iron Oxide allow for clean brown tones similar to high chroma umber and when let down using Medium, this color offers rich translucent brown glazes reminiscent of coffee or tanned leather.

Although these colors are only currently available as Special Edition colors, we look forward to your feedback. We're delighted to offer what we hope are valuable options to the Williamsburg line.

INTENSE BLACK PBk7 PBr7 | TRANSPARENT YELLOW IRON OXIDE PR42 | TRANSPARENT ORANGE IRON OXIDE PY42 PR101 | TRANSPARENT RED IRON OXIDE PR101 | TRANSPARENT BROWN IRON OXIDE PR101

A Long and Lonely Year, Acrylic on Canvas, 67" x 100"

Stacy Brock Up Close

Mark Golden: Can you tell me when you knew you wanted to be an artist?

Stacy Brock: From birth. I was born a painter. I never wanted to be anything else.

Mark: Were there specific mentors or inspiration at home, or at school, in grammar school or high school?

Stacy: My father was and still is a Doo-Wop musician and my mother was always into theater. She taught English and Drama and she's been directing plays for as long as I can remember, but I'm the only visual artist in my family.

Mark: So creativity was encouraged at home?

Stacy: Absolutely. They completely encouraged it. I was never interested in any sports or anything. I wanted to take art classes. They always had me in after school art classes or Saturday art classes, mostly for painting.

Mark: And that continued in high school?

Stacy: Yes, I never stopped making art. I had a really good art program in high school - I was lucky that way. I took a great jewelry making class in high school. I had great teachers and there were a lot of arts and music classes in my school, so I took a lot of both of those.

Mark: Stacy, was it a special arts high school that you went to that had those kinds of resources?

Stacy: No, I'm proud to say I went to public school. It just happened to be a good school system and they encouraged arts. Back then…I don't think they do anymore, but when I went to school there was a lot of focus on the arts and people were encouraged to pursue their art interests. You could pick and choose, it was your choice. You weren't forced to do art or music.

Mark: And where was it?

Stacy: In Spring Valley, New York in Rockland County.

Mark: And did you continue onto college?

Stacy: Yes, I went to Hartford Art School at the University of Hartford and I majored in painting and I had extensive study in ceramics as well.

Mark: So, what were some of your favorite academic subjects?

Stacy: My favorite academic classes were English and Math. I took many English classes during college. I had wonderful professors and stuck with them through Literature, Poetry and Creative Writing. My favorite subjects were painting and ceramics of course. I had never done Ceramics before and I took to it very quickly.

Mark: After graduation what was the next step?

Stacy: Well, two weeks after I graduated I moved to Seattle for three years. I really wanted to get away from Connecticut and as much as I loved my school, I wanted to get away from that whole area. I wanted more excitement and to start my own life. I wound up living in very creative cities where you didn't need a car and it was inexpensive to live. I would work for six months and not work for six months and make art in the time I wasn't working.

Mark: And then moved back to New York?

Stacy: No. From there I moved to Northampton, Massachusetts where a bunch of friends from college had a recording studio and I moved back there to make music with them. I solely made music for the year and a half that I was living there and then I moved back to New York City.

Mark: What was your instrument and do you sing?

Stacy: I play bass and I sing.

Mark: What kind of music was it?

Stacy: Well, I grew up on punk rock so I can't help but be influenced by it. It was in that genre, but also influenced by other types of music I like. There's a heavy metal influence, '50s garage and the Doo-Wop that I grew up on. It's a mix of all the things I like in one. The influences come out inadvertently. They just happen.

Mark: That's great. And so are we able to hear any of the music?

Stacy: I have records. We put out a single and I do have it in MP3 form, but we recorded analog to vinyl because I collect records. I still collect records. I think they sound better so I'm kind of that side of an audiophile.

Mark: So then after that time playing music, tell me what happened next.

Stacy: Well, I moved back to New York and I started to get back into painting. I paint very large so it's difficult living in a 350-square-foot apartment. To paint large it's impossible, so I wound up finding spaces to do it and I also decided to take continuing education classes at Cooper Union so I could have a place to paint. From there, I also started taking pottery classes in Brooklyn so that I could use their studio to do that as well.

Mark: So all during that time in New York you were going back and forth between painting and ceramics.

Stacy: Yes, I was doing them both at the same time. I still do them both at the same time. I switch off now between the two and it's nice to take that physical break from doing one to the other.

Mark: And your preferred medium in painting?

Stacy: Acrylic. It has been for the past 20 plus years I have been working in acrylic paints.

Mark: And why?

Stacy: I like the immediacy of it. I absolutely can't stand waiting for a mistake to dry for days and having to look at it or having the color get muddy because you can't just go and paint on top of oils. Acrylics are immediate. Twenty minutes and they're dry and I can rework a section, I like how fast it is and I like using water as a medium.

Mark: And so during that time you were a full-time artist?

Stacy: No. I had other full-time jobs, but making art in any spare moment or space is what I focused on. I have to make art. I always have to make art. I don't care if no one ever sees it. I still have to make it. I've always felt that way.

Mark: So let me ask you what brought you to Golden Artist Colors in New Berlin, New York?

Stacy: When I realized the company was here I actively sought out employment and it didn't matter to me how I got into the company. I had been using GOLDEN paints throughout the years. I think they're amazing and just the fact that I could get involved with this company was just an amazing thought to me.

Mark: Great. Is there any project work that you helped with when you joined the technical group that was the most exciting or exhilarating for you?

Stacy: They're all exciting. My position in Technical Support and Applications is amazing because I get to do all of these things I've never done before and learn the Lab side of it as well as the pure artist application side of it. I get to experience products that I may never have used had I just been painting on my own, especially all of the Mediums and Additives. I get the opportunity to get my hands in all these products and try and learn every aspect about them, so that I can help other people use them. It's an incredible opportunity.

Mark: Stacy, that's one of the things I've seen with some of the working artists and the folks working in the technical group is that in ways that you'd never imagine, your work here actually influences your painting career.

Stacy: Absolutely. It seems everybody that I've spoken to who works at this company who is an artist has experienced changes in their artwork since working here and mine already has changed.

Mark: Could you say in what ways it might have changed?

Stacy: The biggest change has been with the addition of Mediums and Additives. As beautiful as the GOLDEN display is in the art store, when it came to Mediums and Additives, they are white products in white jars and to me that was really confusing. Now that I've been introduced to them and can see what they can do, I've started using them in my painting. I'm obsessed with Interference Colors and adding mediums and textures to my work has changed it drastically.

Mark: Thank you Stacy. We're thrilled to be able to introduce you in this issue and to share your story with our customers!

To learn more about Stacy Brock and her artwork, visit her website: www.stacybrock.com

Loneliness, Porcelain, 12" x 1"

Somewhere Beyond the Sea

By Amy McKinnon

Ultramarine Blue stands, and has stood for a while, in fact for years, decades, centuries, as a pillar unbroken, unmovable, not fazed by its position or status. Ultramarine Blue has enjoyed a prominent position in palettes that span from sixth and seventh century A.D. into the contemporary palette of our new QoR® Watercolor line. Such ubiquity can go unnoticed and can feel commonplace when it exists in every palette although when eyes are cast upon its full watercolor tone the mind travels to deep seas, the sky before dawn and ancient tombs. Watercolor, due to its dry finish, delivers Ultramarine Blue in a way that keeps the color as lively as the dry pigment and does not darken or dull its brilliance. The first known use of Ultramarine Blue was in wall paintings in the cave temples at Bamiyan in Afghanistan and adorned the backgrounds of the painted buddhas. These paintings were geographically very close to Sar-e-sang, the area where the blue veins of the mineral, Lapis Lazuli, were extracted.

The color itself, its preciousness, rarity and brilliance directly assigned the rank of religious characters in religious themed paintings. During the Renaissance the colors that were most difficult to extract, obtain and the most expensive were at that particular time reserved for the most revered. It is for this reason that the Virgin Mary is always enrobed in sacré bleu. At the time, Ultramarine Blue was not simply part of the artists' palette due to its price but was ordered by the patron when the painting was commissioned. This could account for Mary missing in some unfinished paintings. Ultramarine Blue has been found in Chinese paintings, Persian miniatures, Indian murals, Italian religious panels to illuminated manuscripts.

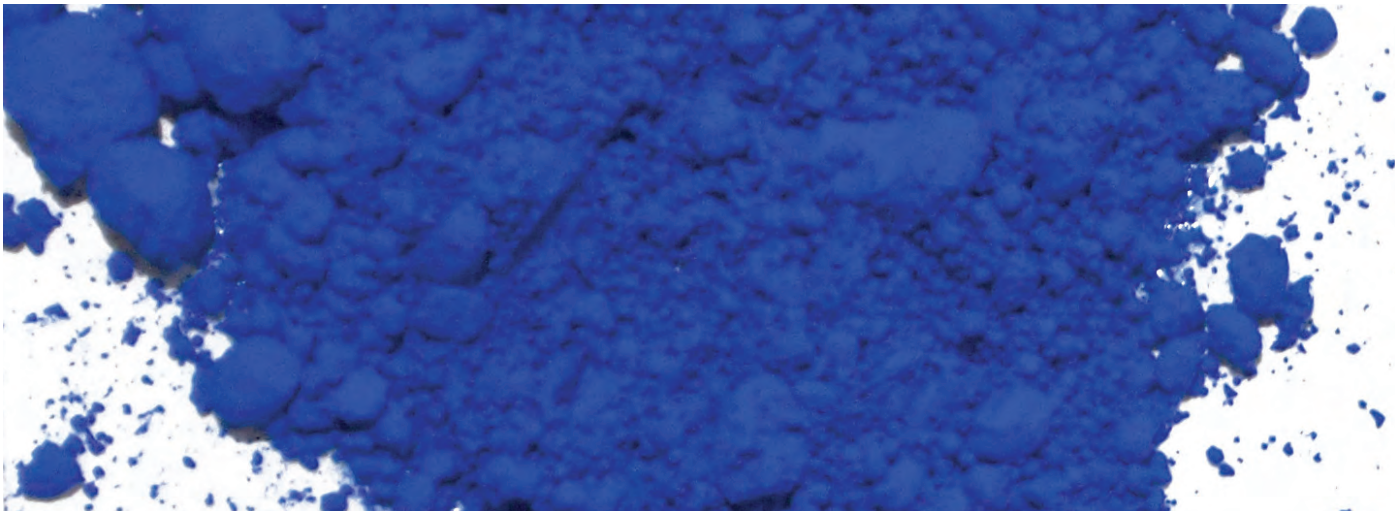
Once extracted from the earth, Lapis Lazuli was ground and mixed with molten wax, resins and oils, wrapped in a cloth and kneaded under lye which released blue particles that separated themselves from the rest of the mixture. Unfortunately, simply grinding the mineral yielded a pale, almost colorless pigment.

What we use today, what we call Ultramarine Blue is chemically similar to Lapis Lazuli. Initially discovered by Goethe as blue deposits on the walls of the lime kilns near Palermo, Italy and again years later by Tassert in the soda kilns of a glass factory in Saint Gobin, France, a chemical analysis revealed great similarities and spawned a contest for a synthetic and inexpensive Ultramarine Blue. In 1928 the monetary prize was awarded to Guimet who perfected making the pigment for 400 francs per pound as opposed to the 3,000-5,000 francs per pound that genuine Lapis Lazuli commanded.

Ultramarine Blue is a polysulfide of sodium-alumino-silicate. Its ingredients are sodium, aluminum, sulfur and silicon dioxide and the materials used for manufacture include anhydrous sodium sulfate or carbonate, china clay, fine sand and sulfur. The ingredients must be iron free and pure to facilitate the process and color. The ingredients are heated for hours in crucibles in an air free environment producing a green color. It is then ground, washed and reheated to reveal its blue color. Different processes for production exist that alter time and temperature to yield color with one heating. The ratios and grades of silica and sulfur directly affect the reactivity of Ultramarine Blue with acids.

Ultramarine Blue particles that are large in size will yield a deeper blue color, smaller particles will offer greater tinting strength. The pigment particles are a round, regular shape and size as opposed to natural Lapis Lazuli which is much larger, irregular and more transparent. Synthetic Ultramarine Blue particles appear opaque although the refractive index of the natural and synthetic do not differ greatly.

Ultramarine Blue has excellent lightfastness, although exposure to acids (especially sulfur dioxide and acidic fumes of urban areas) causes Ultramarine Blue to fade and therefore, its use in exterior murals should be avoided. Its transparency and matte sheen parade its depth of color and richness into palettes the world over. It has on countless occasions mixed beautifully with others to expand ones palette exponentially, becoming a necessity in its ubiquity under and within every sky.



QoR® Watercolor Questions: Labeling and Lightfastness Ratings

By Sarah Sands

Watercolorists are particularly sensitive to issues of lightfastness, and for good reason. Even when framed behind glass, watercolors are still vulnerable to fading because the pigments are very exposed to UV radiation and often used in dilute and delicate washes. Since launching QoR we have received many questions on why some of our colors have a Lighfastness rating of NA, meaning Not Applicable, even while the large majority have an ASTM Lightfastenss of I and just a handful have a II. There have also been questions on why other companies might show a Lightfastness or Permanency rating for an identical pigment that we mark as NA. We wanted to be able to address these concerns directly with you.

The American Society for Testing and Materials (ASTM) creates technical standards that are followed worldwide in all industries and their "Standard Test Methods for Lightfastness of Colorants Used in Artists' Materials" (D 4303) is by far the most widely accepted and scientifically backed testing procedure currently in place for evaluating how durable a pigment might be. Because of this, we feel strongly that companies should adhere to this standard whenever reporting the lightfastness of their materials.

ASTM Standards for oil, acrylic, and watercolor each maintains a completely separate list of pigments rated for that specific medium. So a pigment listed for oils or acrylics will not necessarily appear on the one for watercolors, and vice versa. Furthermore, the only way to add a color to a list is to put it through all the testing specified by ASTM, including both prolonged outdoor and accelerated indoor exposures. Once completed, those results are submitted to the committee and if approved the color can be included on the list and its ASTM rating placed on a label. From start to finish this process usually takes several years, and sadly no watercolor manufacturer we are aware of has stepped forward to update and expand that list in recent memory. As a result, many pigments with long histories in oils and acrylics are still not included and until that changes, we must list them as unrated when used in watercolors. That is the short term situation. Longer term, we have started a very large project to have all of the colors that we list as NA go through the necessary ASTM testing and be submitted to the committee for approval in early 2016. Once that work is completed we will finally be able to revise our colorcharts and labels to reflect those official ASTM ratings.

We also want to comment on the use of either a separate "permanency" or lightfastness rating not backed by ASTM. While companies will sometimes use these to supplement or even substitute for an accepted ASTM rating, it is important to realize that only ASTM Standards are peer reviewed by a broad group of manufacturers, scientists, and other consultants and experts in the field, and only approved and published after substantial testing can confirm that the results are reliable and repeatable. Because of that, these private, alternative ratings can mean so many things that without knowing the specific tests that were done, and the exact procedures followed, it is hard to say how accurate they are. As tempting as it is to go that route, we feel that working through the more rigorous ASTM methods is a better solution and provides the assurance that the ratings are backed by a scientifically accepted standard that is available to anyone to read and verify.

We hope this helps explain the reasons why some of our QoR paints currently have no lightfastness rating. As always, if you have any concerns or questions about the lightfastness of any of our colors, contact us at 607-847-6154 / 800-959-6543 or email help@goldenpaints.com.

Shown above are lightfastness ratings as they currently appear on product packaging.

Will Cadmium Colors Always be on the Palette? *(PART 2)*

By Ben Gavett

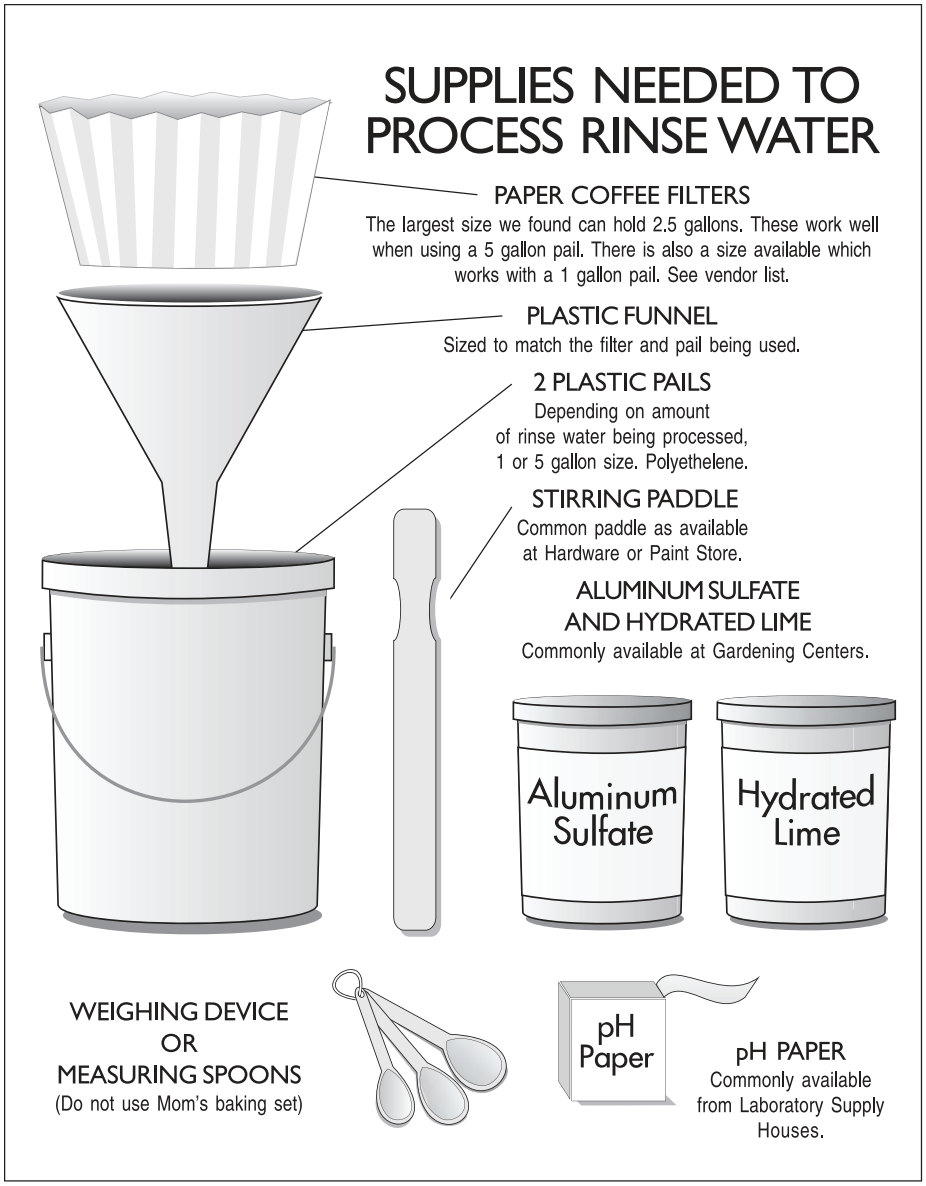
In our original article, which appeared in Just Paint Issue 4 (October 1996), we discussed the changing regulatory landscape concerning cadmium pigments, the potential for restrictions on their use in artist paints, and the suitability of potential alternative pigments. In this article we describe the process and results of an attempt to ban cadmium in artist colors in Europe, the reasoning behind it, and the response from both within the artist community and by those responsible for determining whether the ban would be implemented.

The countries of the European Union have instituted an impressive framework of regulations to protect their citizens from the exposures presented by the manufacture and use of consumer chemical products. This system is known as REACH, which stands for the "Registration, Evaluation, Authorization and Restriction of Chemicals". REACH requires that each chemical manufactured within or imported into the EU above minimum quantities must be registered with the European Chemicals Agency (ECHA). This requirement applies to individual chemicals, rather than to entire "preparations". For example, the Propylene Glycol in GOLDEN Acrylics is a chemical, while GOLDEN Heavy Body Acrylic paint is a preparation. The registration process includes requirements that the environmental impact and health effects of the chemical be evaluated. If incomplete information for a particular chemical exists, then the manufacturers and importers of that chemical are collectively responsible for obtaining the missing data. From this basis, chemicals of particular concern can be nominated by member states (individual countries) for restriction from use (i.e. banned) or nominated for authorization for only limited uses. It is ECHA's mission to then opine to the European Commission whether to restrict or authorize chemicals upon careful consideration of their risk versus their socio-economic benefit.

Cadmium pigments for use in artist paints came under this scrutiny in December 2013 when KEMI, the Swedish Chemicals Agency, submitted a proposal to ECHA that cadmium and its compounds should be restricted from artist paints. So long as such a proposal meets regulatory standards of completeness, it must be seriously considered by the Agency. This process of consideration involves two separate committees within ECHA. It is the task of the Committee for Risk Assessment (RAC) to summarize the risk to human health and the environment of the chemical in question and make a recommendation as to whether the proposed restriction is effective and necessary. The Committee for Socio-economic Analysis (SEAC) is tasked with evaluating the economic and societal impact.

KEMI contacted us during the development of their proposal and asked for comments regarding the feasibility and availability of organic alternatives to cadmium pigments, artists' opinions on the acceptability of alternatives, and the proportion of the market comprised of cadmium-pigmented colors. We replied that "there are no alternatives that match all of the characteristics of cadmium pigments" and expounded on this in detail. We also reported that cadmium colors comprise between 5 and 6% of total acrylic sales (slightly higher in oils) and that this proportion has remained relatively unchanged for the past 20 years. In their submitted proposal, KEMI concluded that alternative reds, orange and yellows exist, but that they could not be considered identical and that, should the proposal for a ban succeed, the individual user would need to search for a solution that suits their process. They acknowledged that a ban would be considered technologically feasible by some artists, but not by others.

KEMI based its opinion that risks outweigh benefits due to the statistical potential for adverse health effects resulting from the dietary intake of cadmium released during cleanup activities associated with painting. Most of the population in Europe is connected to public sewage treatment. When chemicals are washed down the drain, they travel to the sewage treatment plant and encounter fates specific to their physical state and resistance to environmental degradation. Solids, such as cadmium pigments, are collected in sludge, which is then commonly spread on agricultural land as fertilizer for the growing of crops. In the soil, cadmium pigments break down and the cadmium ion becomes available (along with naturally occurring and other sources of cadmium) for uptake into the growing crops and food system. KEMI's proposal estimated that 5% of paint used by artists goes down the drain and banning it would eliminate 0.0081% of individuals' dietary cadmium intake. They contend that this modest reduction would ultimately (after 150 years) result in 60 fewer bone fractures and 16 fewer cases of breast cancer annually across the European Union.



For a detailed description of how to remove water-based paint solids from rinse water, refer to Just Paint Issue 3 at JustPaint.org.

After KEMI's proposal was accepted for consideration by ECHA, the next step in the process was their solicitation of comments regarding the proposed ban and the assumptions that formed its basis. With this came the opportunity for us to become a conduit for artists to provide information and other feedback to ECHA. A survey was created (designed with a neutral voice) to solicit feedback around two themes of the restriction proposal: whether there are suitable substitutes for cadmium pigments in fine art and to what extent artists avoid washing cadmium down the drain. The survey was circulated via direct email (artists were also encouraged to visit the ECHA website and submit comments directly). We received over 1,500 survey responses. While opinions were mixed regarding the suitability of other pigments to replace cadmiums, the vast majority of those responding commented that cadmium pigments are unparalleled in their combination of characteristics; notably excellent tinting strength, lightfastness, and opacity, earthy mixing characteristics and intense chroma. While in the minority, some artists replied they did not need cadmiums in their work and if a ban made the world a safer place, they would support it. The survey also revealed that the vast majority of artists avoid letting cadmium enter the waste water system, which calls into question the 5% assumption discussed above. Waste minimization practices reported included dry wiping brushes prior to washing, evaporating wash water, removal of wash water to household hazardous waste drop-off sites and treating the water in order to remove pigment prior to disposal (*see Just Paint Issue 3*). Every individual comment was forwarded to ECHA, along with a summary of the survey results. In its written opinion, ECHA's RAC acknowledged this effort as a contribution of "meaningful information to the public consultation". After careful consideration, the conclusion of both committees is that "the proposed restriction is not justified" due to the negligible risk it addresses. The final steps in the process are an additional SEAC comment period and report followed with a final decision by European Parliament, which we anticipate will follow the committee recommendations.

In our opinion, this attention to the subject of cadmium pigments only serves to underscore, rather than diminish the importance of their safe handling and use by the artist. We continue to advise that cadmium colors are not for use by children, should not be spray applied or sanded, and unless one is properly protected from exposure and in a non-household setting, use of dry cadmium pigment should be avoided.

We wish to thank everyone who participated in the survey. We were impressed with the number of responses and pleased to offer the data to ECHA which attests to your collective effort to minimize environmental impact.

By Emma Golden

This March we will embark on our 4th year of the Golden Foundation Residency Program. As we welcome our first group of artists for 2015, we are also preparing for the 3rd annual 'Made In Paint' Exhibition here in New Berlin, N.Y. The 'Made In Paint' Exhibition focuses on the exploration of materials as well as celebrating the careers of these gifted painters.

On April 11th from 4:30-6:30 pm we will open our doors at the Sam and Adele Golden Gallery (located at Golden Artist Colors, 188 Bell Rd, New Berlin, NY) for the exhibition of the 18 selected artists from the 2014 Residency season. These extraordinary artists from around the world spent one month painting and experimenting with materials at the Barn, located just down the road from the Golden Artist Colors manufacturing facility.

2014 flew by with a roster of artists from Ireland to Canada to the U.S., who wowed us with their unique processes, talent and hunger for exploration in materials.

The 2015 'Made In Paint' show will highlight the work of these selected artists who were chosen for a residency based on their portfolio of work. This process has become more difficult each year as the number of applications continues to rise.

For a list of 2014 Artist in Residence websites, go to goldenfoundation.org. The virtual gallery will be available at theSAGG.org following the Opening on April 11th.

Email contact@goldenfoundation.org for a catalog.

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