

## How brilliant colours are made at Schmincke.

Schmincke make colours you fall in love with. 2011 marks Schmincke's 130<sup>th</sup> Anniversary, and in September I was invited to visit their factory and help make some videos demonstrating their oilpainting materials for their website.

I've had a long association with Schmincke – my family introduced them to New Zealand in 1986 because there was nothing on the market here that paid such meticulous care to artists' needs.

Let's take a look at some of their special and unique colours are made.



The owl, Schmincke's symbol, greets visitors to their factory near Düsseldorf in Germany.



The pigment room at Schmincke. Around 250 different pigments are used by them, so that special and unique hues can be offered.

Schmincke are colour innovators, introducing new pigments into the artist's lexicon. In 2009, they were the first to use a new type of Pyrrole PR264 to produce a rich deep red, and a new violet pigment made from Apatite.

Their traditional pigments still play a very important role too. Earth pigments from Germany and Italy provide genuine ochre, sienna, umber, and terre verte colours.

Schmincke are committed to sourcing pigment from countries that have ecological and ethical laws, not only to save the planet and protect workers, but these countries are invariably also the ones who can assure consistency in supply and quality, essential when an artist wants their colour exactly the same, year after year!



Raw pigment – azo yellow, Pyrrole and ultramarine. Pigments can be combined to produce mixed colours, but the cleanest, most brilliant colours are made from a single pigment. The majority of colours in Schmincke's paint ranges are single pigment colours, hence the need for so many pigments!



The oil room at Schmincke. Five different oils ensure a formulation of the best durability & clarity in each colour.

Binder provides the vehicle for the pigment – it suspends it in a viscous medium that can be brushed onto your painting surface, and with then dry into a durable film.

The binder for oilcolour is various plant oils. Various weights of linseed oil, purified using a highly sophisticated process, are the main binder Schmincke uses. Linseed oil has the best drying characteristics and film stability, but is pale yellow in tone, so other oils, such as safflower and poppy, are used in conjunction with the linseed for

the production of pale colours. While almost colourless, safflower & poppy oils do not have the same drying speed and film stability that the linseed provides.

Each pigment behaves differently in an oil binder. Some dry slowly, some fast, so each colour requires a separate formulation of oil combinations to compensate.



Finely calculated amounts of stabilizers, such as special waxes, provide consistency across a colour range.

Plant oils alone are insufficient to make a good oilpaint. Small amounts of stabilizers – waxes & resins – are added to ensure all colours in a range have a similar consistency and the best film stability. As each pigment behaves differently, each colour has its own formula for this as well.

Unique to Schmincke, Mussini Resin-oilcolours use old Renaissance recipes that replace excess oils with carefully balanced amounts of natural resins, such as dammar. Each pigment is bound in a vehicle dependent on its individual requirements, so that the increase in volume that occurs as the oil absorbs oxygen is balanced by the decrease in volume of the resin content as it evaporates – the result is tension-free balanced drying, with less danger of wrinkling and cracking. The replacement of a proportion of artist's oil with resin also lessens the natural yellowing of the linseed in the paint film. Most importantly for me as an artist, the resin refracts light more intensely than oil, producing a more lustrous and brilliant colour layer. This is especially noticeable in transparent colours.



In the first stage of paint making, pigment is dispersed into a binder in a high speed mixing vat.



Ultramarine Mussini Resin-oilcolour making its 2nd pass through a triple mill.

Milling gives the paint its body. Pigment and binder are ground together on steel cylinders, which are set against each other at a pressure set by the colour-makers experience. The colour emerges in a slow flow on the other side, and it is put through again.

An experienced colour-maker can get Norma Professional Oilcolour to the right consistency in two passes through the triple mill. The woman running the main oilcolour mill has been making colour for 27 years, and is fiercely proud of her work. She won't use any other machine – adjustments to the mill are made by hand and she has the feel for this one!

Mussini Resin-oilcolours' unique buttery consistency comes partly from being passed through the triple mill four times.

Time is usually the most expensive ingredient, and also the most important. The stage after milling is the paint maker's version of watching paint dry...



Paint is passed through the mill until it achieves the correct consistency.



Old technology – a stone triple mill in the foyer.

After milling, the oilcolour is divided into 5 litre buckets and stacked on shelves to ripen, like a good cheese. This process can take several months, during which time excess oil rises to the surface, where it is skimmed off.



Oilpaint maturing. Each 5 litre bucket is weighed & dated – this one had been sitting there for two months when I photographed it.

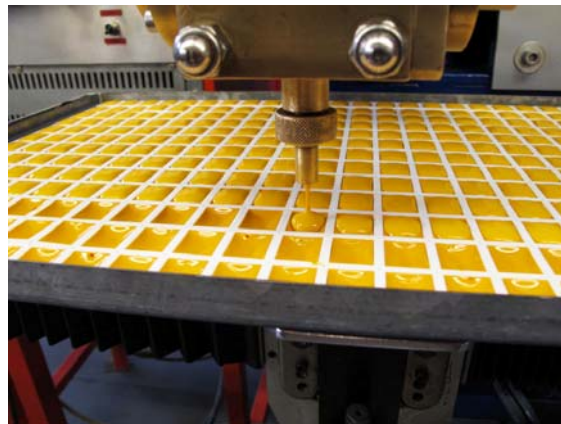
Some pigments will initially suck a lot of oil up; only to spit it back out after it has sat for a time – ultramarine does this, for instance. If oilpaint is tubed too soon after milling, the artist will squeeze half a tube of oil out before s/he gets any paint! Allowing the colour to sit for a few months is expensive business, but results in much better quality paint. Of course, being an oil-paint, when first opening a tube, there is sometimes a little oil, but this keeps it to a minimum. I like this little bit of oil too – it is very clear and precious, compared with the dark yellow of some brands!



Semi-automated tubing takes care of the special colours.

A few years ago, Schmincke invested in fully automated tube filling equipment, which allowed such a saving in time (and therefore money) that they not only were able to compete with Chinese production, but they also reduced the price of Norma Professional Oilcolours! Remember the price group Series 4? That disappeared with the release of the new formula Norma, in 2009, which incorporated those colours into Series 3 *and* increased the pigment load!

Every art store knows that 20% of the colours (whites & blacks, ultramarine, etc) make up 80% of sales. The other 80% of colours are just as essential to a comprehensive colour range, but they don't sell enough to warrant tubing on the fully automated machines – those machines need a minimum of 1500 tubes of each colour to run. Instead of making 10 years supply of Mussini Cobalt Violet, then, most colours are tubed using the semi-automated machines.



Horadam Watercolour pans are unique in being made liquid in a process that takes three – five months!

Using vintage Gum Arabic and carefully formulated amounts of Ox Gall, Schmincke have been making their specially patented Horadam Watercolours since 1893.

The unique, time-consuming method they employ to make Horadam Watercolour pans is the only way to ensure the pans freely give up their concentrated pigment to your wet brush!

The watercolour is poured into the pans in a liquid state. The colour is then left to dry for some weeks in a drying chamber, until only a residual amount of moisture is left. The pans are then filled again, to replace the amount lost to water evaporation, and then placed back in the drying chamber. This happens four times, and takes between 3 – 5 months for each batch to be finished! With all but a small amount of moisture left in the colour, Horadam pans are extremely concentrated.

The same formula is used for the Horadam tubes, so that even colour that has dried on the palette is fully re-usable.



Markus from Schmincke with trays of Horadam Watercolour pans in the drying chamber.



The Horadam "Symphonic Colour Box" from 1938.

To achieve maximum quality, a lot of time has to be invested in making Schmincke Soft Pastels, too. Made from pure pigment and a small amount of binder to hold them together, these pastels are too soft for machinery to handle without breaking them. No chalk is used in Schmincke Soft Pastels, as – although it would allow for mechanical production – chalk would make the pastel harder and less intense in colour.

After mixing pigment, binder and a little water, the paste is extruded through a kind of sausage maker, the pastels are cut by hand, and they're left to dry in racks. After drying for a few weeks, the pastels are hand-wrapped.

The same team of four is involved at each stage of production, ensuring the right handling of these delicate materials. I can only imagine how pleased they must be after wrapping several thousand pastels by hand, to go back to the paste-making stage!



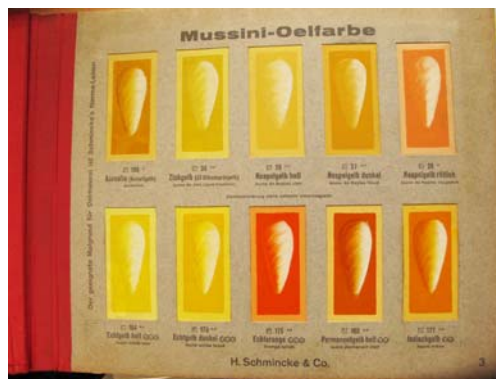
Schmincke Soft Pastels in the drying racks, waiting to be hand-wrapped.



Extremely nimble fingers and great concentration is needed to wrap thousands of pastels and still keep your hands clean!



Technicians mix an experimental batch of colour through a small triple mill in the laboratory.



A hand-made Mussini colour chart from 1933.

One of the things I most like about Schmincke is their attitude – and motto since 1881 - “I strive for Excellence”. They continually work to improve their materials in light of technological discoveries, but also have this great tradition of 130 years of innovative paint making to rely on.

I was only allowed one photo in the laboratory, of two of the technicians making a test batch of a new colour (it looked good!), but the paint-nerd in me was astounded by the thorough and insightful experimentation that was going on. I was shown a couple of new materials they were working on, and can only say... all will be revealed in time!



No pressure... The film crew getting up close.



Colour examples of Norma Poppy Red for the videos.

Schmincke had asked if I would help them with some English-language videos for their website during my visit. Being a complete Schmincke addict, I leapt at the opportunity to demonstrate some of their oilpainting materials.

Having arrived in Düsseldorf the previous day after 32 hours of travelling by plane and train, I was a little shaky to start with, but buoyed by my Christchurch outfit and a nutritious aged beer, things soon warmed up!



Filming in the milling room.



Enjoying a well earned Düsseldorf Altbier!

We'll know the results in a couple of months, after editing and post-production. Schmincke have promised us copies for our website. I can only hope that my enthusiasm is a match for what, in my considered opinion, is the world's best paint!

Evan Woodruffe's visit to Schmincke in Germany was made possible by funds from the Molly Morpeth Canaday Major Award 2011.