

## The Actual Secrets of the Old Masters, part III

### Oil to Oil Thixotropy: An Investigation into a Potential

#### Non-Newtonian Reaction in Older Paint Technology – Tad Spurgeon

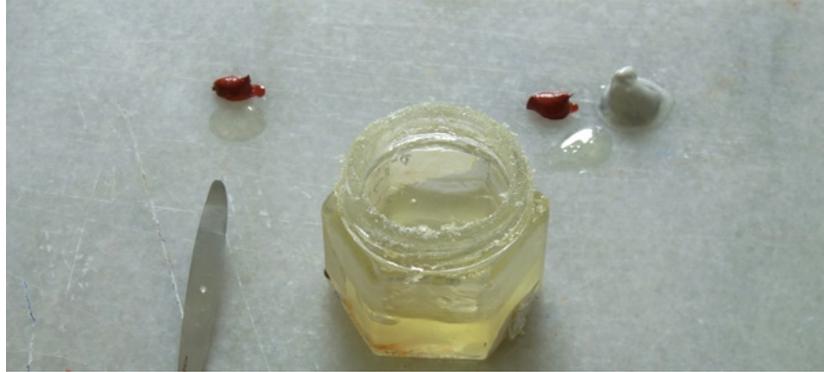
A study of paint thixotropy was done over a period of ten years in my studio as part of an exploration of older painting technique based on the research findings of current technical art history such as *The National Gallery Technical Bulletins*, or *The Artist's Assistant* by Dr. Leslie Carlyle. For the first five years I explored thixotropy based on an addition of hard resin varnish or egg yolk, but in the last five years, after reading the findings of the *Rembrandt* book in the National Gallery's *Art in the Making* series, I concentrated on producing the same reaction using oil and chalk alone. As this effect is less well-known, it is the focus of the example given here.



The paint used for this is handmade, using refined – washed with water, sand, and salt – walnut oil that is then preheated to 150 C° for one hour. The pigment was a medium red earth from Kama Pigments in Montreal called “salmon.” The reaction works for all pigments, although some – such as green earth – seize more firmly than others. The reaction is less well defined with commercial paint, sometimes working a little bit, sometimes not at all. The reaction works with either walnut or linseed oil as the base for the paint.



Two types of paint are possible with this reaction, one beginning with paint which has been previously cut with an oil and chalk putty medium, the other with paint which has not.



The seizing reaction is created by the introduction of a small amount of thickened oil to the paint. This oil is an organic, cold-pressed linseed oil that has been refined by the water, sand and salt method, then thickened in a thin layer in an open glass tray in the studio. Up to a certain thickness of oil, there is a moderate reaction. But, after this, the thicker the oil, the more pronounced the reaction. Thus, the thickness of the paint can be adjusted depending on the thickness of the modifying oil.



When the thick oil is mixed with the paint, the reaction begins. It is typically faster with the paint cut with chalk putty.



After a few minutes, the chalk putty paint is significantly firmer, will make separate chunks, while the straight paint is just beginning to thicken.



After a few more minutes, both samples of paint continue to tighten slightly.



But overnight, the paint without putty also tightens significantly.



The putty itself will tighten to a near solid over time. The sample on the left is the original putty, the sample on the right has been modified for twenty-four hours, and is so dense that it might be worked with a sacrificial bristle brush, but not a softer hair brush.



Another working consistency is supplied by paint cut with putty, but without thicker oil added. This can be used to modify the seizing reaction, either before or during work. This sample of paint was cut with a larger proportion of putty. Note the lightening of the value and brightening of the color without the coldness and opacity associated with any white pigment.



The paint can also be modified at any time with a moderate thickness of hand-refined linseed oil to loosen it, or any form of calcium carbonate to tighten it again.

This method offers a broad range of working rheologies from a limited, readily available, and highly reliable set of materials. Paint which is applied using this reaction will continue to seize on the painting, making it possible to paint over it, or into it, depending on the timing, and the type and pressure of the brush. Painting done using any form of hand refined linseed oil also dries relatively quickly, a day or two is typical depending on application and studio temperature.

This non-Newtonian, oil-to-oil reaction offers a possible solution to the puzzle of how older painters were able to make a decidedly thixotropic paint without recourse to lead salts or resins. More information about the materials involved in this example can be found in [Living Craft](#). To refine linseed oil by any one of several traditional refining methods, please download [Refining Linseed Oil](#).

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