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**Utrecht**  
ASK THE EXPERTS

## Product Profiles: Machine Milled vs. Hand Milled Paint



### Ask the Expert: "Which is better: hand-mulled oil paint or machine-made?"

**A:** Hand-dispersed and mechanically milled artists' oil colors each offer distinct advantages. Both approaches to paint making can incorporate craftsmanship, artist input, and scientific development. Both can deliver a high quality paint suitable for demanding artists. Where the two types of paint differ is in product consistency, shelf stability, types of raw materials used, and cost. There are also differences in physical performance and appearance.

Hand dispersed paint, made using using a muller (or sometimes using a machine driven glass disc) is developed slowly, giving the craftsman a great deal of control over stiffness and pigment concentration. Hand-mulled paint is typically made using very high-quality materials comparable to top professional-grade, factory-made colors. Hand-dispersed paints often include premium vehicles like walnut and cold-pressed linseed oil. These products are typically presented as being similar in formulation to historical, "old master" paints.

However, since hand-mulled paints don't usually include stabilizers, amendments or driers, consistency can be uneven. Because hand mulling does not break down particles and clusters as efficiently as mechanical milling, especially with harder pigments, some visible particles may be identifiable in hand-mulled paint.

One of the advantages claimed by some makers of hand-mulled paint is that little or no amendments are added to alter the "authentic" old-master formula, but better brands of manufactured oil paint can also take a similar approach. Paint that is made with minimal or no amendments can have less uniform drying rates and may exhibit subtle changes in appearance during the drying phase. Artists using these types of colors can gain a good understanding the natural character of each pigment involved. Another aspect of un-amended paint is that the pigment influences the physical body, texture and movement of the paint to a greater degree than in colors that have been modified for stability and drying rate.

Depending on the pigment used, the authentic "personality" of the raw material can be expressed when amendments are absent. This manifests in properties like a short, buttery texture, a long, stringy body, or a waxy sheen. Paint lacking stabilizers may shed some oil vehicle in storage, so artists' colors made using this approach will naturally have some free oil at the top of the tube. This indicates that very little or no additives are present to bind up oil or replace pigment solids. A small bead of liquid oil in the tube also reveals that the paint has not oxidized in storage.

Affordability, huge range of colors and reliable consistency from batch to batch are key advantages to

mechanically milled paints. In factory-made paint, precise application of amendments, driers and stabilizers gives a high degree of control over paint rheology and drying time, and extends shelf life. Stabilizers can be added to minimize separation and shedding of vehicle, so the prepared product maintains a homogeneous dispersion in storage.

The mechanical mill used in paint manufacturing applies shear force and crushing power to reduce pigment particle size and break up clusters. This process makes extremely efficient use of pigment, fully developing the maximum amount of potency from the color. By reducing particle size and enveloping each particle with the vehicle, resulting paints are luminous and consistent from batch to batch.

Labor is a significant factor in the price of hand-made paint, which can cost several times as much per tube as mechanically milled colors. Economies of scale and replacement of hand labor with mechanical force dramatically reduces the price of factory-made paint. The best machine-milled brands use skilled paint craftsmen in the manufacturing process and product development, so the final product reflects the actual properties, performance and permanence that artists require from their paint.

Some artists enjoy the challenging variety of working properties offered by hand-dispersed paints, and find ways to leverage these differences for complex effects. For most painters, factory-made colors form the bulk of the modern palette, but brands like Utrecht which employ only minimal amendments can make available a top quality product that brings each pigment to its best advantage, at a fraction of the cost of hand-mulled paint. Machine milled paint offers the added advantage of better shelf stability and more sophisticated product development and testing. Regardless of what type of paint is on the palette, the best approach is to work with the characteristic properties, and let the material guide you toward your goals.

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