



## WHY IT HAPPENS, WHAT TO DO IF IT DOES, & HOW TO PREVENT IT

Have you ever had an oil painting where the whites or light tints turned yellow after it dried? If so, you probably wondered whether it was from bad paint, bad practices, or atmospheric conditions. In a poorly made paint, an excess of filler can indeed cause yellowing. But yellowing can occur even when using Pigment Sticks or any high quality tube oil paint.

### DARKNESS & DAMPNESS

A slight color shift is an inevitable part of the aging of an oil painting. All colors, especially bright whites, will lose their edge and mellow over time. This is part of the charm of an oil surface. But if you have a painting where the whites have yellowed, the problem is usually caused by storing the painting in darkness, particularly during its drying process. Dampness, too, can contribute greatly to yellowing, especially in the absence of light. Oil paint is most vulnerable to yellowing during its drying phase. The paint dries through a series of complex chemical reactions, some of which produce yellow chromophores. When the painting is left to dry in natural daylight, these chromophores are bleached out as they develop. Since this is not possible in darkness, the paint has a greater tendency to yellow. Keep in mind, the drying process of oil paint can take up to a year. Beware especially of storing your work in damp, dark basements.

Other factors also play a part in the yellowing. These include the type of oil, the pigment, the addition of medium to the paint, and the absorbency of the ground.

### LINSEED OIL VERSE POPPY OR SAFFLOWER OIL

Linseed oil has a more pronounced yellow color than poppy oil or safflower oil, both of which are used by some companies for whites and other light colors. But those oils are very slow drying and prone to cracking, whereas linseed oil dries to a tougher, more flexible film. With adequate pigment and proper drying conditions, this initial color difference becomes negligible.

### TITANIUM & ZINC PIGMENTS

Titanium Dioxide White has a reputation for causing yellowing in oil paint. The yellowing is not caused by a mutation of the pigment itself. In fact, titanium white is one of the most colorfast of all pigments. Rather, the culprit is the pigment's inert nature, which makes it less capable than other pigments of holding onto the oil. This creates a tendency for oil to migrate and form a thin film on the paint surface. Zinc Oxide or Zinc Sulfide

tend not to have this problem because they bind to the oil better and so are often added to Titanium Dioxide to control this separating out of the oil.

### **ADDING MEDIUM TO THE PAINT**

Mixing in additional oil into Titanium White paint to make it more fluid, increases the chance that oil will separate out from the pigment. Stand oil (linseed oil that has been heated to a high temperature in a vacuum until it partially polymerizes) can be used instead, since it is less yellowing and dries to an even tougher film than regular weight linseed oil. But it is very viscous, so it must be thinned with solvent. Do not use it as an underlayer in the painting, because it is very slow drying.

### **ABSORBENCY OF THE GROUND**

Most grounds, whether acrylic gesso, glue gesso, or oil primer, have additions of chalk or other solids to make the ground more absorbent. This is important for the adhesion of the paint to the ground. But it also soaks up any excess oil. Non-absorbent grounds, such as wax or underlying layers of thoroughly dried paint, can contribute to the separation of oil from Titanium White pigment. Non-absorbent grounds also extend considerably the oil's drying time (the period when the oil is most likely to yellow).

### **YELLOWING OF IRIDESCENT PEARL**

The pigment for Iridescent Pearl is simply Titanium Dioxide fixed on mica. While it follows that this pigment will have, to some extent, the same inertness as pure Titanium Dioxide, the covering power is far less, so it is less able to hide the color of the oil.

Under proper conditions this should not cause a problem. But, again, if the oil has yellowed significantly under poor conditions, the yellowing can be even more prominent than it is with Titanium White.

### **REVERSING THE YELLOW**

The good news is that yellowing is fairly reversible on exposure to daylight. If the paint is still drying, do not expose it to direct sunlight as this can cause the painting to dry too fast and possibly crack. However, if the painting is dry, direct sunlight may bleach out the yellowing faster and more thoroughly than indirect sunlight. But do not keep the painting in direct sunlight for more than short, controlled periods of time.