

TECHNICAL BULLETIN #31

PAINTING OVER SEALANTS

Painting over sealant can sometimes be problematic. The effects that could occur are listed below:

- 1. The paint film may crack.**
- 2. The paint film may not adhere to the sealant surface.**
- 3. The paint film may discolor.**
- 4. The paint film will not cure or dry properly.**

1. Painting Film Cracking

- Sealants are designed to be elastic and absorb movement when in service, with the express purpose of sealing joints where some degree of movement is expected. Provided the movement is within reasonable limits, or within the capability of the sealant selected, the sealant will offer the satisfaction desired. Most all paints are designed to be hard, resistant to abrasion, and adhere to substrates, which do not encounter movement. If movement should occur in a joint sealed with a caulking, which has been painted, the caulking will move and the paint will crack. If this cracking is unacceptable to the owner, these moving joints should not be painted.
- In addition to movement, painting a sealant which has not yet fully cured may also cause cracking. Depending upon the exact type of sealant, the cracking can be caused by solvent evaporation or sealant shrinkage during cure. Because of this, painting should always be delayed until the sealant is completely cured.
- Incompatibility of the sealant and the coating can also come into play with regard to a differential in surface tension. This would be similar to water beading up on a freshly waxed surface. There are instances when the combination of sealant and coating can produce this effect which usually results in a network of fine cracks on the coating surface where it comes into contact with the sealant. A bridging primer can sometimes solve this problem with the selection of a primer based on sealant and coating chemistries being utilized.
- The cracking of rigid paints while not visually appealing does not constitute a failure of the sealant/paint system. The paint may be well adhered to the sealant and will only exhibit cracks while the joint is open in cold weather, assuming the sealant was applied during warmer temperatures while the joint is closed.

2. Paint Film Not Adhering to Sealant

- Some combinations of paint and sealant will result in the paint not adhering to the sealant, which will eventually result in the paint peeling away from the sealant. Testing of the paint and sealant combination is the only way to avoid such failures and can be conducted in the field or in the lab. One simple test is to apply paint to fully cured sealant, allow to dry, and then use the “crosshatch” test as follows:
 - a. Use a razor knife to score the paint film in a crosshatch pattern creating 1/8” blocks for about a one square inch area.
 - b. After scoring apply duct tape firmly to the crosshatched pattern.
 - c. Pull the duct tape from the cross hatch.
 - d. Inspect the cross hatch for missing blocks.
 - e. If 90% of the crosshatch pattern remains intact the test would be considered passing.
 - f. For further confidence one may probe the crosshatch pattern with a razor knife trying to pull away the paint chips. They should be difficult to remove.



3. Paint Film Discoloring

- It is difficult to accurately predict whether or not a stain or discoloration of a paint film may develop when applied over a sealant. Both sealant and paint manufacturers employ a variety of raw materials which may not be completely compatible when exposed for prolonged periods of time. Most manufacturers will conduct compatibility testing using ASTM C-1087 as a model to ensure compatibility of materials.

4. Paint Film Will Not Dry

- Some paints when applied to one component urethane sealants will not cure or dry properly. Paints, which exhibit this behavior, are usually alkyd-based materials with drying additives that get absorbed or deactivated by the sealant material thereby causing incomplete drying. A simple field test to verify proper drying would aid in avoiding this condition.

Conclusion:

While painting over sealant may sometimes be problematic, field mock ups along with laboratory testing in co-operation with the paint or sealant manufacturer will ensure good end results.

