

## Avoiding the Mottling Effect

### A 'mottle,' 'blotchy' or 'patchy' type appearance can sometimes result after spraying a metallic finish, particularly in lighter colors. So, what is it, why does it happen and how can it be prevented

It's a problem that's almost impossible to detect at the basecoat stage since most basecoats dry to a silky matte finish. That means the effect doesn't become evident until after the clearcoat is applied. Naturally, at that point it's way too late to rectify the problem, and the only course of action is a re-do which can lead to serious film build problems.

### Cause and cure

There are two main contributing factors—incorrect thinning of the paint and the application technique. The first scenario results from an insufficient thinning ratio or using a thinner that's too fast for the prevailing conditions—for instance, when trying to push a job through quickly. After application the solvents in the thinner evaporate too rapidly and the paint film sets so quickly that it doesn't let the metallic particles lay down smoothly, resulting in a mottle effect. Using compatible thinners is also vital. PPG thinners are specifically designed for use with PPG products in the correct thinning ratio and according to the ambient air temperature. Following these guidelines can assist in dramatically reducing the mottle effect. While working with individual bodyshops to help them with mottle control, PPG technical staff came across the following examples. One shop was thinning all colors to 1:1. This was working fine with dark colors, but with light colors there was mottle.

It was discovered that the air pressure was around 45–55 psi which is too high for basecoat and is a major mottle contributor because it doesn't allow the metallic basecoat to be applied in a wet, even film. After reducing the air pressure to 25–35 psi, mottle was dramatically reduced. Application technique is another important factor in reducing mottle. Applied correctly, the basecoat will appear very smooth and, when tack ragged, there will be no or minimal color on the tack rag. To minimize the chance of mottle, the basecoat should be applied to give an even, uniformly dull appearance and left for the recommended flash times between coats. Proper application technique is critical when spraying light high metallic colors. Make sure to maintain a good 50% overlap and allow each coat to flash for the recommended time. Also, make sure to pick the appropriate reducer for the size and temperature of the job. Another method is the crosscoating technique—this is where the second coat is applied at right angles to the first and immediately following the first coat. The first coat cannot be allowed to flash or the cross coat will not be able to re-flow and orientate the first coat metallics. It's a fact of life that most light colors will have a degree of mottle and that repairing light colors will always be more difficult than dark colors. However, using the above tips and the following guidelines should help to avoid mottling.