

## **Explanation of Drawdown Lines on Mica and Metallic Color Matches**

In the building and construction industry it is common for metal wall panels to be matched to curtain wall colors chosen for a specific building project. When this occurs, the spray coatings utilized for curtain walls and windows need to be matched in a paint formulation for coil coating since that is the process used for metal wall panels; including ACM. As a result, with mica and metallic finishes, there can be a slight optical tone difference perceived between the same color in a spray coating formulation and a coil coating formulation. Additionally, their respective production processes are completely different in nature. Therefore, the process of color matching itself can produce confusing results. This document serves to clarify the “why” behind that.

### **Spray Coatings**

Spray coatings are specially formulated to be applied by spray process. When color matches are made, the paint match is applied by spray process as well. When mica or metallic finishes are applied via spray, there is a random orientation of the metallic flakes. Therefore, a coil coating match to a spray coating will appear different since coil coating metallic flakes are oriented, not random.

### **Coil Coatings**

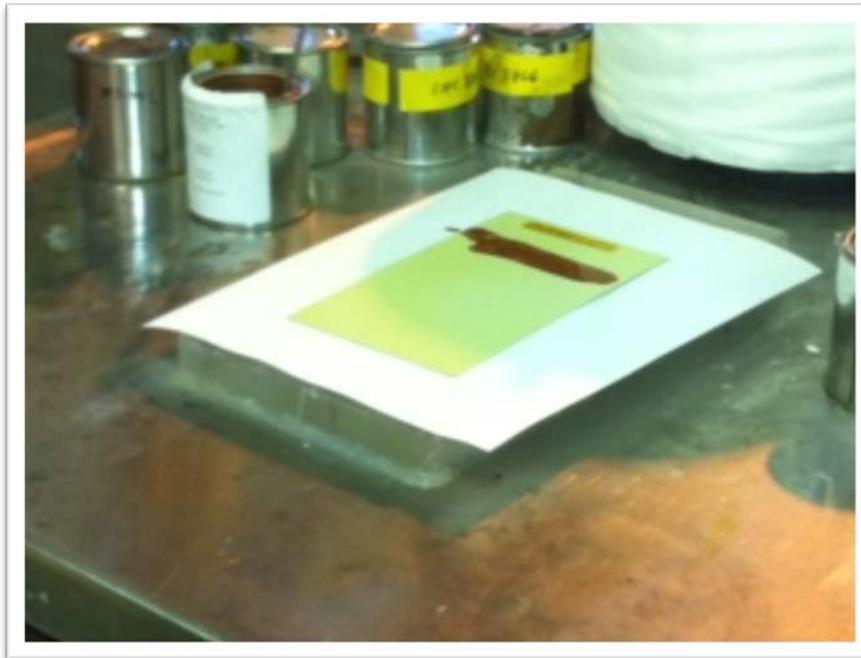
Coil coatings are applied on high speed lines which apply paint via rolls in an off-set application process. This process tends to orient mica and metallic finishes in a homogenous direction versus random directionality with spray coatings. Therefore, the exact same mica or metallic color will appear optically different if one is a spray coating, and the other a coil coating. This occurs as light is reflected off the metallic flakes differently by each - giving the perception of a difference in color tone.

### **Color Matching Coil Coatings – Draw Down Lines**

Coil coated mica or metallic panels have a smooth homogeneous surface. When color matches are made in a lab however, the paint cannot be applied in a high speed fashion or by spray rather, by hand. The paint for a color match is applied by hand using a special bar with tiny wire threading to control DFT (dry film thickness). DFT directly affects the color and it is critical that the DFT be consistent. The series of photos on the next page highlights the hardware and the process.



This is a close up view of the bar used to make the paint drawdown. With solid colors there are no lines visible in the paint. With Mica and Metallic colors however, the flakes orient directionally with the threading – giving the drawdown line appearance.



Paint is applied to the surface of the metal.



Paint is drawn down across the metal as uniformly as possible. The metal is then cured in a small oven and cut to size. This process limits the drawdown size to standard 3"x5"

PPG is consistently asked why they can't use a special bar with no wire threading. The reason is that they cannot control DFT as the applied film of paint is totally reliant upon the pressure that the operator applies as well as the speed at which they draw down the sample. Because this method is so unreliable, color and panel quality are hard to control and inconsistencies are impossible to avoid.

For these reasons, drawdown lines for mica and metallic color matches cannot be avoided. Therefore it is recommended that color matches be viewed and compared to control samples in natural lighting and turned at different angles to confirm that the color is an acceptable match – knowing that reflected light will be different depending on the angle of view.