



# Recommendations for the Application of Aluminum Coatings

The Roof Coatings Manufacturers Association (RCMA) recommends certain procedures for the application of asphalt aluminum roof coatings.

## General Considerations:

Adhesion or bonding to the roof surface is critical to the performance of aluminum roof coatings. The surface must be properly prepared, and in some instances properly aged, before applying aluminum roof coating. Surfaces such as asphalt glaze or flood coats and solvent based asphalt coatings typically require about three months of summer type weather before coating to permit evaporation of the solvents. Asphalt emulsions can generally be coated a short time after curing (typically 5-14 days) without worry of staining, depending on application rates and ambient conditions.

Recent studies indicate that it may be better to coat many modified membranes before they age, rather than after they age. Follow the membrane manufacturer's recommendations when coating a modified bitumen membrane with aluminum coating. ARMA (Asphalt Roofing Manufacturers Association) and RCMA have published a brochure entitled *Evaluating and Preparing Modified Bitumen Membrane Roofing for Surface Coating Applications*.

While the aluminum coating adds to moisture protection, it is not designed to stop leaks or repair seams or blisters. Repair these problems before applying any aluminum coating.

## Weather Considerations:

Cold temperatures can cause dew or moisture to interfere with adhesion of the coating. Moisture under a solvent based aluminum roof coating will result in a splotchy appearance when the coating cures. Low temperatures can also inhibit the leafing of the aluminum coating. Occasionally this problem will resolve itself as the coating ages over a summer. High temperatures may also become a problem in application. While the aluminum flakes leaf out well when the roof is hot, extreme temperatures (typically over 110°F) may also cause the coating to cure too quickly, resulting in streaks and highlights. Rain may cause problems if the coating has not completely cured. Most manufacturers do not recommend coating if rain is expected within 24 hours of application.

## Surface Conditions:

The surface must be free of loose debris, dirt, oils and other materials that could cause loss of adhesion. This may involve brooming or vacuuming to remove loose dirt or other dry material, power brooming to remove light contaminants (e.g., pollen, small amounts of light oil), power scrubbing for heavier contaminants, or in the worst cases, cleaning by water blasting. Water blasting is used to take off heavy exudate, loosely bound particles or old coating. The membrane manufacturer must be consulted for details on how to clean the roof.

RCMA



1156 - 15th Street, NW  
Suite 900  
Washington, DC 20005  
202-207-0919  
[www.roofcoatings.org](http://www.roofcoatings.org)



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Ponding water is never desirable on a roof as it may cause delamination of the aluminum coating from the surface and causes premature coating failures. Positive drainage is necessary to flush away any accumulations of surface dirt from the roof and keep the reflective properties of the coating intact. Coatings in ponded areas will have a much shorter lifetime.

Primer may be needed dependant on the condition of the substrate. Allow all primer to dry thoroughly before applying aluminum coatings. Solvent-based primers may activate the asphalt in some built-up or single-ply membranes, causing staining. On metal roofs, synthetic solvent-based primers (e.g., acrylics) can be used as recommended by the aluminum coating manufacturer. Certain types of primers (e.g. lead) have severe incompatibilities with aluminum coating.

### **Mechanical Mixing:**

An important step in the application of asphalt aluminums is mechanically mixing the coating before and during use, as aluminum pigment tends to settle out during storage of the coating. Proper mixing of the coating in the pail will result in a optimum reflectivity and aluminum color that is uniform. Use mechanical mixers with a blade designed for fibered products (not paint products). If dispersion of the coating is not complete, streaking during application can occur.

Asphalt aluminum coatings are carefully formulated by the manufacturer to age properly on the roof. Thinning with solvent seriously degrades the coating. The final film may not be the proper thickness, and will weather poorly. Improper solvent use can inhibit the leafing of the aluminum pigment, or cause the asphalt to bleed through the aluminum flakes. Follow the manufacturer's instructions – DO NOT THIN! Thinning with solvents may also be in violation of VOC (volatile organic compound) compliance laws and regulations.

### **Application:**

If applying by brush, use either a three or four knot roofer's brush or soft bristled broom. A roller should have a medium nap roller cover. When roll or brush-applying an asphalt aluminum, it is important to finish the strokes in basically the same direction to achieve the best aesthetics. If aluminum flakes orient in the same direction, they reflect light more uniformly. Spray equipment is typically an airless sprayer, however any spray unit capable of spraying the coating in an even pattern can be used. Consult the coating or spray equipment manufacturer for proper selection, as the viscosity of the material, the hose internal diameter size, and length of hose all help determine the type of spray equipment needed for the job.

### **Coverage:**

Apply the aluminum coating according to the manufacturer's recommended coverage rate. The ASTM Standard D 2824 requires certain consistencies for the aluminum coatings, and the consistency allows for application in one coat. Low and high coverage can result in poor performance and premature failure. Type I non-fibered aluminums are typically applied at the rate of 0.5 to 1.5 gallons per square using a roller, brush or spray. Type II or III Fibered aluminums are usually applied at 1 to 2 gallons per square, and can be applied using a roller, brush or spray. Underwriter's Laboratories Class A, B or C ratings may require that coatings be applied at a heavier rate. Consult the coating manufacturer or the UL Directory for proper coverage rates for the Class A, B or C rating.

### **After Application:**

As with any coating, avoid walking on the asphalt aluminum coating until it is fully cured.

**Note:** These recommendations were prepared by and have the approval of the Roof Coating Manufacturers Association for informational purposes only. They are not intended to revoke or change the requirements or specifications of the individual roofing material manufacturers or local, state and federal building officials that have jurisdiction in your area. Any question, or inquiry, as to the requirements, or specifications of a manufacturer, should be directed to the roofing manufacturer concerned.

