# Autoseal® Coatings

## Overview

This application guide reviews the processes and procedures necessary for optimum spray application of LORD Autoseal® coatings – including storage and mixing guidelines. We recommend a complete review of this application guide before applying coatings.

## Storage

Store unopened containers out of direct sunlight and at a constant temperature of 18-27°C (65-80°F) or per specific product data that may be listed on the applicable technical data sheet. Make note of specified shelf life of the coating and practice first-in/first-out inventory rotation.

## Mixing

Bring container to ambient temperature prior to use. Before initial use, mix container using a paddle mixer. When using drum containers, mix at 40-60 rpm for a minimum of 30 minutes. Higher rpms are often used when mixing new containers, but not so high as to incorporate air into the coating. During application, mix material continuously at a speed of 15-20 rpm.

Textured spray coatings will require high speed/shear mixing (at a speed required to create a mixing vortex around the mixer shaft) using a serrated mixing blade for 30-60 minutes prior to initial use.

## Filtering

In-line filters may be used to filter the coating during application (filter size will depend upon specific coating being used). A routine check of the filters should be conducted at regular intervals. Replace filters as necessary. To remove contaminants from the atomization air, use in-line air filters.

## Coating Reservoir Temperature

Keep coating container temperature as constant as possible during application. Maintain coating mixing areas and spray booths at constant temperature year round.

## Applied Coating Temperature

Maintain the temperature of the coating between 20-26°C (68-78°F) during application. Select a coating temperature within this range and maintain it throughout the year. Monitor coating temperature and viscosity regularly. A coating temperature change of ±5°C (±10°F) may result in a viscosity shift. Coating temperature fluctuations that result in changes in coating viscosity will require adjustments to be made in spray parameters, such as fluid pressure and atomization air pressure. In general, as coating temperature increases (and viscosity decreases), fluid pressure will likely need to be lowered to maintain a desired dry film thickness of coating. The converse is also true – as coating temperature decreases (and viscosity increases), fluid pressure will need to be raised to maintain the desired coating dry film thickness. Keeping the coating temperature as constant as possible will limit the amount of spray adjustments that have to be made during production.

Run coating lines on the shortest, coolest route to coating spray robots. Run coating lines through the paint booths, as opposed to over the roofs where much warmer air may exist. Use an in-line coating heat exchanger in each spray booth to keep the coating temperature within a constant, narrow range as it is applied to the surface of the profile. Insulate all coating lines with high R-factor pipe insulation wrapped in reflective tape.

## Air Temperature in Spray Booth

Maintain a constant ambient air temperature in the spray booth. While many coatings can operate over a range of ambient conditions, fewer fluid pressure spray adjustments will be required if the spray booth air is maintained within a ±5°C (±10°F) range throughout the year. The ability to warm the ambient air in the cold months and cool the air during the warm months is essential to minimizing spray process adjustments. A constant spray booth temperature of 24-32°C (75-90°F) throughout the year controls one more variable and helps to keep the process in control.

## Relative Humidity in Spray Booth

Relative humidity directly impacts the rate at which solvents and water evaporate, effecting bubble release and film coalescence. Optimize water and solvent evaporation by maintaining relative humidity above 50% in the paint booth. A humidistat tied directly to a humidification system will maintain a controlled level of humidity year around. If heated make-up air is provided, moisture may need to be added to maintain the relative humidity.

## Part Temperature

Keeping oven and spray booth air temperatures constant will prevent large fluctuations in part temperature. Part temperature can influence coating flow over the profile surface and the rate at which a coating surface may begin to “skin over”, possibly resulting in coating appearance defects.

## Spray Equipment

Contact LORD Customer Support Center for recommendations regarding optimum spray equipment and settings to be used with specific coatings. Pretest spray equipment for compatibility with the specific coating and application. Multiple coating spray “passes” will generally allow for better coating appearance at higher dry film thickness than will application of the same thickness using a single spray “pass”. Multiple spray guns may be required for in-line application during the extrusion process. If robotic application is being used, program robotic spray equipment accordingly.

## Viscosity Measurements

Use a Zahn Cup or similar device for in-process coating viscosity measurements. Brookfield viscometers are suitable for off-line viscosity measurements. Be consistent in the equipment and measurement techniques employed. When comparing Zahn Cup viscosity measurements, ensure that identical Zahn Cups are used (i.e., the “same” Zahn Cups from GE and Gardner do not give identical viscosity measurements). The GE Zahn cup is recommended for use.

## Coating Film Thickness Measurement

Prior to profile surface treatment, apply standard thickness, heat-resistant tape (often polyimide type) or aluminum shim stock to several locations on the profiles. After the coating is applied and cured, remove the tape and measure the coating dry film thickness (dft) using equipment such as the Fischer Dualscope MP40 that utilizes either an eddy current test method (ASTM B244) or a magnetic induction test method (ASTM B499). Obtain the coating dft by subtracting the measured thickness of the uncoated tape (or shim stock) from the measured thickness of the coated tape.

## Determination of Coating Cure

The extent of coating cure can normally be determined very shortly after coated profiles have exited the production line by performing a relatively simple, although subjective, solvent double-rub test. The type of solvent and the number of double-rubs that the coating will withstand from a solvent-saturated cotton swab under light to moderate pressure is both coating and application dependent. This information can be obtained from your LORD Corporation representative. Typically, a coating is considered to “pass” this test if minimal coating color transfer is seen on the cotton swab and/or the coating film has not been worn through. It should be noted that in many instances a coatings performance in this test may dramatically improve within two hours of exiting the coating line.

## Cautionary Information

Before using this or any LORD product, refer to the Material Safety Data Sheet (MSDS) and label for safe use and handling instructions.

*For industrial/commercial use only.* Must be applied by trained personnel only. Not to be used in household applications. Not for consumer use.

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