

The Finishing Store

For the Perfect Wood Finish

Finishing Tip #1 - Orange Peel

Recently, someone asked me if our HVLP spray system makes orange peel. My reply was simple: "The finisher makes orange peel, not the equipment"! After a slightly puzzled look from the potential customer here was my explanation and reply.

First, let me clarify the terminology "orange peel". This is when your applied finish, after it has dried, resembles the texture of the skin of an orange. When you look at the surface it is not smooth but slightly rippled and wavy. This effect can be minimal or it can be very pronounced.

Generally, an orange peel effect occurs when the interaction of the viscosity of the finish being applied is too thick or atomizing air pressure is too low. The end results are atomized droplets of finish being uneven in size. When these droplets reach the surface of your workpiece some are larger and some smaller creating a wet film with highs and lows on the surface.

When you have a wet film that has these highs and lows it is called "surface tension". Many finishes have some surface tension when they are applied. Depending on a variety of factors (temperature, humidity, speed of drying time, flow additives built into the finish) will determine what your finish looks like when it dries. Often your finish will level out as it dries and you are left with a smooth and desirable surface. On the other hand, it is also possible that the finish will dry and there will still be highs and lows. This is when we say we have "orange peel".

Let us consider the options to correct or better yet avoid orange peel. The first option is to increase atomizing pressure to ensure that the coating viscosity is atomized evenly. If increasing pressure is not an option then appropriately thinning your coating would be the next step. Most important is adjusting the two variables (viscosity or pressure) to achieve the finest atomization which becomes the smoothest wet film and then dry film on your workpiece.

Here are a few things to know. The faster a finish dries (lacquer) the thinner it needs to be when applied. A slower drying finish generally has time to flow and level therefore can sometimes be sprayed at a slightly higher viscosity.

Quality of finish is also important. Many better quality finishes have additives built into their formulas to aid in flowout and leveling during the drying process. These products have the ability to be atomized at a slightly higher viscosity.

Fortunately, most finishes have the ability to be thinned or their viscosity reduced if necessary. The exception to this rule are waterbase and/or waterborne finishes that are best applied as manufactured. Generally a waterbase finish manufacturer will provide an appropriate reducer for their product but never more than 5% - 10%.

When selecting an HVLP turbine sprayer it is wise to select the highest power unit that will properly atomize your choice of finishes to ensure that you have the power and pressure available to provide you with the very best finish at practical and realistic viscosities. You can always lower turbine pressure if necessary however you cannot increase it!

Apollo's technical staff is always available and ready to answer your finishing questions and help you make the right product choice for you.

Remember, the finisher makes "orange peel" not the equipment!

Have questions? Feel Free to Contact us!

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