



PROBLEMS IN SPRAYING

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by MIDWEST TUNGSTEN SERVICE

PAINT SAGS

May be caused by holding gun too close to part or using the wrong solvent. Keep gun 8 inches away from part and spray lacquer at 45 lbs. pressure. Check with reference or vendor regarding proper solvent.

MASK BLOWBY

The part may have changed size or warped. Check against part of known dimensions. Check for proper location of part in mask. Also check condition of mask. A unique mask may be needed for each mold cavity. Keep gun 8 inches from part, at 45 lbs. of pressure. Spray favoring the mask. If fixture is clamped using air, make sure pressure on cylinder is 65 lbs. Check lips and wires on mask for damage and misalignment.

PAINT DRIPS

Usually from a dirty mask. Wash mask before it is too dirty. Consider washing on a schedule or at regular intervals.

PAINT CHANGES COLOR

Metallics and heavy pigments settle. Use agitator on pot. Be sure it doesn't go too fast or centrifugal force will separate components.

DIRT

Can be caused from contaminated hose or air line, dry spray from booth, or paint which needs to be filtered.

BLUSH

Caused by humidity. Add a slow solvent to correct.

POOR ADHESION

Caused by (1) mold release (clean part off), or (2) water/oil in paint or air line, or (3) humidity. On humid days you should drain lines often. Use of an air dryer will eliminate problem.

SALT AND PEPPER

Poor pattern caused by low gun pressure, dirty gun, or bad packing in gun.

EXCESSIVE PAINT USAGE

You are putting paint on too thick or blowing too much up the stack. Adjust your spray pattern and check pot pressures. With lacquers 45 pounds is about right.

ORANGE PEEL

Thinner is too fast or gun is too far from part. You may be making passes too fast or using cold paint. Paint should be room temperature before using or thinning.

WRONG COLOR

Check for complete opacity of paint on part. Check color against color chip in northern light or in light booth. Be certain paint is thoroughly mixed prior to using.

SHADOWS

Caused by bridge wires on mask or other obstructions. Spray from another location or retool mask.

NO PAINT - INSIDE CORNER

Reduce pressure and spray pattern. Spray corner first, one side wall, then the other side wall.

AIR MAKE-UP FOR LACQUERS

...and a word about FILTERS

First...

You need makeup air in the spray room to:

1. Mitigate explosion danger
2. Carry away solvents and dry paint spray
3. Control air flow to assist in spraying

Makeup air is the free air in the room, not compressed air. It can also be brought directly into an over or spray area.

POINTS TO CONSIDER...

VOLUME

You must move enough air to make your solvents nonexplosive. It takes 10,000 cubic feet of air to make one gallon of acetone nonexplosive. If you use two gallons of lacquer containing 20% solids in one hour, 80% (1.6 gallons) is solvent. Therefore, you need 16,000 cubic feet of air per hour moving through to be safe.

VELOCITY

Air must move fast enough to carry away the excess solvent and dry overspray. Most spray booths will move air faster than required in the above example. A spray booth for lacquer should move 125 surface feet per minute. So if a booth is 3' x 3' (9 ft²) and velocity is 125' per minute, you are moving 1125 ft³ per minute, or 66,000 ft³ per hour. At that rate we could safely spray 6 gallons per hour. These calculations are more crucial for automatic operations than for hand spraying.

You can have too much velocity. We have seen paint carried away without hitting the part because the velocity was too high.

REPLACEMENT AIR

Air that moves up the stack needs to be replaced. If we have many booths or the room is small, the temperature in the room can become irregular or we can raise enough dust to cause problems. A 10' x 20' room with an 8' ceiling is 1600 ft³. A 3' x 3' booth with an 18" exhaust could exchange the air in the room 40 times in an hour. Replacement air should be clean, filtered, and room temperature. The best bet is to bring it in from another shop area through a filter.

EXHAUST AIR

There are Federal, State, and local regulations that govern what and how much can be exhausted. Chances are that you will have to remove paint particles with a filter or water-wash. These will have to be stored and disposed of as hazardous waste. The remaining exhaust will need to be stripped of solvent by burning or reclaim. This is primarily an EPA issue.

HAZARDS

Fire and explosion are the most common hazards. Solvent is flammable as are fine particles of dried paint. All electrical switches, fans, lights in the paint area must be explosion-proof. Be aware that solvent is heavier than air. If an exhaust stack is full of solvent vapor and is shut off, that vapor will fall back into the room. Always run the booth empty long enough to clear the stack. Used filters are combustible and should be stored appropriately. Any paint which accumulates on the booth, in the stack, or on the fan blades should be regularly removed to reduce fire hazard. The area should have an approved automatic extinguishing system. Insurance carriers and local authorities may require specific fire avoidance and suppression devices be installed. The National Board of Fire Underwriters and the National Fire Protection Association are two good resources.

BOOTH DESIGN

Most places do not allow the use of a baffle-type booth any longer, they simply do not trap enough material. Most booths today are filter or water wash booths. There are also different draft patterns and surface finishes to be considered. Obviously, cost is also an issue. Booths should carry the approval of one or more registered organizations who have tested it for safety.

Disclaimer

The above information is not deemed to be complete or accurate for any given installation, but is merely intended as a tool to promote further study and investigation. Any information given by Federal, State, or local authorities, or equipment manufacturers should take precedence.

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