



### Pinholing / Popping

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Popping refers to tiny holes or projections on a coated surface.

Those which form from the substrate to the paint film surface are known as pinholes.

#### **Q1:**

**Is the paint film thicker than required?**

#### **A1:**

Adjust the film thickness appropriately.

#### **Q2:**

**Did you use an appropriate thinner?**

#### **A2:**

Use the specified thinner for coating.

#### **Q3:**

**Is the viscosity of the paint higher than appropriate?**

#### **A3:**

Reduce the viscosity of the paint.

Change to a thinner that evaporates more slowly.

#### **Q4:**

**Has the ambient temperature risen abruptly?**

#### **A4:**

Reduce the viscosity of the paint.

Change to a thinner that evaporates slowly.

#### **Q5:**

**Is the setting time short? Has the conveyor speed become faster?**

#### **A5:**

Adhere to the specified setting time.

To shorten the setting time for productivity reasons or the like, reduce the viscosity of the paint.

Change to a thinner that evaporates slowly.

Review the coating method.

#### **Q6:**

**Is the setting chamber temperature high?**

#### **A6:**

Reduce the viscosity of the paint.

Change to a thinner that evaporates slowly.

Lower the setting chamber area temperature.

**Q7:**

**Is the air velocity too high in the setting or drying area?**

**A7:**

Adjust the air velocity.

Control the thinner to evaporate slowly.

**Q8:**

**Is the temperature of the substrate higher than appropriate?**

**A8:**

Lower the temperature of the substrate.

Reduce the viscosity of the paint.

Change to a thinner that evaporates slowly.

**Q9:**

**Does the baking temperature increase sharply?**

**A9:**

Avoid rapid heating.

Measure the oven temperature and adjust the oven conditions.

Change to a thinner that evaporates slowly.

**Q10:**

**Is the flow delivery larger than appropriate?**

**A10:**

Reduce the flow delivery.

Investigate the cause of the larger-than-required flow delivery.

**Q11:**

**Did you change the coating equipment?**

**A11:**

If you did, reconfigure the coating conditions.

**Q12:**

**Did you change the coating process?**

**A12:**

If you did, reconfigure the coating conditions.

**Q13:**

**Is the air velocity in the paint booth too high, resulting in faster touch-dry?**

**A13:**

Reduce the air velocity.

Standard Air Velocity in Paint Booth

- Manual coating/REA booth: 0.3–0.7 m/s
- Electrostatic coating booth: 0.1–0.5 m/s

Reduce the viscosity of the paint.

Change to a thinner that evaporates slowly.

**Q14:**

**Did you change the batch of paint?**

**A14:**

Check whether there was a recent batch change or an old batch was used.

**Q15:**

**Is the pumping pressure high? Is the atomization pressure low?**

**A15:**

If high, reduce the pumping pressure appropriately.

If low, raise the atomization pressure appropriately to avoid poor atomization

**Q16:**

**Is the paint in the pressure tank stirred extremely fast?**

**A16:**

Stir mildly to control the occurrence of bubbles.

**Q17:**

**Is the substrate too close to the heat source?**

**A17:**

Ensure an appropriate distance.

Specifically, use care if an infrared lamp is used.

**Q18:**

**Do you use an infrared lamp?**

**A18:**

Infrared lamps tend to result in local heating.

Adjust the equipment by changing the lamp position or its wattage.

**Q19:**

**Is there any paint/coating sagging or picture flame?**

**A19:**

Perform coating to achieve a uniform film thickness.

After coating, observe the paint film.



**Q20:**

**Did you use a galvanized, cast, or aluminum material?**

**A20:**

Reconfigure the coating conditions.

Before coating, bake the substrate (to avoid pin holes).

**Q21:**

**Does the substrate surface have any tiny hole or the primer surface have any hole?**

**A21:**

Incorporate a filling process.