

# Troubleshooting Guide



Preparing for the perfect trial? Why not!

Possible causes and remedies for ten possible problem cases, which can occur during a film coating process.

<b>Problem</b>	<b>Orange Peel/Roughness</b>	<b>Logo Bridging</b>	<b>Twinning</b>	<b>Sticking and ripping off coating</b>	<b>Scuffing</b>
<b>Description</b>	Rough or uneven surface of the tablets	Filling of the logo or the break line	Two or more tablets stick together	Tablets rip off the coating from each other	Gray layer forms on the tablet surface
<b>Possible Reason</b>	<ul style="list-style-type: none"> <li>- Distance between nozzle and tablet bed is incorrect</li> <li>- Spray angle is wrong</li> <li>- Spray drying</li> <li>- Sedimentation of the dispersion</li> <li>- Viscosity/solid content is too high</li> <li>- Core properties are inadequate (high friability)</li> <li>- Atomizing air pressure incorrect (too low/high) (AA)</li> </ul>	<ul style="list-style-type: none"> <li>- Viscosity is too high</li> <li>- Plasticizer content is too low</li> <li>- Spray rate is too high</li> <li>- Atomizing air pressure is not right (too low/high)</li> </ul>	<ul style="list-style-type: none"> <li>- Overhumidification</li> <li>- Process air volume is too low</li> <li>- Tablet shape "planar" is not suitable</li> </ul>	<ul style="list-style-type: none"> <li>- Pan speed is too low</li> <li>- Air temperature is too low</li> <li>- Process air volume is too low</li> <li>- Spray rate is too high</li> <li>- Process is too damp</li> </ul>	<ul style="list-style-type: none"> <li>- Titanium dioxide quantity is too high</li> <li>- Interaction between drum wall and coating</li> </ul>
<b>Remedy</b>	<ul style="list-style-type: none"> <li>- Increasing the spray rate</li> <li>- Decreasing the drying capacity</li> <li>- Reducing the atomizing air pressure</li> <li>- Decreasing the viscosity</li> <li>- Optimizing the distance between nozzle and tablet bed</li> </ul>	<ul style="list-style-type: none"> <li>- Decreasing the viscosity</li> <li>- Increasing the plasticizer content</li> <li>- Reducing the spray rate</li> <li>- Adjusting the spray pressure (increase or decrease)</li> </ul>	<ul style="list-style-type: none"> <li>- Reducing spray rate</li> <li>- Increasing the drying capacity</li> <li>- Optimizing the form of the tablets to "biconvex"</li> <li>- Using release agents in the formulation</li> </ul>	<ul style="list-style-type: none"> <li>- Increasing the pan speed</li> <li>- Increasing the inlet air temperature</li> <li>- Increasing the process air volume</li> <li>- Reducing the spray rate</li> </ul>	<ul style="list-style-type: none"> <li>- Reducing the titanium dioxide</li> <li>- Spraying the drum prior to the trial</li> </ul>

<b>Problem</b>	<b>Capping</b>	<b>Color variation I</b>	<b>Color variation II</b>	<b>Peeling</b>	<b>Friability</b>
<b>Description</b>	Detachment of the film surface	Batch has heterogeneous color	Individual tablets have heterogeneous color	Spalling of the film – possible cracking of the coating	Tablet mass reduced due to abrasion
<b>Possible Reason</b>	<ul style="list-style-type: none"> <li>- Hygroscopic core</li> <li>- Disintegrants are used</li> </ul>	<ul style="list-style-type: none"> <li>- Coverage properties of the coating are insufficient</li> <li>- Solid content of the suspension is too high</li> <li>- Weight gain level is too low</li> <li>- Batch quantity is too low</li> </ul>	<ul style="list-style-type: none"> <li>- Application rate is too low</li> <li>- API interacts with the coating material</li> <li>- Low opacity</li> <li>- Active ingredients diffuse from the core</li> <li>- Overhumidification</li> </ul>	<ul style="list-style-type: none"> <li>- Tablet is swelling</li> <li>- Plasticizer content in coating suspension is too low</li> <li>- Tablet is too wet</li> <li>- Tablet hardness is too low</li> <li>- Tablet is outgassing</li> </ul>	<ul style="list-style-type: none"> <li>- Mechanical stress</li> <li>- Tablets are too soft</li> <li>- Tablets are too damp</li> <li>- Pan speed is too high</li> </ul>
<b>Remedy</b>	<ul style="list-style-type: none"> <li>- Using a subcoat</li> <li>- Optimizing process parameters</li> </ul>	<ul style="list-style-type: none"> <li>- Increasing the coverage properties of the coating (more pigments)</li> <li>- Reducing the solid content</li> <li>- Increasing the weight gain level</li> </ul>	<ul style="list-style-type: none"> <li>- Increasing the weight gain</li> <li>- Adapting the formula/changing the pigments</li> <li>- Increasing the coverage properties of the coating formulation</li> <li>- Using a subcoat</li> <li>- Increasing the tablet bed temperature</li> </ul>	<ul style="list-style-type: none"> <li>- Using a subcoat</li> <li>- Increasing the plasticizer content</li> <li>- Spraying with drier conditions</li> <li>- Increasing the film forming polymer</li> </ul>	<ul style="list-style-type: none"> <li>- Reducing the pan speed</li> <li>- Optimizing the core formulation</li> <li>- Spraying with drier conditions</li> <li>- Using the interval "jog mode" while heating cores</li> </ul>

**More support? Why not! Contact us.**

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