

# Troubleshooting Guide



Preparing for  
the perfect trial?  
Why not!

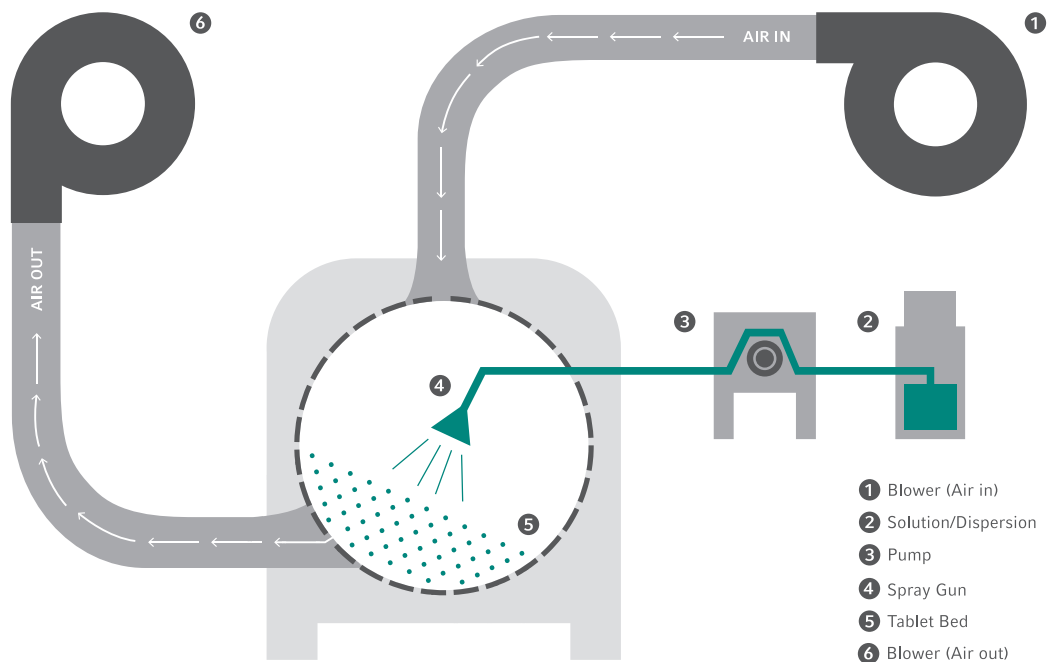
Possible causes and remedies  
for ten possible problem  
cases, which can occur during  
a film coating process.

# Every coating process is a challenge

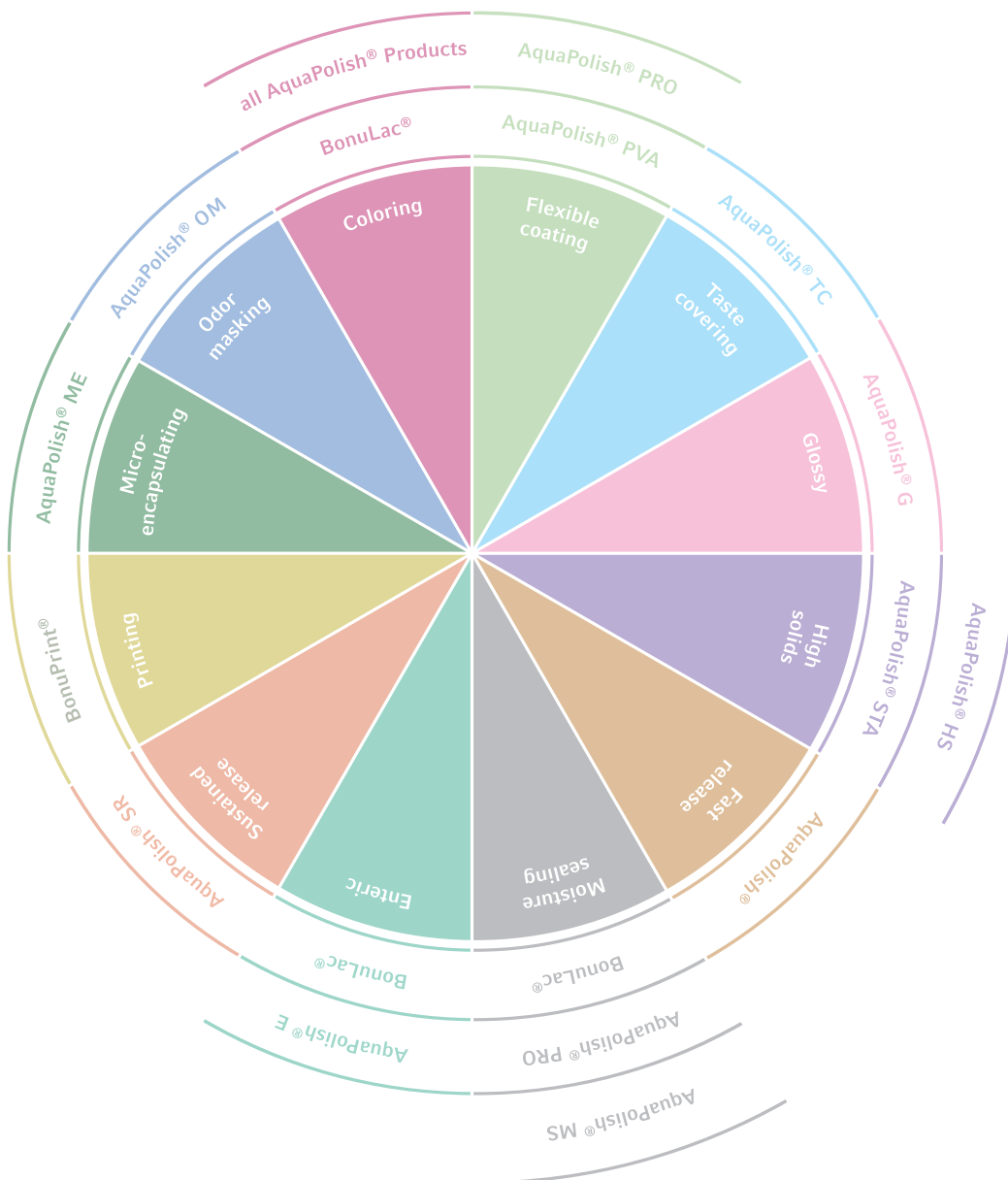
Lots of parameters have to be considered before and during a coating process. Sometimes it is necessary to adjust parameters in order to achieve the best possible results. But do you always know which modifications are needed to improve the coating process?

There are a lot of factors that can lead to a suboptimal result. Maybe the tablet core is too soft or has an unsuitable shape or maybe the process parameters are incorrect such as use of the wrong pan speed or spray rate, too much air pressure, too high solid content or the wrong drying conditions.

**BIOGRUND's** Troubleshooting Guide will help you find the best way to achieve perfect results. Furthermore, we provide on-site technical services for our customers and help in the research for new solutions.



We continuously develop our film coating products to meet customer requirements. Whether standard or tailor-made solutions – our wide range of high quality products always provides the best assistance for all film coating activities.



Problem

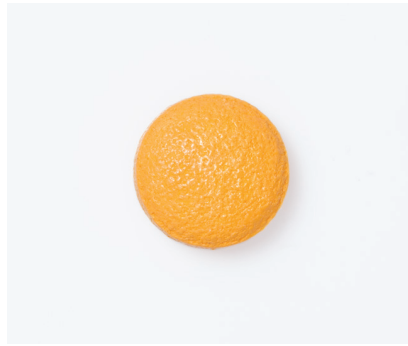
## Orange Peel/Roughness

## Logo Bridging

Description

**Rough or uneven surface of the tablets**

**Filling of the logo or the break line**



Possible Reason

- Distance between nozzle and tablet bed is incorrect
- Spray angle is wrong
- Spray drying
- Sedimentation of the dispersion
- Viscosity/solid content is too high
- Core properties are inadequate (high friability)
- Atomizing air pressure incorrect – too high or too low (AA)

- Viscosity is too high
- Plasticizer content is too low
- Spray rate is too high
- Atomizing air pressure is not right (too low/high)

Remedy

- Increasing the spray rate
- Decreasing the drying capacity
- Reducing the atomizing air pressure
- Decreasing the viscosity
- Optimizing the distance between nozzle and tablet bed

- Decreasing the viscosity
- Increasing the plasticizer content
- Reducing the spray rate
- Adjusting the spray pressure (increase or decrease)

## Twinning

---

Two or more tablets stick together



- 
- Overhumidification
  - Process air volume is too low
  - Tablet shape “planar” is not suitable

- 
- Reducing spray rate
  - Increasing the drying capacity
  - Optimizing the form of the tablets to “biconvex”
  - Using release agents in the formulation

## Sticking and ripping off coating

---

Tablets rip off the coating from each other



- 
- Pan speed is too low
  - Air temperature is too low
  - Process air volume is too low
  - Spray rate is too high
  - Process is too damp

- 
- Increasing the pan speed
  - Increasing the inlet air temperature
  - Increasing the process air volume
  - Reducing the spray rate

## Scuffing

---

Gray layer forms on the tablet surface



- 
- Titanium dioxide quantity is too high
  - Interaction between drum wall and coating

- 
- Reducing the titanium dioxide
  - Spraying the drum prior to the trial

## Capping

---

Detachment of the film surface



- 
- Hygroscopic core
  - Disintegrants are used

- 
- Using a subcoat
  - Optimizing process parameters

## Color variation I

---

Batch has heterogeneous color



- 
- Coverage properties of the coating are insufficient
  - Solid content of the suspension is too high
  - Weight gain level is too low
  - Batch quantity is too low

- 
- Increasing the coverage properties of the coating (more pigments)
  - Reducing the solid content
  - Increasing the weight gain level

## Color variation II

---

Individual tablets have heterogeneous color



- 
- Application rate is too low
  - API interacts with the coating material
  - Low opacity
  - Active ingredients diffuse from the core
  - Overhumidification

- 
- Increasing the weight gain
  - Adapting the formula/changing the pigments
  - Increasing the coverage properties of the coating formulation
  - Using a subcoat
  - Increasing the tablet bed temperature



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

**M** [technicalservice@biogrund.com](mailto:technicalservice@biogrund.com)

**T** +49 (0) 6126-952 63-0 *Europe*

**T** +1 (502) 901-2980 *United States*

**T** +7 (495) 116-0386 *Russia*

## Peeling

---

**Spalling of the film – possible cracking of the coating**



- 
- Tablet is swelling
  - Plasticizer content in coating suspension is too low
  - Tablet is too wet
  - Tablet hardness is too low
  - Tablet is outgassing

- 
- Using a subcoat
  - Increasing the plasticizer content
  - Spraying with drier conditions
  - Increasing the film forming polymer

## Friability

---

**Tablet mass reduced due to abrasion**



- 
- Mechanical stress
  - Tablets are too soft
  - Tablets are too damp
  - Pan speed is too high

- 
- Reducing the pan speed
  - Optimizing the core formulation
  - Spraying with drier conditions
  - Using the interval “jog mode” while heating cores

## General Information on BIOGRUND

Since 1999, **BIOGRUND** has been the specialist for the homogeneous mixing of excipients and carriers. With locations in Germany, Switzerland, America and Russia, we support the food supplement and pharmaceutical industry in the development, formulation and production of solid oral dosage forms. The tailor-made and ready-to-use special powder mixtures for film coating, sugar-coating, coloring and tableting enable optimum results in a short time. Easy, fast and reliable!

### Locations

#### EUROPE

##### Germany

T +49 (0) 6126-952 63-0

E [info@biogrund.com](mailto:info@biogrund.com)

##### Switzerland

T +41 (0) 41-747 14-50

E [team@biogrund.com](mailto:team@biogrund.com)

#### USA

T +1 (502) 901-2980

E [contact@biogrund.com](mailto:contact@biogrund.com)

#### RUSSIA

T +7 (495) 116-0386

E [info@biogrund.ru](mailto:info@biogrund.ru)

### Visit our website

[www.biogrund.com](http://www.biogrund.com)

### Follow us on:

 LinkedIn  Twitter

 Instagram