

Trouble Shooting

Here's a trouble shooting guide to help you breeze through all your problems.

Unopened crimped clusters in bale

While manufacturing the fibre, it is crimped in tow form before cutting. After cutting and during baling the clusters are opened by using air-jets.

Sometimes the clusters are not fully opened due to non-optimum air pressure or due to the nature of the finish. During blow-room processing if the clusters do not get opened fully, they can cause total lap weight variation, yard-to-yard variation and also unopened and uncarded clusters in the card web.

When such fibre is received:

- a. Pre-open it through a blender with minimum setting, between inclined lattice and evener roller.
- b. In the blow room line, regulate feed from the blender to the minimum level without starving the reserve box of the subsequent hopper-feeder.
- c. Increase speeds of both or one of the beaters.
- d. Provide one more opening point if necessary.
- e. Despite these, if some clusters pass on to the laps and hence to the cards then:
 - Increase cylinder speed.
 - Increase licker-in speed
 - Close cylinder to flat setting without precipitating cylinder loading.
 - Increase flat speed.

Highly Cohesive fibre

Some brands of Polyester Staple Fibre or some lots of a given brand have very high cohesion. Such fibres also can cause problems listed as above. Similar actions as listed above are applicable here also. Further, if any over spray oil is added to the mixing reduce its quantity to the minimum or stop it.

Highly opened fibre without any cohesion

Some brands of PSF are highly opened and without cohesion. Lack of cohesion can be gauged by holding a certain mass of the fibre in the hand and jerking it gently. If the fibres fall down quickly without holding on to each other, then it indicates lack of cohesion. Such a fibre will cause lap-licking, lap-splitting, web failing at card and fly liberation at further stages. To deal with this:

- Stop preopening
- Over spray finish oils imparting cohesion
- Widen inclined lattice to evener roller setting at blender and reduce inclined lattice speed to maintain weight of fibre fed to subsequent parts of the blow-room.

Fused fibres

1. Reduce beater speeds or reduce beating points.
2. Fused fibres are of two types. The bigger and harder ones which invariably drop down due to gravity at beater/licker-in waste chambers. The second type normally known as undrawn fibres is lighter. But more difficult to remove.
3. When fused fibres pass through the card web into the yarn and hence the fabric they cause deep dyeing defects resulting in fabric rejections.

The following actions are to be followed to remove them:

- Grid bars under the beaters should not be completely closed to facilitate dropping of the fused fibres into the beater waste chamber.
- Widen licker-in to feed plate setting to the maximum extent possible without causing plucking of lap sheets by the licker-in.
- When rote knives are in use, set them closer to the licker-in.
- Use closest possible setting between cylinder and flat.
- Increase flat speed.

Lap splitting and licking

The reasons for lap licking and splitting are lack of openness in the fibre or excessive openness and lack of cohesion or poorer mechanical condition of the blow room.

- Preopen the raw-stock through a blender before feeding to the blow-room.
- Minimise feed without affecting wrapping.
- Increase beater speeds.
- Close bottom cage side air entry to deposit material on top cage only.
- Increase calendar roller pressure to the maximum extent possible.
- Use minimum rack pressure.
- Introduce four or five soft twisted roving ends to bind the layers of lap.
- Use lap felting fingers and set them close to the lap-sheets.
- Do not use too much soft waste. Recommended limit for soft is 3%.
- Over spray cohesive over spray oil to the extent that it does not cause other problems such as cylinder loading or lapping.
- In extreme cases, reduce production rate of scutcher.

Cylinder loading

- Ensure that the lap unwinds without licking.
- Sometimes loading is encountered on the extreme side or both sides of the cylinder due to folding of laps at the edges. Adjust lap guides at the back of card to just fold the lap edges without forming a double.
- Clean cylinder and doffer wires at regular intervals with petrol to remove deposits of tinting colours.
- Ensure that cylinder and doffer wire points are sharp without any damaged patches.
- Closest possible setting between cylinder and licker-in (6 to 7 thou) and cylinder and doffer (3 or 4 Thou) to be maintained.

- Increase cylinder speed.
- If the humidity is high, reduce it.
- If any over spray oil is applied, reduce it or stop it.
- Resort to blow-room blending.
- Reduce production rate.
- Widen cylinder to flat setting.

Static Problems

Static is generally due to lower humidity and/or lower finish. It is characterised by:

Billowing of web at card.

Web failing down.

Web not coming out of doffer and lapping around the doffer-rolls or doffer comb.

Coiler choke and fly liberation at drawing.

Speed-frame and lapping on metallic bottom rollers.

Overspray antistatic oil.

Increase humidity in the departments.

Wet Hessian cloths may be spread on the floor around the machines involved and keep them moist by sprinkling water periodically.

Fly liberation at card, drawing, speed-frame and ring frame

Fly liberation may be due to:

- Static
- Lack of Cohesion in the fibre mass
- Higher amount of finish
 - Fly liberation due to static can be overcome by additional antistatic over spray and increasing humidity.
- Liberation of fly due to poorer cohesion to be tackled as under:
 - Add cohesive over spray oils to the mix.
 - Avoid excessive opening of the raw-stock during mixing preparation and blow-room operations.
 - Maintain ail clearers clean and set them tight to the rollers against what they come in contact with.
 - Use heavier clearers.
 - Subject the cots to treatment of varnish, acid or liquimix.
 - Use of condensers at speed **frame**.
 - Set condensers at the back of drawing closer.

Higher finish in the mixing leads to stickiness which in turn causes fly liberation at drawing and speed frame. To sort out the problem arising out of this :

- Reduce/stop using over spray oils.
- Reduce humidity
- All clearers to be maintained clean and set tight against the rollers.

- d. Use condensers at speed frame.
- e. Maintain all clearers clean and set them close to the respective rollers.
- f. Use heavier clearers.

Lapping of top rollers

- Reduce/stop additional over spray oils.
- Reduce the quantity of tinting colour to the minimum level possible.
- Reduce humidity.
- All clearers to be maintained clean and set tight against the rollers.
- Top rubber rollers to be maintained smooth with regular polishing/buffing with fine grit buffing rolls.
- Varnishing, acid treatment or liquimix application for top rollers.
- Reduce top roller pressure wherever possible
- Use bigger diameter and wider width cots. Use of harder cots also helps.
- Maintain proper suction pressure at ring frame by regular cleaning of pneumafil pipes and ducts and use of higher H.P. pneumafil motor.
- Increase the overhang of front top cots at speed frame and ring frame by 1 mm.
- Use slightly higher T.M.
- Regular CTC cleaning of cots.

Crackers in yarn

- Reduce T.M. of rove without causing stretch or creel breaks at ring frames.
- Use wider back zone setting and/or higher break drafts at ring frame.
- Condition of top rollers at ring frame to be maintained well, both in terms of diameter and surface.
- Diameters of back line and front line cots should be more or less the same.
- Increase top arm loading.
- Use wider spacer at ring frame.
- Increase spinning tension either by increasing spindle speed or by using heavier ring traveller without affecting end breaks at ring frame.

Variation in blend composition

- In case of blow room blending, accurately weigh both the components while layering. After layering, subject the mixing to one or two toppling operations.
- In case of draw frame blending, both the components should be given one passage of drawing to maintain respective sliver weights.
- Single stop motions at drawing must act effectively,
- Insist on end-to-end piecing.
- While preparing the mixing for blow room blend or adjusting the hanks of pre-blending passage drawing sliver, preferential loss of the **cellulosic** component in process should be kept in mind.