

LABEL
ACADEMY

MASTER CLASS

FLEXIBLE PACKAGING

FLEXIBLE PACKAGING CONVERTING QUALITY CONTROL

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Specialized Training for Flexible Packaging Converting

Range of Topics

- Overrun and Waste Strategy
- Film Winds
- Quality Control Procedures for Incoming Material
- Printing Die Lines and QC
- Laminating QC
- Slitting QC
- Pouch Seal Tooling & Punches
- Double Cut System
- Pouch QC Checks
- Operations
- Tools



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Today's Focus is Quality Control



Lamination Quality Control



In this section, we will discuss the different types of quality control methods used in manufacturing the roll stock that will be used to make pouches. This will consist of destructive and visual testing.

Solventless Adhesive Lamination:

- Coat Weight Test



Frequency:

- Start Up
- Every 3 Hours Production.

Purpose:

- To ensure that the laminator applies the proper amount of adhesive.

Process:

- Alternative to Automatic coat weight system.
- 100mm x 100mm Square out of the film with the adhesive applied and weigh with & without adhesive.

Lamination:

- Adhesive Peel testing



Frequency:

- The test should be done after every roll, tested and signed off by QC.

Purpose:

- To test the force needed to pull apart laminated structures to ensure proper adhesion.
- This will also help prevent delamination from being created from poor bonding.

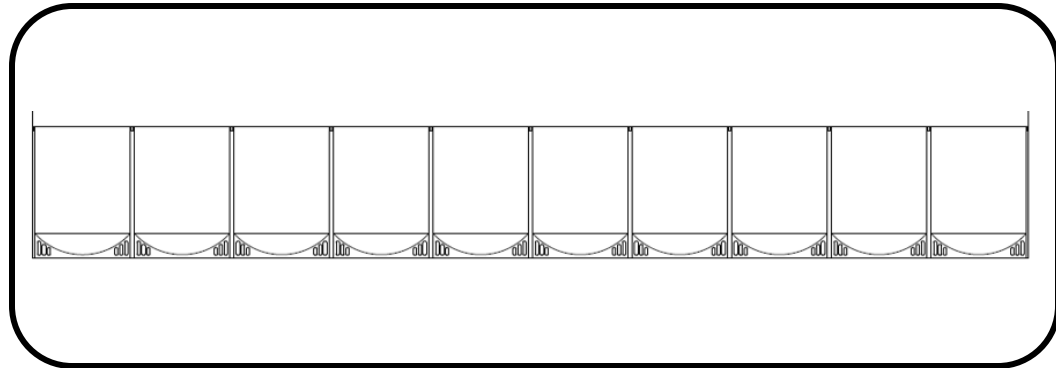
Process:

- Collect a 25mm wide x 100mm long strip of material from the roll of laminated material. Begin to peel the films apart for 25mm and then put the strip into an oven at 70c for 15 minutes to accelerate the drying process. If the bond is poor, check the mix ratio of A&B adhesives. For general-use packaging, you want to achieve 3.5 Newton or 305 grams.

The 15 min. in an oven at 70c is not required for the Pack Ready, laminator because there is no cure time for the adhesives to set. The Pack Ready film can be tested immediately. Test ASTM-F904

Lamination:

- Image Repeat Test



Frequency:

- Each time a different material is loaded.

Purpose:

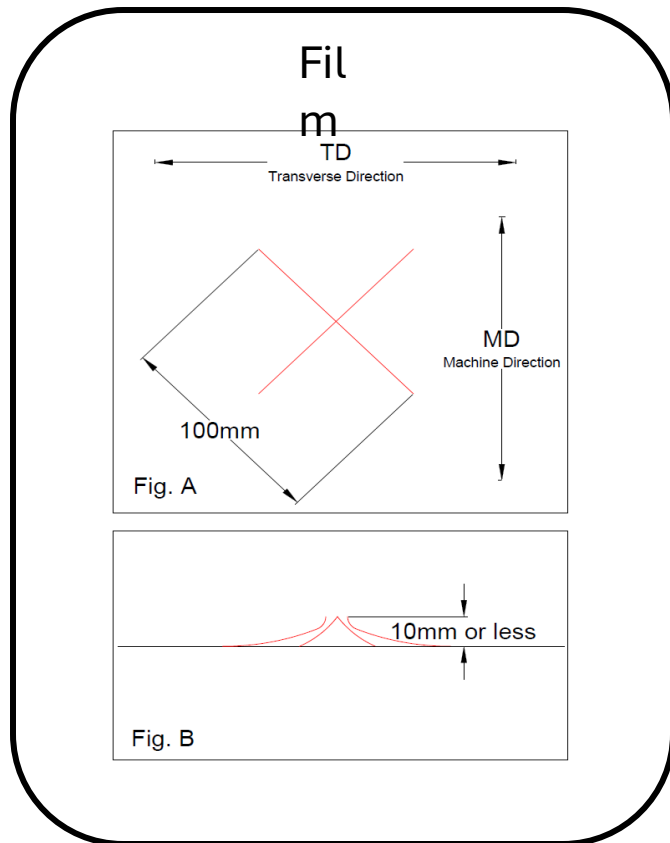
- To test that the print repeat is within tolerances.

Process:

- When you are setting up lamination, you need to measure the impression repeat to make sure you are not stretching the film.

Lamination:

- Curl Test



Frequency:

- This test will be done on all roll stock you receive, before you start and during lamination, and should be done every time you start a new job on the laminator.

Purpose:

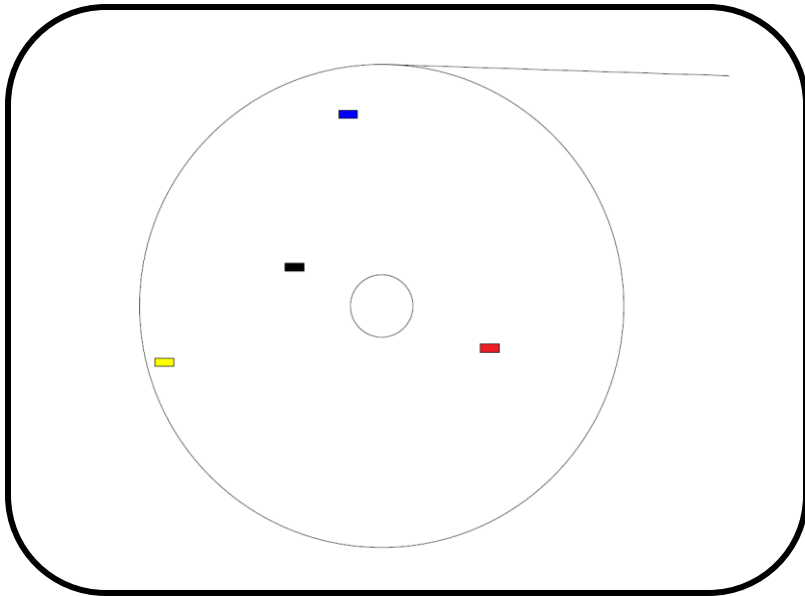
- To test MD (Machine Direction) and TD (Transverse Diction) tensions in the film. Determining if the film has MD and TD tension is a very effective way to check and see if the film tensions are setup correctly.

Process:

- Film curl is caused when the film is run under too much tension.

Lamination:

- Roll Tags



Purpose:

- The slitter runs at a very high rate of speed so it is impossible for the operator to see all the defects in the film that happened during the printing and lamination process. Placing tags will make sure that the slitter operator knows what is happening with the roll as they are running.

Process:

- As you are running film you want to place color coded flags to mark certain areas that will need to be removed during slitting.

A list of the most common flags to consider,

1. Start up when good lamination has begun
2. Machine had to be stopped because adhesive has ran out
3. Splice when certain laminate material has finished but printed product is still left to laminate
4. Film defects

Slitter Quality Control



In this section, we will discuss the different types of issues that need to be controlled during slitting.

Slitting:

- Slitting roll conformity tests



Frequency: Do the following tests through out production.

Purpose: To make sure that you are producing quality rolls

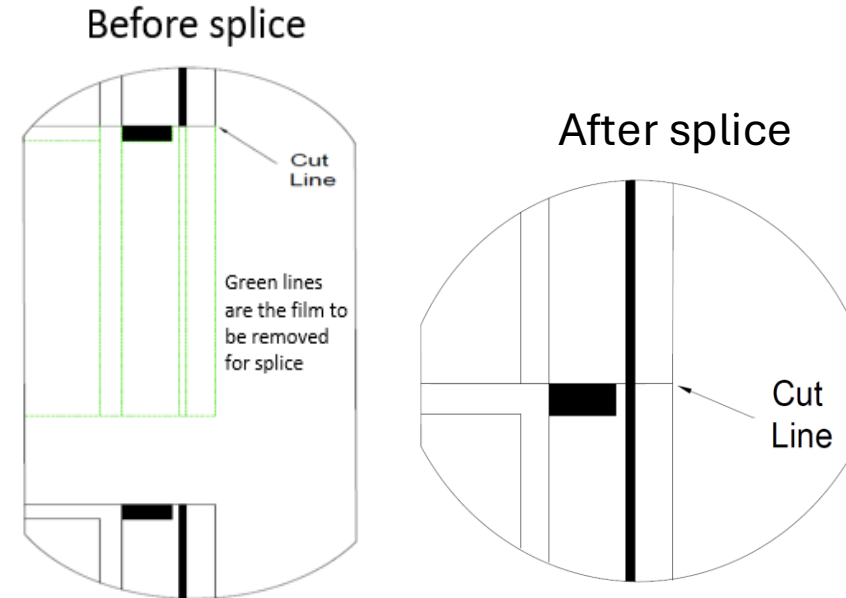
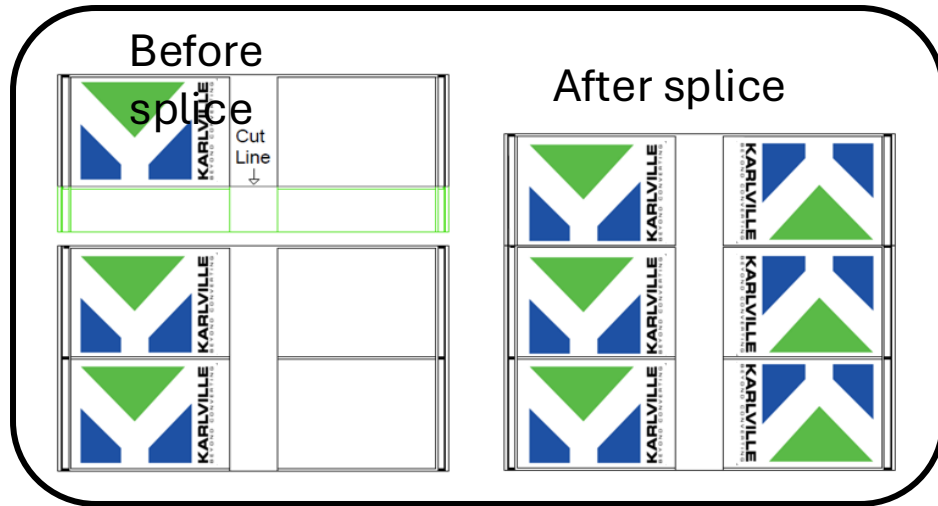
Process: Visual roll issues on the Slitter

- 1) Out-of-round rolls
- 2) Starred rolls
- 3) Roll blocking
- 4) Telescoping
- 5) Baggy areas in the film
- 6) Gauge bands and hard spots
- 7) Rough or nicked edges from dull slitting blades
- 8) Core offsets
- 9) Slit to print is offset
- 10) Crush cores
- 11) Excessive splices
- 12) Roll hardness
- 13) Splicing should be with red tape.

The most common operator mistake is compensating for poor roll geometry by increasing web tension. It's best to increase nip pressure or drive torque first.

Slitting:

- Splicing Rolls



Purpose:

- To make sure that the rolls are running through the pouch machine smoothly and reduce the waste caused by the splices.

Process:

- When you are doing splices, it is essential to take your time and align the images before splicing them together. The best point to do splices is at the eye marks.

Pouch QC Checks



In this section, we will discuss the different types of quality control methods used in manufacturing pouches. This will consist of destructive and visual testing. Different methods will be used depending on type of pouches produced and product usage.

Structural Testing Methods:

- Vacuum Testing

Fig.1



Fig.2



Frequency:

- When starting a new job, all pouches will be tested until you achieve good seals.
- Once production is started, this should be repeated every 15-30min.

Purpose:

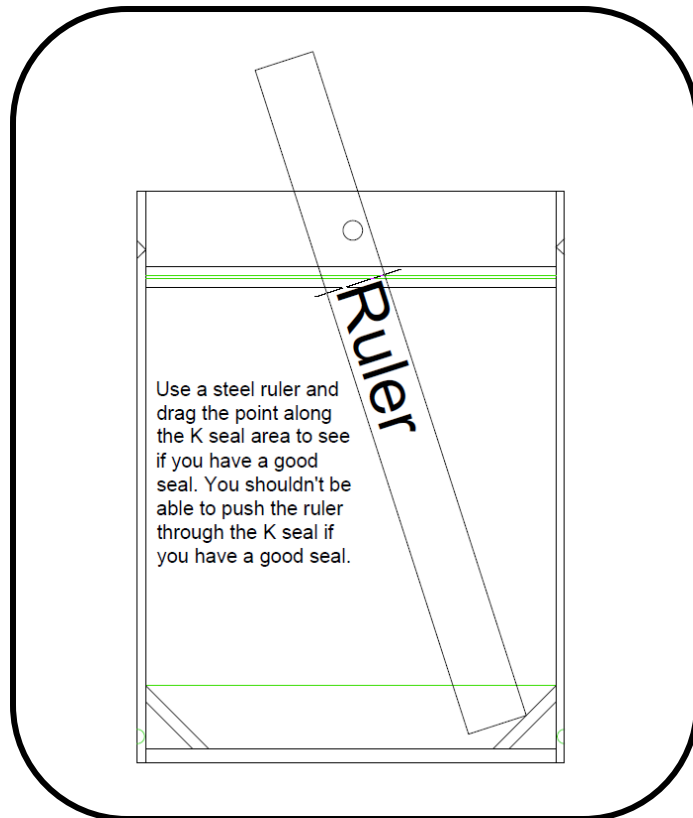
- Test all of the seals of the pouch to make sure you do not have weak seals or channel leaks.

Process:

https://www.youtube.com/watch?v=ZR_-LRo3IIA

Pouch:

- Manual Seal Check



Frequency:

- When starting a new job, all pouches will be tested until you achieve good seals. Once production is started, this should be repeated every 15min.

Purpose:

- To make sure that the seals have clean and crisp seal edges

Process:

- Take a steel ruler and run it along the internal seals. The edges should be straight and the seal should have a defined edge. If the edge is wavy then you do not have a good seal and you will need to adjust time, temperature of pressure of the sealing bars related to the effected area.

Pouch:

- Dye Penetration



Frequency:

- When starting a new job, all pouches will be tested until you achieve good seals. Once production is started, this should be repeated every 30min.

Purpose:

- Test specific areas like the doyne seal area for pouches made for liquid products. ***This is a test that is used for pouches when leak detection is critical, such as pouches used for liquids.***

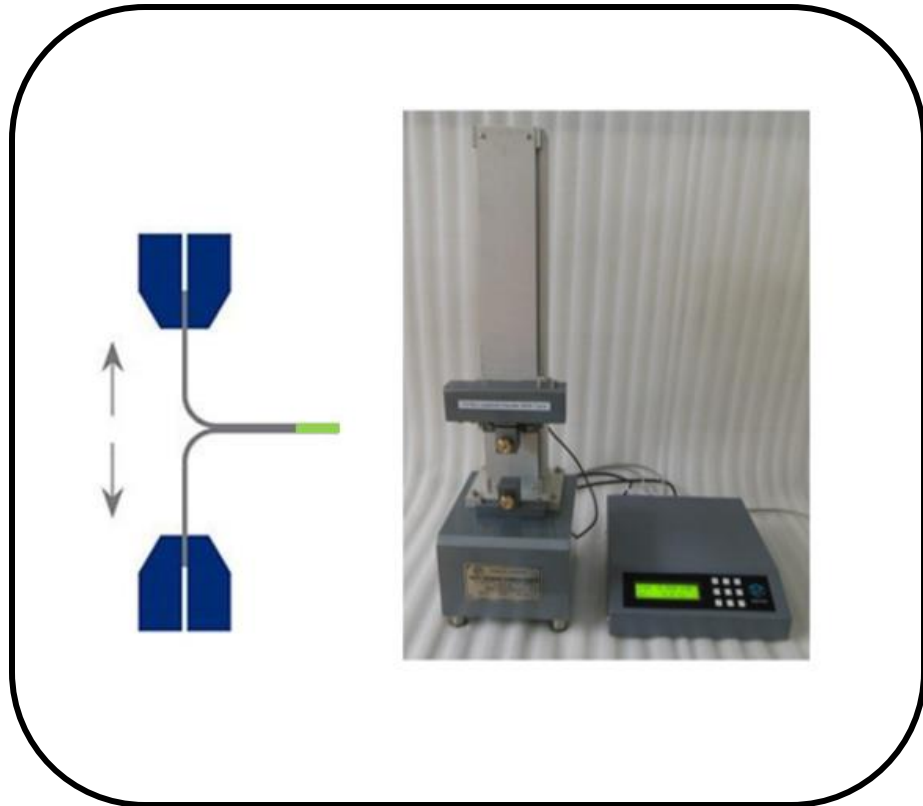
Process:

- Dye penetration tests will detect and locate a leak equal to or greater than a channel formed by a 50 μm [0.002 in.] wire in the edge seals of a nonporous package.

Test ASTM-F1929

Pouch:

- Seal Strength Testing



Frequency:

- This test should be done at the startup of each job.

Purpose:

- To test the force needed to pull apart pouch seals to ensure proper adhesion.

Process:

- You will collect a 25mm wide strip of material from the pouch across a seal. Take the strip and load it into the tensile strength machine to begin testing. The films will be pulled apart at the seal area to determine the amount of pressure needed to pull the film apart.

Test ASTM-F88

Conclusion

- Flexible Packaging Converting is a Dynamic Growth Opportunity for Label Converters
- Critical to Invest in Specific Training for Flexible Packaging Converting
- One of Key Elements of Success is Proper Implementation of Quality Control Procedures

