Voyantic

RFID Label Converting Process

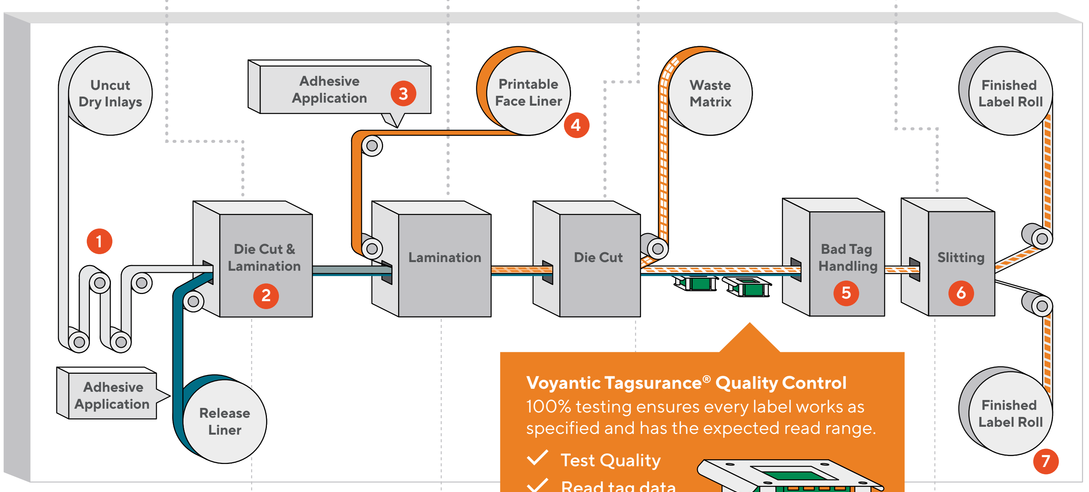
Voyantic Tagsurance 3 is a complete system for measuring the performance of RAIN (UHF) and HF RFID inlays, tags, and labels throughout the production process. Here's a look at a possible RFID label converting process including RF performance inspection to ensure the highest quality of the produced labels.

Dry inlays are cut from the inlay roll and repositioned according to label specs. A release liner and adhesive layer are added to create self-adhesive inlay stickers.

A face liner layer is added to create printable labels.

Labels are cut to shape and the excess material is removed.

In the slitting station, the wide label material, with multiple labels in parallel, is cut into individual label rolls.



Linear Top View

Uncut Dry Inlay:
No self-adhesive layer in the inlay.

Cut Wet Inlay:
An inlay in a sticker format with adhesive and release liner layers

Uncut Converted Labels:
Continuous label material with a release liner, inlays and a facestock layer.

Converted Labels:
Labels cut into their final shape and excessive material removed from around the label.

Next Step:
Label Personalization

Considerations for Consistent Quality

1 Tension Control
Wrong inlay roll tension can cause IC malfunction. If the roll is too loose, it can slip and break the IC. A too-tight roll can potentially cause the IC to crack, or the IC antenna joints to fail.

2 Inlay Placement
Ensure that inlays are placed on the same position on the label. Consistent placements ensure accurate performance test results.

3 Adhesive Coating
Ensure even coating of adhesive for consistent output.

4 Materials Consideration
Do not use metallic foils for face liners. Metals affect the RF performance of the label.

5 Bad Tag Handling
Typically, when a label's RF performance does not meet performance requirements, the label is marked with a bad tag marker on the production line. The roll information includes a count of good tags and a note of marked bad tags.

Sometimes the out-of-specs tags are crushed or punched. This destroys the tags and prevents them from getting accidentally into use.

If customers require rolls with only perfectly working tags (100% rolls), the failed tag must be removed, and possibly replaced with a good one. This process is often called *roll doctoring* and can be done post-process in a separate rewinder machine or inline in the converting machine.

6 Slitting Accuracy

7 Rewind Tightness
Pay attention to rewind tightness to prevent damages to the RFID tag in the label.

8 ESD: Electrostatic Discharge
For dry inlays that don't have any material on top of the IC, ESD protection should be considered.

Quality Control Brings Visibility into Production

With ***Voyantic Tagsurance 3***, it's easy to verify the job is done right. That's why Voyantic is the industry leader in RFID label production quality control.

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