Master's Thesis Engineering Technology

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Study of packaging materials/configurations and the development of a new box at Datwyler

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Master of Packaging Engineering Technology

Study of packaging configurations

1. Challenge

Too many packing configurations = too many SAP codes, packaging validations and work instructions
→ **Reducing number of packaging configurations**

2. Method and materials

1. Why do customers use a particular packaging configuration?
   → Survey based on matrix
2. Excel tool that prevents that new packaging configurations are created

3. Results

Based on the matrix in figure 1 surveys could be targeted at the customers who use very unique packaging configurations/ materials → Due low response rate, an excel tool was created.

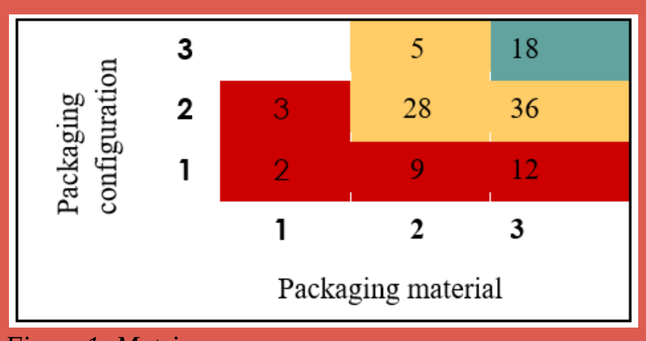

Figure 1: Matrix

Figure 2 depicts the tool to promote the sending of packaging configurations that are in the green zone of the matrix.

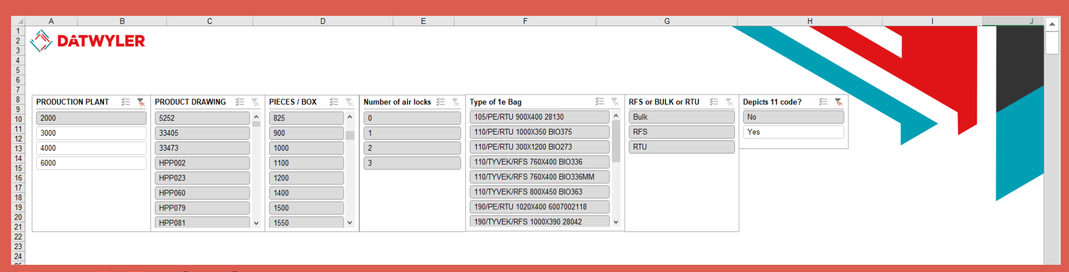

Figure 2: Excel tool

4. Conclusion

Customers have a good reason for using a certain packaging configuration. With the help of the tool, it is possible to prevent the creation of new configurations.

Customer project

1. Challenge

Packaging configuration with RTP bag that will be sterilized in a range of 25-40 kGy.
→ **Developing a new box**

Figure 3: Sealing Solutions

2. Method and materials

1. Analysis of the problem
2. Analysis of the requirements of the different parties
3. Development a new box
4. Prototype tests
5. Improvement design if necessary

3. Results

With the help of the different requirements of different parties, the following concepts could be developed

Concept 1 → $380.480.215\ mm$
+ Pallet well filled
+ RTP bag fits nicely
- Transport of air

Concept 2 → $290.480.215\ mm$
+ Less transport of air
- Dimensions are narrow

Concept 3 → $330.480.215\ mm$
+ Less transport of air
+ Plenty of space in the box
- Only column stacking possible

Concept 4 → $330.495.215\ mm$
+ Interlocked stacking possible
- Stacking must be more precise
→ Concept 4.1: 320.480.215
→ Concept 4.2: 323,3.485.215
= easier for the operator

Concept 5 → $350.495.330\ mm$
+ Less transport of air
- The boxes are heavier
- More handling involved

4. Conclusion

Choosen concept: concept 4.2 → $323{,}3.480.215\text{mm}$.
- Pallet optimally filled
- Interlocked or columnar stacking possible
- Sealing solutions have sufficient free space

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