

## RECIPE FORMULATION CARPET UNDERLAY MANUFACTURING PROCESS:

LINEAR 8 HEAD FILLING MACHINE, BATCHING/FILLING EACH INDIVIDUAL POWDER FROM DEDICATED FEEDING SYSTEMS, INTO BAG ACCORDING TO AN OVERALL RECIPE.



*Shows bag holders travelling down belt conveyor and individual product vibratory filling stations.*

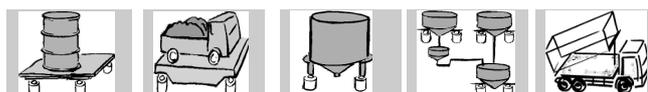
Our client approached us to help them improve their additives blending process.

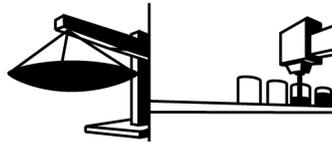
As part of their manufacturing process up to 8 additives were pre batched directly into bags according to recipe. These bags were then added to the main continuous process as required.

Due to the nature of the products being handled this process was entirely manual.

The operators worked of a recipe chart which gave them specific quantities of each individual component that needed to be filled into each bag.

Problems that frequently occurred:





1. One component entirely missed from batch.
2. Accidentally adding additional amount of a component into a bag already filled with a number of previous components. As each component is added on top of each other there is no way to extract powder from the bag and adding additional amounts of the others components to compensate is not practical.

OH&S issues included:

1. Repetitive work.
2. Lifting of full bags.
3. Physical contact with products: Extensive PPE requirements (gloves, breathing masks, disposable coveralls etc).

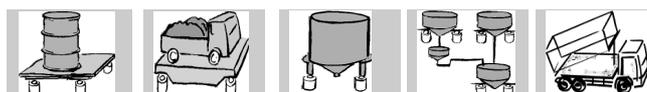
Difficult product properties:

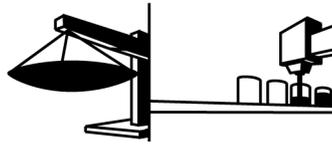
1. Several of the components are hydrostatic, the humid environment made using this product difficult due to formation of clumps and blockages in feed equipment.

### **Our brief:**

To reduce the manual handling.  
Automate the recipe formulation process.  
Increase filled bag throughput.  
Increase batching accuracy, repeatability.  
Reduce batching errors.

### **Our Solution:**





1. Dedicated bulk storage bins/ IBC for each product.  
**(Direct cost reduction achieved by allowing our customer to purchase in bulk rather than 25kg bags)**
2. Dedicated vibratory feeder systems for each product. **No cross contamination of components.**
3. Dedicated filling stations for each product. Arranged linearly using the pinnacle in weighing and batching technology. **Increased accuracy and repeatability of batching.**
4. Full automation of the recipe formulation process.
5. Tracking the filling into each bag of the exacting quantities required of each component.
6. Automate the process of delivering bags to each fill station.
7. Dust extraction system at each fill station.
8. Safety mechanisms including:
  - a. Physical barriers around moving parts/pinch points.
  - b. Strategically located E-stops.
  - c. Lanyard.
  - d. Appropriate labelling.
9. No paper recording of production. All completely automated directly into computer software. Each batch (bag) completely documented.
10. No recipe charts required.
11. Operator interaction limited to placing bags in their holders and then on to conveyor and also removing filled bags. Filled bags delivered back to the operator.
12. **Increase production from 1 bag per every 2 minutes to 6 bags per minute.**

Please feel free to contact us for further information.

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