

Case Study #40 – Rotary Die Cutting Scrap

The Circumstance:

The product is a small, rotary die cut filter. The problem is ‘ODID Concentricity’ and scrap related to this. The mission is to substantially improve concentricity so that scrap can be decreased.

The Approach:

In a brainstorm session, 98 ‘anything goes’ ideas are procured to remedy the problem. Each of these is reviewed and 25 of them are deemed doable immediately (on shippable goods.) The ideas span all processing steps, being slight changes in things like tensions, speeds, etc. All tested ideas are zero cost to test and implement as well.

An experiment is designed which calls for 56 treatment combinations. Doing these enables us to learn about 33,000,000+ combinations of these idea’s settings, along with 300 two-factor interactions between them. (A two-factor interaction is where the influence an input has on an output is dependent on the setting of another input.)

Over the next few weeks thousands of units are produced under these 56 experimental combinations. During this time concentricity is slightly better than before the experiment, but scrap is slightly worst.

The Outcome:

Once all experimental runs are complete, analyses are performed to determine the impacts of the 25 factors on concentricity and scrap. A collection of factors emerge as significant, including a host of two-factor interactions. A newly prescribed SOP, based on experimental findings, is immediately implemented (only readily implementable solutions were tested, so this could be easily done.) ODID concentricity is forecast to be 17% less than previous SOP and is immediately obtained. Total scrap is forecast to be near zero and this is immediately obtained.

