QUALPRO®

Case Study

The Part Defect Reduction Story

The Opportunity

A parts manufacturer serving diverse industries was faced with major losses due to part coating and painting rejects. In addition to financial losses because of the high reject rate, the company found it increasingly difficult to meet customer delivery expectations in a rapidly expanding market. The major cause of rejects was the paint not sticking to the coating. Sometimes the defects were detected before customer shipment. Unfortunately, several weeks after customer shipment, the coating often showed through the paint surface in the form of small flecks, which resulted in excessive customer returns. A team of technical experts had worked on the problem for six months with no improvement in acceptance level to show for their efforts. In desperation, QualPro was summoned to help determine a cure for "flecking."

The Approach

A QualPro consultant worked with operators, line supervisors, engineers, and managers to solve this problem. The direction was clear—the project participants must find a solution to the "flecking" problem if the company was to survive. With no time to waste, the project participants proceeded directly to experimentation despite the fact that the process was known to be out-of-control. The risk of not finding a fast solution far outweighed the risk of being led astray by process fluctuations during experimentation.

The Test

Brainstorming identified over 35 ideas to reduce the occurrence of "flecking." This list was then reduced to nine factors which were easy, quick, and inexpensive to examine using QualPro's MVT® process.

Idea	*Old*	*New*
Type of Coating	Supplier A	Supplier B
Coating Dry Time	Low	High
Coating Spray Pressure	Low	High
Type of Paint	Type 10	Type 20
Paint Dry Time	Long	Short
Paint Spray Pressure	Low	High
Part Surface	Smooth	Rough
Surface Cleaning	None	New Procedure
Masking Tape on Edges	Use	Do Not Use

The Results

Previously the company had focused its efforts on the cleaning of the parts between the coating and painting step and the painting itself. No effort had been made to track the coating supplier because the bulk material was changed to keep supply tanks balanced, even to the point of commonly intermixing the material from the different vendors. Recording which coating was used with which part was only possible by stopping the intermixing and keeping a record of which supply tank was in use during the time the part was coated.

The experiment showed conclusively that rejects from flecking could be substantially reduced by using only material from coating supplier B, while a new surface cleaning procedure actually increased flecking. The company immediately implemented the supplier B coating material and saw defects drop from 25% to 2%. Additional experiments completely eliminated the occurrence of part paint and coating defects.