
OEE Analysis and Training

Thermoformed Plastics Manufacturer

Situation

This client is a leading manufacturer of thermoformed plastic packaging. The organization wanted to equip a group of its employees with the skills and hands-on experience needed to design, conduct and evaluate Overall Equipment Effectiveness (OEE) studies, and train others to do the same without external assistance. Specific objectives of the ensuing effort included:

- Create an internal cadre of personnel who are experienced and skilled in OEE studies and analysis.
- Develop and validate appropriate data collection techniques and forms unique to the organization's equipment, issues and practices.
- Develop and document a first-cut standard approach for structuring and conducting OEE studies.
- Obtain a solid baseline OEE study of a least one manufacturing line and initial studies of one or two additional manufacturing lines.
- Develop an "as is" value stream map of the line(s) studied that shows the current operation and opportunities for improvement.
- For the manufacturing lines that are studied, develop a list of recommended actions to improve output, uptime and efficiency.

Approach

The work consisted of formal classroom training interspersed with hands-on application in the trainees actual work environment. Each week consisted of the following:

- Monday: New concepts, adjustments to approaches and overview of prior week's activities.
- Tuesday and Wednesday: Two 24-hour data collection periods.
- Thursday: Coding and classification of data, analysis of the data and planning for the next training week.

The data collection started with the identification of major areas of production loss (the delta between gross pieces and actual pieces). The team was instructed to focus on scrap and unscheduled downtime (UDT) (i.e., not on Preventive Maintenance, setup, etc.) and was reminded that, at this point, they were not there to solve the problem, but to observe and collect data. This data would serve to focus improvement efforts where they would have the most significant financial impact.

As the team collected data, a “tool kit” for conducting the OEE analysis was developed. This tool kit consisted of the following steps:

- Establish clear project objective(s)
- Conduct process flow / walk through
 - From extruder to good case on the conveyor
 - Identify “IP Transfer Points”
 - Focus on “loss areas”
 - Talk to employees on the line
- Make decisions on what and how to measure
 - Where do we need to collect scrap / loss?
 - How will we measure it?
- Conduct study
- Summarize results / findings
- Establish action / next steps

Results

A team of 15 individuals received OEE analysis training. During the hands-on application portion of the training, four actual lines were studied and the following conclusions were presented to site management to be used for improvement project planning:

VARIABLE	LINE				AVERAGE
	1	4	10	12	
Optimum	100%	100%	100%	100%	100%
Lost Time	11%	7%	18%	20%	14%
Scrap	11%	2%	2%	3%	4%
Actual Output	79%	90%	80%	77%	81%
OEE	0.83	0.915	0.79	0.78	0.83