



Four Ways Predictive Maintenance Can Cut Costs and Improve Productivity

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Today's CPG manufacturing equipment must be more reliable than ever, operating at ever-more-challenging levels of efficiency and accuracy—at the lowest minimal cost. Predictive Maintenance can help.

Maintenance teams are under a large amount of pressure these days in the CPG industry.

New products are going to market at lightening-fast speed, prompting the need to constantly add or modify equipment.

Maintenance staffs are run thin to maximize efficiency and overhead.

At the same time, 2/3 of the equipment in food products plants are more than 20 years old, and need to be watched carefully for failure and compatibility with quickly-evolving food production technology advancements, as well as lean manufacturing and other continuous improvement disciplines.

Mergers and acquisitions within the industry complicate and often force changes in manufacturing equipment.

And, external mandates from state and federal regulations, GFSI (Global Food Safety Initiative) and FSSC 22000 exert constant pressure—failure is never an option.

The bottom line is, today's CPG manufacturing equipment must be more reliable than ever, operating at ever-more-challenging levels of efficiency and accuracy—at the lowest minimal cost.

There is a different approach to maintenance, however, that is helping CPG manufacturers successfully meet the above challenges: Predictive Maintenance (PdM).

PdM is very different from conventional Run-to-Failure approaches that are only appropriate if the cost of maintenance is more than the cost of unexpected failure, and Preventive Maintenance (PM) approaches that are schedule-based and involve inspection, diagnostics, service and parts replacement according to a pre-planned schedule.

PdM has advantages that can positively impact costs when used alone or in combination with more conventional approaches.

Advantages of Predictive Maintenance (PdM) What precisely is PdM? It is an approach to machine reliability that is an extension of conventional PM, but is condition-based; it relies on sensors and software to identify, measure, and earmark factory equipment requiring maintenance before a failure ever occurs. It does all this, and then schedules equipment repairs according to an analysis of a machine's health, instead of a time-based schedule like PM.

How, then, can PdM save CPG manufacturers costs in the long run? Here are four ways:

1. Eliminate downtime.

PdM helps minimize and even eliminate downtime, by identifying potential problems before they occur. This is especially important where downtime is unacceptable, risks to product quality are imminent, and replacement costs for machinery are prohibitively high.

2. Increase efficiency.

PdM saves costs by making production more efficient. With lean manufacturing techniques becoming ever more prevalent in food manufacturing, PdM supports those initiatives by enabling Overall Equipment Effectiveness (OEE) and Total Effective Equipment Performance (TEEP). Furthermore, PdM can result in both production increases and long-term savings, with as much as thirty percent of all time-based preventive maintenance tasks can be eliminated through the use of PdM.

3. Improve product safety.

Recalls are expensive—and no amount of production efficiency is worth it if the product can't be safely consumed. PdM can eliminate the high costs of failure by alerting maintenance teams to potential weaknesses way ahead of machinery break-down.

4. Minimize intrusive maintenance.

PM can sometimes result in accelerated failure of the part in question, or in adjacent parts, since disassembling and/or reassembling activity can potentially increase the likelihood of a future break-down. PdM tools can reveal the health of a system or component without intrusive, time-consuming complications, and therefore without compromising machinery lifespan.



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Adopting a PdM program

How, then can you begin to adopt a PdM maintenance approach in your organization and begin to realize these types of advantages?

The first step is to evaluate your existing maintenance program performance and, using data, take an in-depth look at metrics like downtime, mean time between failures, parts spend, technician cost and response time. You can then determine how much of a cost benefit even a small improvement in approaches would be worth to your company.

Next, take a good look at the equipment you have and rate it in terms of criticality. Ask yourself of each machine: if it were offline, how much would it either slow down or even shut down operations? Any machine that will negatively impact safety, the environment, or production upon failure can be considered a critical machine. Also give weight to machines that experience frequent failures, as these will likely fall into the “critical” category. When it comes to implementing a new approach like PdM, those assets at the top of the “critical list” are the ones that should receive the most attention.

Finally, determine your need for critical spare parts. PdM is a master at identifying which parts are likely to or are in danger of failing. A good critical spares analysis will complement that data and maximize efficiency; if a part is readily available from vendors and not essential to equipment function, it obviously does not need to be held in inventory; one that takes weeks or months to receive, though, may be critical in nature and thus should be kept onsite, in reserve.

Worth looking into

PdM technologies are fascinating: the most common ones are vibration analysis, infrared thermography, ultrasonic inspection, and oil analysis. Your facility type will determine which of these techniques will be most useful and generate the most cost savings; for example, machines with fans and high-speed moving parts will benefit from vibration analysis, while electrical equipment requires advanced temperature monitoring.

Whatever technology your PdM approach turns out to be, you can be sure your operation will benefit in the long run, in the face of the growing challenges faced by today's CPG equipment maintenance teams.