

Going Green

Today's manufacturing environment is more challenging than ever. One clear direction however, is the movement to eco-friendly products in the manufacturing process. At Huron Technologies, Inc. we've seen dozens of companies evaluating options and implementing a "green" approach. Clearly, eco-friendliness can take on different meanings and the end result can vary by organizations and industries. **A six-step approach to implementation is most common.**

The first step is the assessment of the need to change and what the "improvement" will mean to the organization. The need to change to a more green approach can be in response to government regulations. But more often, manufacturing firms find that using eco-friendly processes contributes to and propels growth. Recently manufacturers making an organizational commitment to green processes have seen a pay off in goodwill and in profit.

To assess probable changes manufacturers examine every component of their manufacturing processes - searching out VOCs (volatile organic compounds), including polymers, other raw materials, supplies, mold release agents used in manufacturing, equipment, mold maintenance practices, protective gear, packaging, waste disposal and shipping.

At Huron Technologies, Inc. we see our role as working with our customers to improve their processes and product requirements for mold release agents, cleaners and conditioners. Huron is working with large and small companies in their quest for a more green release agent solution.

Implementation begins with an assessment of the type of improvement desired. Often short term solutions should be considered as a first step to reducing VOCs. Short term solutions include:

- ◆ more effective release agent types, such as a concentrated product that can be effective at lower outputs
- ◆ solvent free release agent types that are virtually free of solvent components
- ◆ high performance release agents that may offer more than one release for a single application.

Many customers want to move forward immediately to a water based solution, and often bypass the short term solutions.

From a mold release perspective, **the second step is a thorough review of manufacturing procedures and conditions.** The Huron Technologies' **Manufacturing Process Audit** delivers the metrics and process information on manufacturing conditions and application equipment measurements. Knowing, for example, the mold release consumption rates, dry time, pressure, and spray gun settings puts you in the position to monitor results. This data is used as a benchmark during the transition to the new more eco-friendly mold release solutions.

Effective product selection is the third step. Whether the new mold release must be water based, or simply an improvement in VOC efficiency, at Huron Technologies our chemists and chemical engineers review existing product characteristics to select appropriate technology and products or initiate work to develop a new custom formulated release agent. When new releases are formulated, or formulas are modified to exclude solvents or reduce VOCs, release ease, molding temperature ranges, cycle times, surface finish, mold complexity and post processing requirements are all reviewed.



Effective verification and validation testing is the fourth step. Typically this includes sample testing as well as line or production trials. Solvents have been used in mold releases because they delivered fast dry times and release efficiency. Moving to more eco-friendly processes may mean increasing release challenges. As a result, thorough testing is critical. The test cycle begins with laboratory tests replicating the manufacturing process to achieve the desired ease of release and quality surface,. Once the new, more eco-friendly release tests out in the lab, the trial moves on-site for testing with the actual customer molds, materials and staff. This type of on-site sampling can reveal subtle characteristics of the manufacturing process that dictate adjustments or modification. With success in this part of the validation process, the new release is run across shifts. Longer term production evaluations are next, using different operators and extending the test period. When there is a mold cleaning schedule in place, production tests may be run for an entire cycle with periodic reporting of results. Running for the entire cycle is important to verify that mold build-up does not become problematic. Making certain the release is robust enough to tolerate the variances in manufacturing processes, which take place as different staff members and other manufacturing conditions vary, is key.

Training and documentation are the fifth step. Many manufacturers are tempted to ignore the issue of training except when triggered by the arrival of new staff members. However, as manufacturing operations pursue “green ” initiatives, training for all members of the production team pays big dividends. When, for example, the new version of the mold release is slightly more viscous, the spray gun output will need to be adjusted, confirmed, documented and communicated to all operators. Or when switching from a solvent based release agent to one that’s water based, the new release may need to be applied more often.

In a perfect world manufacturing processes are executed uniformly time after time and there are no changes in the raw materials used for production. In this perfect world equipment operates consistently and the same trained staff members stay in place. However, today’s manufacturing happens in the real world which **means the sixth step the process is monitoring performance over time.** Tracking output, manufacturing parameters, equipment maintenance or breakdowns and staff training contribute twice! Simply observing and collecting this basic information assists in keeping operations on track. The cliché “what gets measured improves” is true. Also, when issues do arise in the manufacturing process, the root cause of the problem is more easily uncovered when the process control data is available. Any temptation to blame the eco-improved process disappears when the data’s in hand.

Green processes are taking root in the US manufacturing sector. As you and your company pursue an eco-friendly manufacturing environment call on Huron Technologies at **1-800-275-4902** to assist you.

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