Novel Heating Tunnel Improves Label Applications

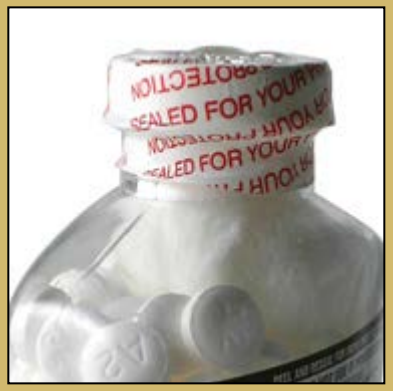
NIST MEP Technology Scouting

The Problem/Need

Axon Corp specializes in label applications for the world packaging industry, but wanted to expand their footing in the shrink film market. While steam tunnels provide the best quality shrink film application, they cannot be used in all applications. To gain a competitive edge in the market, Axon needed a non-water-based tunnel that would apply heat evenly to achieve high performance with a range of materials.

Key Requirements

- Achieve “steam-grade” quality.
- Reach ~200F heat in blossoming zone and 500-1000F heat in finishing zone.
- Work with PVC and PETG materials; compatibility with OPS and PLA preferred.
- Be safe for use in enclosed spaces.
- Fit existing tunnel space.
- Process 400 pieces per minute.
- Be near commercialization and available from a partner capable of manufacturing the tunnel.



Project Outcomes

- Evaluated competitors and patent portfolios to gain understanding of innovation within the shrink film space.
- Identified and evaluated several potential solution spaces, including technologies that produce heat and others that use non-thermal energy.
- Assessed each potential solution by consulting trade journals, databases and experts.
- Determined that few viable thermal alternatives exist; microwave technology may offer a solution, but would require significant development.

Project Impact

As a result of the project, Axon:

- Improved their understanding of core market, competing technologies and the status of development and innovation within their supply chain.
- Confirmed that their technologies represent the optimum solution for their customer’s current materials.
- Prioritized development funding to focus on optimization of current technologies.

“Critical questions were answered that allowed us to confidently invest our product development resources by narrowing the field of viable technologies.”

– Brad Wegner, Axon

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