

## Case Study: CT-2775 Tape

### *The Challenge* - - - - -

Worthen Industries' Staple and Nail Group is a global supplier of coatings and collating tape to the world's major producers of steel nails and fasteners. A significant portion of nails produced worldwide is collated using heat activated collating tape.

Worthen Industries' Business Unit Manager Rob Moseff and Senior Chemist Dan Ellett noticed that the collating process had some inherent flaws. Typically, once collated the adhesive is so strong any defective product required the tape and nails to be scrapped and recycled.

"The tape adhesives used are effective. So much so, the only way to remove them was to use a hot, caustic solution. Most customers found it easier just to scrap the whole lot." noted Dan. "It is good the nails are recycled, but we felt sure that by creating a process that allowed the collating tape to be effectively removed from the nails so that they could instead be reused, we would save energy, transportation and material costs for our customers."

The challenge was to develop something powerful enough to break down the adhesive, yet gentle enough to not damage steel.

### *The Process* - - - - -

Over a period of 3 months, the Worthen Industries team tried a variety of solutions. Some were too corrosive, many too difficult to transport, and others too costly. The team was challenged with how to safely disrupt the bond between tape and fastener without damaging the fastener or requiring changes to the tape adhesive chemistry.

Ultimately, the team created a formula using bio-based and renewable materials that was very effective. "What we learned was that the best approach was also the most natural" stated Dan.

This new product – called CT-2775 – is based on (>96%) renewable, readily biodegradable and USP-grade raw materials that have been formulated into a concentrated powdered cleaner/tape remover. This new product allows customers to safely and effectively remove the adhesive and paper from their scrapped nails. Therefore, the reclaimed nails are now able to be rinsed, dried then introduced back into the collating process.

## **The Results** - - - - -

CT-2775 provides a safe, environmentally-friendly, non-caustic alternative for customers wishing to reclaim collated nails for reuse. The cost savings experienced by customers were immediate and real:

- Nails Costs – reclamation allows manufacturing costs up to and including nail production can be recouped with minimal costs (cleaner, scrap value)
- Energy Costs – there is no need to boil the nails using caustic solutions, eliminates energy required for steel recycling
- Transportation Costs – removes need to ship additional materials for production and lowers costs associated with shipping a concentrated powder versus hazardous liquid
- Employee Safety Costs – eliminates need for employees to handle caustic solutions
- Waste Costs – removes any hazardous waste costs, as the new solution is readily biodegradable

A small sampling of customers use of the product demonstrated significant results – in less than 18 months, customers safely recovered more than 150 tons of nails.

To Dan Ellett, the product just made sense. “Our customers weren’t asking for it, but we knew some innovation would yield significant results. CT-2775 provides cost savings to our customers, eliminates hazardous waste and is safer for workers and our environment. Why wouldn’t we do it?”

## **Best Practices** - - - - -

- Monitoring industry trends
- Thinking differently
- Highly customizable approach
- Environmentally preferable

## **Contact** - - - - -

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