



Don't
Get
Stuck!

New enzymatic stickies control technology offers papermakers improved performance and results along with a biodegradable and environmentally safe treatment for recycled fiber furnishes.

By Xiaohong Hou and Simon Zhao

As adhesive technology becomes more and more complex and the demand for recycled content in paper products grows, papermakers are getting stuck with a bigger and bigger problem—stubborn stickies in their recycled furnish. Stickies downgrade quality, reduce output, and cost the pulp and paper industry tens of millions of dollars every year.

Buckman originally launched its enzymatic stickies control technology Optimize® in 2004. However, in order to broaden applied areas, the company developed a new generation of enzymatic products called Optimize Plus, which have shown improved performance in mill applications. The new enzymatic stickies control program is designed to break down macro and microstickies that can interfere with recycling, pulp, and paper machine operations and result in lost production.

Optimize breaks down the ester bonds in stickies, detackifies the stickies and consequently prevents the sticky particles from re-agglomeration. Optimize has been proven

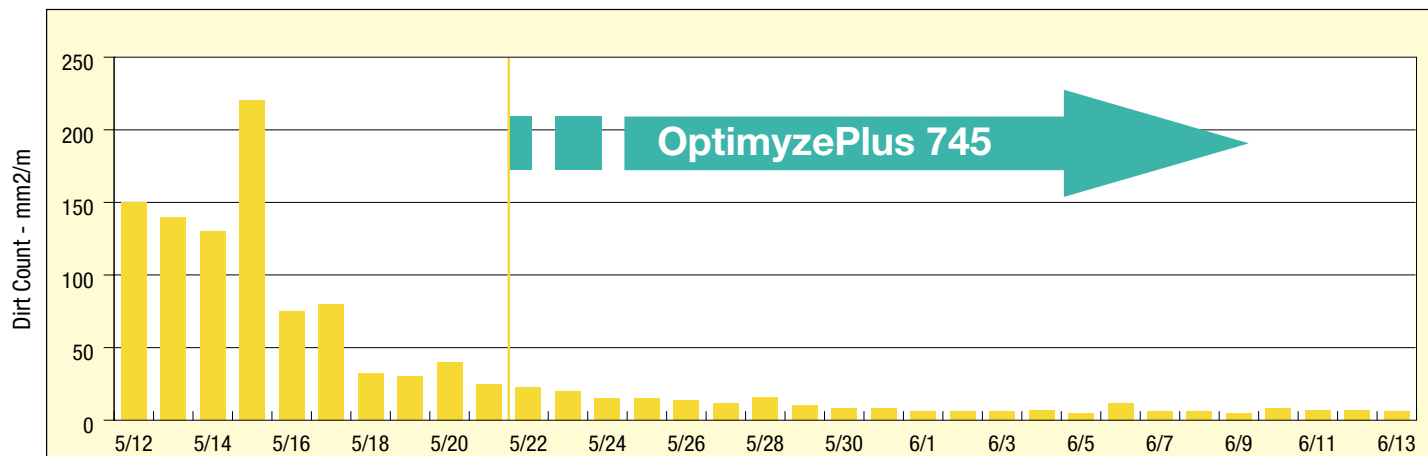
globally to be very effective for control of stickies in various kinds of secondary fibers.

Each time a fiber is recycled, the waste paper quality deteriorates. In addition, more synthetic chemicals are added in the papermaking process with the requirements for high quality paper. Meanwhile, under environmental protection pressure, machine systems are using less fresh water. All these factors make stickies more complicated in their components and more challenging to control.

Optimize Plus contains not only multiple enzymes but also other chemicals effective for stickies control. It can be used in different kinds of secondary fiber stocks and for cleaning wire and felt as well. They are effective for various kinds of sticky complexes. All these characteristics provide papermakers flexibility to choose different formulations of Optimize Plus to deal with different problems created by stickies.

Several case histories in various kinds of paper machines are described on the following page.

DIP Tower Dirt Count (Case 1)



CASE HISTORIES

CASE 1. Reduce dirt count and improve sheet quality.

- **Mill Information:**

- Grade: LWC
- Furnish: 5% NBKP + 30% BCTMP + 65% DIP
- Waste paper: 70% ONP + 30% MOW

- **Problem:** High dirt count caused downgrade

- **Solution:**

- Product: Optimyze Plus 745
- Addition point: Final DIP storage tower
- Dosage: 0.30-0.35 kg/ton (dry pulp)

- **Results:**

- Dirt count in DIP was significantly reduced after Optimyze Plus 745 treatment
- Finished paper quality was improved with fewer customer complaints

CASE 2. Improve machine runnability by reducing stickies deposit.

- **Mill Information:**

- Grade: Newsprint
- Furnish: 100% DIP
- Waste paper: 85% ONP + 15%OMG

- **Incumbent product:** Optimyze 525 at 0.2 kg/ton

- **Problem:** Improve performance of incumbent Optimyze 525 for stickies control and optimize treatment cost.

- **Solution:**

- Product: Optimyze Plus 745
- Addition point: Final DIP storage tower
- Dosage: 0.30-0.35 kg/ton (dry pulp)

- **Results:**

- After replacement with Optimyze Plus 745, stickies deposition at dryer section and machine runnability were significantly improved.
- Optimyze Plus 745 is more cost effective than Optimyze.

CASE 3. Improve machine runnability by reducing stickies deposit.

- **Mill Information:**

- Grade: low grammage corrugated medium
- Furnish: 100% OCC
- Incumbent program: dispersant and fixative

- **Problem:** Poor machine runnability and frequent sheet breaks due to stickies issues.

- **Solution:**

- Product: Optimyze Plus 745
- Addition points: long fiber OCC Storage tower and short fiber OCC Storage tower
- Dosage: To long fiber OCC: 0.25-0.35 kg/ton; to short fiber OCC: 0.15-0.25 kg/ton

- **Results:**

- Sheet break reduced and machine efficiency increased from 94% to 97%.
- The total downtime reduced.

CONCLUSION

Optimyze Plus has been proven more cost effective for stickies control than first generation Optimyze due to its innovative formulation. It can be used for various kinds of secondary fibers and different stickies complexes. It not only broadens the application areas but also provides papermakers flexibility to select solutions to control stickies problems in order to improve machine efficiency and paper quality.

Importantly, Optimyze Plus helps reduce a paper mill's impact on the environment. Enzymes are biodegradable, environmentally safe and tend to have very low toxicity characteristics. ■

Editor's Note: Optimyze technology is a past winner of the US EPA Presidential Green Chemistry Challenge Award.

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