

Tetra Pak® hot melt adhesives helped an Asian juice and dairy producer to improve straw bonding



Customer

Juice and dairy producer in Asia.

Challenge

Weak bonding of straws at cold storage, high hot melt consumption and frequent nozzle blockages in the hot melt system.

Solution

Using Tetra Pak® hot melt adhesives for cap and straw attachments, and sealing of cardboard packaging. Restoring the hot melt units to basic conditions.

Results

- 37% decrease in adhesive consumption
- 49% reduction in cost for maintenance of the hot melt unit

Customer challenge

A juice and dairy producer in Asia was concerned about weak bonding of straws at cold storage, high hot melt consumption and frequent nozzle blockages in the hot melt system.

They turned to us for advice and we offered to audit the equipment and identify any opportunities to tackle this challenge.

Our solution

The audit

The customer's management kicked off the project and a team was created with Tetra Pak, Henkel and the customer. Three packaging lines were audited, assessing the condition of the hot melt units, the machine settings and adhesive consumption.

The following was the summary of the audit per application type.

2 cap applicators CAP/47 – Slim Cap

- Gelling in the tank & excessive charring
- Hot melt stringing on the rotary disc wheel
- Nozzle blockages on a weekly basis
- Nozzles & filters replacement and tank cleaning on a monthly basis

1 straw applicator SA/22 HS

- Poor straw bonding at refrigeration temperatures
- Nozzle blockages twice a month
- Nozzle replacement every 6 weeks
- Hot melt residues on the conveyors and stringing at the point of application

3 cardboard packers CBP/70 & Meurer - WAIF

- Dark brown colour of hot melt and strong odour around the tank
- Excessive charring all over the modules and nozzles
- Nozzle blockages on a weekly basis
- Nozzles & filters replacement and tank cleaning on a monthly basis

The improvement opportunities

Based on the findings from the audit, Tetra Pak presented the benefits and savings that would be achieved by using Tetra Pak® hot melt adhesives:

- Better bonding of the straw application at refrigeration temperatures
- Hot melt consumption reduction by one third
- Nozzles, filters and modules consumption reduction by half
- No stringing during the application or charring in the hot melt tanks
- Higher available time for production

The customer ordered the following hot melt adhesives:

- Tetra Pak® StrawFix 100 for straws
- Tetra Pak® CapFix 100 for SlimCap
- Tetra Pak® TrayFix 100 for cardboard packaging

Tetra Pak Technical Service team jointly with Henkel and the customer began the changeover to Tetra Pak branded hot melt. This process involved restoring the hot melt units to the basic conditions, draining them from the old hot melts and filling them with Tetra Pak hot melt. The switching process nearly took one day per packaging line.

The changeover process also included training to the staff in how to refill and maintain the hot melt equipment. To sustain and control the settings and performance, an SOP (Standard Operating Procedure) was created and hung on all the equipment using Tetra Pak hot melt. On a daily basis, the operational team monitored the settings and strictly controlled any deviations ensuring the recommendations are being followed.

Results achieved

After 2 months, we presented the actual results to the customer.

Maintenance

	Parameter	Before	After	Savings
Parts	Numbers of filter*/year for three pilot lines	33	17	48%
	Number of nozzles/year for three pilot lines	111	56	49%
	Annual parts** cost for three pilot lines	11,220 USD	5,620 USD	5,600 USD
	Simulated annual parts cost** for full plant	28,830 USD	14,420 USD	14,410 USD
Time	Annual maintenance time**** for three pilot lines (labour hours)	145	72	800,000 Pkgs***
	Annual labour cost**** for maintaining the three pilot lines	14,500 USD	7,200 USD	7,300 USD
	Simulated annual maintenance time** for full plant (hrs)	375	188	2,040,000 Pkgs***
	Simulated annual labour cost**** for maintaining the full plant	37,500 USD	18,800 USD	18,700 USD
	Annual maintenance cost** for three pilot lines	25,720 USD	13,820 USD	12,900 USD
	Simulated annual maintenance cost** for full plant	54,550 USD	27,240 USD	49% 27,310 USD

* Tank filters & inline filters

** Filters & nozzles maintenance of the hot melt unit

*** Production opportunity

**** 100USD/Labour hour

Hot melt consumption

	Parameter	Before	After	Savings
Straw Application	Consumption per package (gram)	0,065	0,035	46%
	Annual Consumption for one pilot line (kg)	5,550	2,990	
Cap Application	Consumption per package (gram)	0,43	0,28	35%
	Annual Consumption for two pilot lines (kg)	17,680	11,510	
Cardboard Packaging	Consumption per package tray - WAIF (gram)	1,24	0,85	31%
	Annual Consumption for three pilot lines (kg)	7,560	5,180	
	Simulated Annual Consumption for full plant (kg)	52,490	32,670	85,000 USD

Customer feedback

The customer was really pleased with the performance and the results.

"The project has been a huge success for us. Truly outstanding cooperation between Tetra Pak, Henkel and us has led to peak performance in our plant. This project has shown us how peak performance can be achieved when everyone involved takes ownership. We have a strong believe in this glue and look forward to the continuing performance improvements and cost savings it will give us."

- Plant Manager

"The bonding is unique and its quick response to heat is consistent. The overall maintenance cost in practice.... is impeccably low."

- Maintenance Supervisor

"The bonding is superb in strength and quality, practical and easy to use, making life easy. Not messy in application, giving a neat, clean look that is appealing to the eye. Highly economic in long term overall usage, due to low consumption and still lower maintenance cost. A great boost to the overall efficiency of the machines."

- Production Manager

Conclusion

As demonstrated, the hot melt has an impact on the quality of the final product and the operation. Not all hot melts are the same; they have to be application specific to achieve the desired quality and performance. Tetra Pak® hot melt adhesives are specifically designed and validated for the different applications on Tetra Pak equipment in collaboration with the global leader in adhesive technology, Henkel.

Tetra Pak hot melt adhesives:

Reliable quality, higher performance, food safety and business made easier.



Tetra Pak® Services

Tetra Pak® Services cover every aspect of your food production, from daily routines to business insights. Our tailored service solutions improve performance, optimise costs and ensure food safety throughout the lifecycle of your operation. With Tetra Pak as your partner, you get the people, portfolio and presence to achieve your performance goals.

Find out more about Tetra Pak® Services at [tetrapak.com/services](https://www.tetrapak.com/services).

