



FEBRUARY 2015

ADVANCED ADHESIVES REPORT

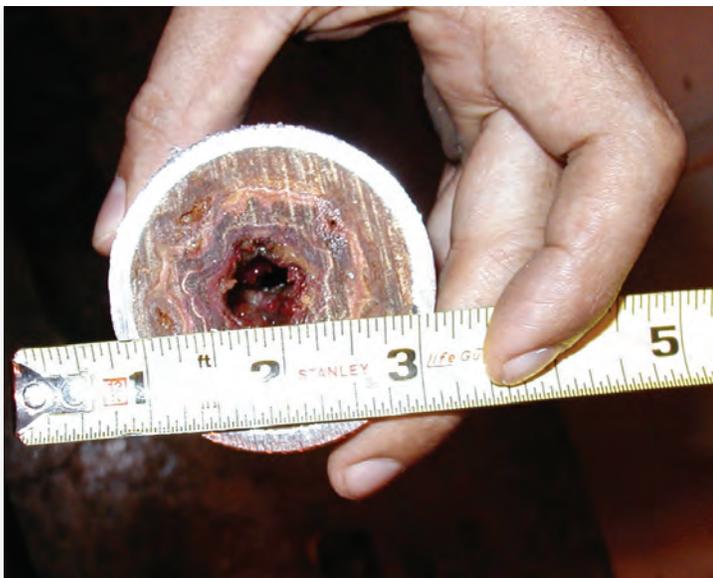
Your corrugating newsletter from Harper/Love Adhesives Corporation

KEEP YOUR ADHESIVE DISTRIBUTION SYSTEM HEALTHY

By John Kohl and Rex Woodville-Price

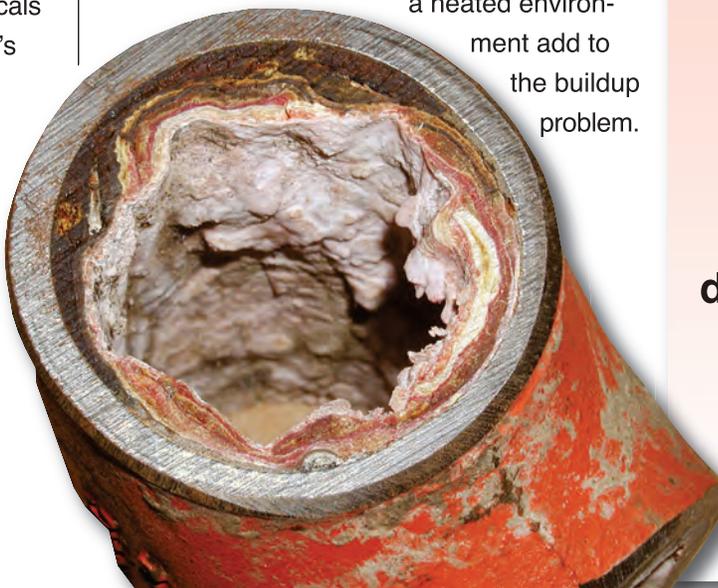
Starch adhesive: like a high cholesterol diet for your pipes

Long pipe runs in a heated environment compound the problem.



The starch adhesive used in corrugating is pumped through a piping system from storage tanks, which are usually located in a separate starch room, to the adhesive pans on the corrugator. The most common pipe used is 2" ID that runs in two loops from the storage tanks the length of the corrugator and back to the tanks. One loop is dedicated for the singleface pans and one loop for the double-back glue machine.

The pipes are located above the corrugator, near the ceiling, with a pipe drop at each single facer and glue machine. The length of the loop and location of the pipe in a heated environment add to the buildup problem.



All box plants that have corrugators use starch adhesive to bond the liners and medium together. The liquid starch is an adhesive that not only bonds the paper together, it also bonds itself—and any chemicals in it—to the inside of the distribution system's pipes. The continuous flow of adhesive through the system builds layer upon layer of pipe-plugging material that reduces flow to the pans and creates backpressure that overworks the pumps. The reduced flow can cause bonding problems when the pans are deprived of starch and the glue roll does not apply the proper amount to produce a good bond. This starch buildup is common in all plants and can be a major maintenance issue if not addressed properly.

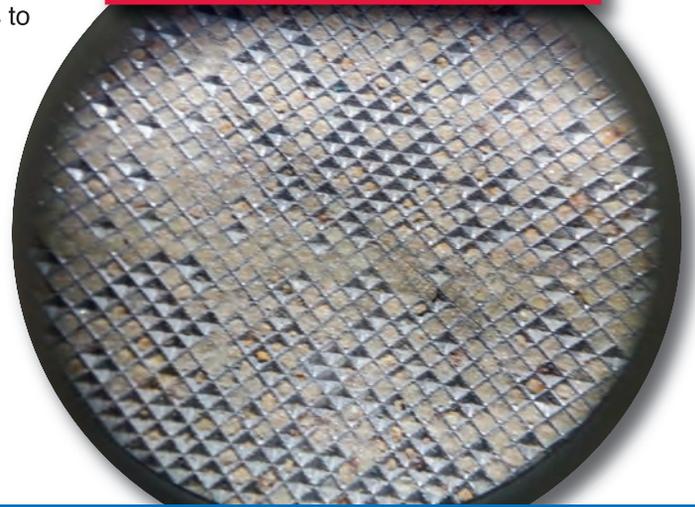
“Liquid starch adhesive not only bonds the paper together, it also bonds itself—and any chemicals in it—to the inside of the distribution system’s pipes.”

How to prevent buildup of calcium carbonate?

The use of hard water or wastewater in the adhesive can cause a calcium carbonate buildup on the glue rolls and inside the supply pipes. Any plant that uses treated or untreated wastewater to make adhesive, needs to use a calcium inhibitor. These chemicals sequester or tie up the calcium so that it can't form large crystals that adhere to glue rolls and pipes. Calciban, an effective calcium inhibitor, should be added to each batch. Only 3-6 ounces of Calciban are required per batch, depending on the hardness and calcium levels, and is a small cost compared to glue roll cleaning. The plant should have the water tested periodically for hardness content, and use the data to adjust their calcium inhibitor dosage.

Remember the key to consistently optimized adhesive flow is to use the proper amount of wet strength resin and calcium inhibitor along with a quarterly cleaning program.

"Magnified view of calcium deposits on a glue roll."



FIGHTING ADHESIVE BUILDUP

By Rick Bird

Adhesive buildup inside tanks and process lines is an ongoing fight in the life of every corrugating plant. While cleaning out this buildup does take time, the cost of not cleaning out your lines regularly can be even more burdensome. Plugged lines place an undue burden on pumps causing them to fail more frequently. If the restriction is large enough you might literally find that you can't get enough starch to the pans to run the corrugator at speed. Fouled tanks not only are a breeding ground for bacteria but also provide inefficient heat transfer. This increases your steam costs. So it is important to manage your adhesive buildup to minimize its adverse effects on the rest of your process.

To clean up an existing adhesive build up, there are a few options on the market but one of the safest and most effective solutions is to use Walla Walla Environmental's Clean Tank HP. This product not only breaks down the adhesive build up but it also works as a biocide to sanitize your system.

To use this product effectively you'll need to circulate your excess adhesive back to a storage tank (keep your glue pans in the up position for cleaning), fill the mixer with water (do not heat) and

add the Clean Tank HP (1 lb of CTHP per 4 gallons of water). Blend the mixture for about 45 minutes and then let it circulate through your system. Depending on how much build up you have this circulation process could last between 1 to 3 hours. When you are finished you can either dispose of it as you normally would wash up water or reuse it for those zero discharge facilities. It is recommended that you flush your system with water after use.

As time is money, once you have your system clean, you will want to keep it clean for as long as you can. For this you may want to consider using Harper/Love's Calciban product. While primarily focused on keeping calcium deposits dispersed, this product does help to slow down adhesive build up for plants with hard water problems. It does this by keeping the nucleation points from the calcium to a minimum. It won't prevent adhesive buildup but it can buy you some more time in-between clean ups. As we all know uptime on the corrugator is where the money is.



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HARPER/LOVE'S LOU CUCCIA RETIRES

By Bill Kahn

CHARLOTTE, NC



Lou Cuccia has announced his retirement from Harper/Love effective December 31, 2014 after 28 years of service.

Lou started with Harper/Love in January 1987 as a sales rep in the Tennessee area. He progressed through a number of assignments as southern region technical Manager and was named regional manager in 1993.

"When I started, each rep was a one-man show, responsible for sales, technical service, formulating and troubleshooting. We wore a lot of hats," Lou recalls.

Bill Kahn, Harper/Love general manager, comments, "Lou has been a valuable asset to Harper/Love, and to me personally as he provided me the adhesive expertise which I didn't have when I started with the company in 1992. He is known within the company and the industry as an excellent teacher and trainer. In addition to coaching customer production teams, Lou has been responsible for training most of the Harper/Love cadre currently with the company.

CHANGES SINCE 1987

Lou Cuccia: "In the late 80s, corrugating adhesive was mostly corn base, with a few wheat users, delivered in fifty

and hundred pound bags. Harper/Love's contribution was modified carrier starches and performance products, also in bag form.

"One of the major changes in the adhesive area, which started in the early 1990's, was the introduction of the automatic starch mixer and the liquid performance products.

Harper/Love's first liquid performance product, LiquiBond, was developed a couple of years earlier and was right for the changing industry. The company branded a slogan, 'Buckets are better than bags', and the rest is history. Today, over 90% of the performance products used in corrugating adhesives in the United States are in liquid form."

"My 28 years with Harper/Love have been more than I would have ever thought," concludes Lou.

"Pam and I raised a fantastic family, put our kids through college

and traveled the US, Europe and South America. The most rewarding has been the people. We have made friends everywhere we went, many we expect that will last our lifetime. We will miss all of you."



Bill added, "All of us at Harper/Love are excited for Lou and sincerely wish him the best in his retirement."



LOU CUCCIA retires

- Harper/Love's
- Fighting Adhesive Buildup
- distribution system healthy
- Keep your adhesive

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Harper/Love Adhesives Corporation

Leaders in the science
of making
good adhesives better™



Use Calciban™ to keep your glue rolls clean and efficient

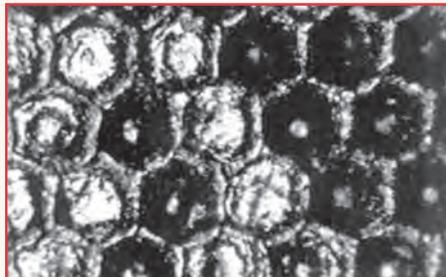
Calciban prevents calcium buildup that can cause adhesive transfer problems.

Inorganic compounds in your adhesive water can cause calcium buildup on your glue rolls. These deposits, which appear as a milky-white haze on the roll surface, clog cells and reduce the amount of adhesive the cells can carry. This creates a risk of bonding problems and increased waste.

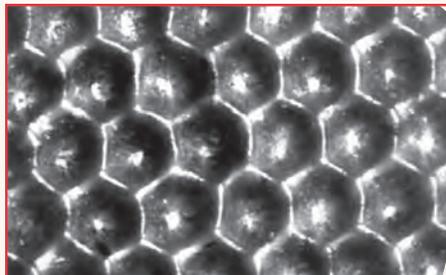
It also means lost productivity when you need to shut down for time-consuming cleaning operations.

Just 3 to 6 ounces of Calciban in a 300-gallon batch of adhesive can prevent this buildup and the problems it creates. It can be post-added to the batch, or to starch in a storage tank.

At an investment of only about \$1 per batch, Calciban is low-cost insurance against the problems of calcium buildup.



The problem: Inorganic compounds in adhesive mix water can clog cells in your glue transfer rolls.



The solution: Used regularly, Calciban keeps glue-roll cells clean and efficient, for proper adhesive transfer.

Other uses for Calciban:

- Add to cooling water in closed-loop systems
- Add to flexo wash water
- Add to boiler feed water

To order, contact your local Harper/Love representative or call us toll free at 800-438-3066.