



The value of Harper/Love technical assistance

By Lou Cuccia

When was the last time your corrugator had a checkup? Do you know for sure all your vessel temperatures are in range? Do you know which bearings are going bad? Are your rolls parallel? Are those belts shot or will they last awhile longer? What about your steam system and traps?

What about your incoming starch materials and adhesive formulation?

Are you sure your starch application isn't wasteful or causing quality problems? Is waste a growing issue?

Is operator error costing you more than it should?

Maybe you're starting to see manufacturing defects that just seem to pop up out of nowhere. How come we're seeing twist warp all of a sudden? Why are our bonds shallow this week? Where is that crush coming from?

Sorting out all the factors that contribute to problems (or the ideal operation) is not beyond your smart,

experienced, and motivated people. But when they have their hands full just getting out this week's production, it can be a daunting task to get diagnostic work organized. Who will do the work? What gets checked – against what standards? What will it cost? Whose toes will get stepped on when a problem is identified? Whose job will it be to implement changes? Where will you find the time?

That's why technical assistance from capable suppliers makes such a valuable contribution. It provides an outside perspective, a fresh look, extra pairs of hands, a formal, organized approach, and a degree of objectivity and independence from internal relationships. Because this assistance is motivated by a desire to contribute to the industry as a whole, and to create or solidify a close customer relationship, the price is right. Often this service is provided without cost.



How an outside perspective can help you identify and implement opportunities for improvement

A formal approach to diagnostics

Early on, our company decided to establish itself as a technical resource for the corrugating industry. Since this industry is our only market, it just makes good sense for us to do what we can to advance the state of the art and help our customers get where they want to go.

Our approach is not about faultfinding or blame. The process is designed to establish baseline data against which we can measure improvements. We make specific recommendations that address established goals for productivity, quality, and waste reduction.

A checkup may focus narrowly on any number of issues such as the corrugator, waste water, starch formulation or application, safety, or training. Or it may be a broad-



based effort that formally reviews the entire process from incoming raw materials to finishing. When this is the case, we organize the work into four main areas: equipment, materials, application, and training. These areas are interdependent and must be considered as a whole.

Following is a short list of some of the things we consider. In our investigation, we evaluate existing conditions – speeds, temperatures, viscosities, gaps, and dimensions – against standards and tolerances we know will produce acceptable results, given the plant's equipment and product mix.



Equipment

1. Heat assessment of all vessels.
2. Evaluation of heat transfer on a variety of paper combinations.
3. Evaluation of paper temperatures, side to side, entering and exiting the single facer and double backer.
4. Check glue rolls, metering rolls, rider rolls or contact bar for excessive wear, damage, runout and parallel.
5. Assessment of starch equipment.
6. T.V.C. system evaluation.
7. Pumps, lines and storage tank.

Starch raw materials and adhesive formulation

1. Help set up incoming starch caustic sensitivity testing.
2. Help set up ranges and procedures for incoming starch moisture.
3. Help establish handling procedures for borax and caustic.
4. Make recommendations for cleaning of starch storage tank and use of biocide and preservatives.
5. Provide in-depth formula breakdown for establishing database information on gallons yield, cost, solids, cost per gallon, cost per dry pound and dry pounds per gallon.
6. Set up database for tracking finished batch starch adhesive viscosity, gel point and temperature.
7. Set up database for tracking machine starch adhesive viscosity, gel point and temperature.

Starch application

1. Help establish soak testing and evaluation.
2. Help establish testing and baseline data for pin adhesive and ECT.
3. Help establish quick-check evaluation for side-to-side parallel.
4. Help establish good corrugating procedures for control of warp and excess moisture.

5. Set up computer-generated formulas for converting to "C" flute equivalent and dry pounds consumed per MSF.
6. Check and evaluate the glue roll-to-paper speed ratio at the double backer glue station.

Training

1. Supply written and audio-visual materials on the most common causes of corrugating defects and their solutions.
2. Supply written and audio-visual materials on the use of forms for quality and bonding assessment.
3. Discussion of paper heat transfer and affect on quality.
4. Discussion of warp, cause and effect.
5. Evaluation of combined board moisture and affect on post warp and cracked scores.
6. Discussion of basic corrugator language, quality and cost.

Whether the checkup is narrowly focused or broadly based, our reports reveal the truth of the situation-factual data supported by observations, measurements, and photographs, as well as specific recommendations for change. Many of our customers immediately assign our recommendations to individuals for action.



An investment in the future

From our side of the desk, this service is an investment in the future. It is a direct benefit for the box plant and its customers, of course, and it won't hurt our feelings if it leads to a deeper involvement with a customer. But in the broad view, what's good for our industry is good for us, whether or not we benefit directly or immediately. I expect most industry suppliers feel the same.

Keeping the mechanics and processes of a corrugating plant in top form is a perpetual challenge. It deserves a formal program. You're not alone; don't hesitate to tap the resources and expertise of Harper/Love and other suppliers who want to help you succeed.



Randy Snow



Ronnie Littleton



Ken Muncy



Luis Chamorro

New faces on the Harper/Love team

Randy Snow has over 25 years experience in the Corrugated Industry and has a wide range of knowledge in both corrugating and converting as well, having been a Plant Manager in two locations. Randy started his career in Canada with Fletcher Challenge and has also worked with Commencement Bay Corrugated and Crown Packaging.

Randy will continue to reside in the Seattle area to provide Technical Service to the Harper/Love customer base in the Northwest.

Ronnie Littleton has recently joined Harper/Love as a Senior Technical Service Representative. Ronnie's career includes more than 30 years of hands-on experience in corrugating, supervising, scheduling and Quality Assurance. After a lengthy stint with Georgia Pacific, Ronnie has spent the last 7 years in the area of Specialty Adhesives focusing on adhesive formulations and corrugator troubleshooting.

Ronnie will continue to live in northern Louisiana where he is perfectly situated to service Harper/Love customers in the South Central U.S.

Ken Muncy has joined us as Senior Technical Representative. Ken has over 26 years experience in the corrugated industry as a machine operator, lead man, supervisor, corrugator superintendent and Plant Superintendent. He will be located in Kansas City and will service Harper/Love customers in Missouri, Kansas, and Oklahoma.

Luis Chamorro has joined the Latin American Team as an International Agent based in Mexico City. Luis is a graduate Mechanical Engineer who has been active in the corrugated industry for the last 12 years. He has worked as an engineer, plant superintendent, Production Manager and Operations Manager. Most recently Luis was a Sales Engineer for Goettsch International responsible for parts and machinery sales in central Mexico.

Technical questions and answers from the field

What is causing my starch adhesive to lose viscosity overnight in the storage tank?

- Bacteria infestation can cause a rapid drop in adhesive viscosity. Have the starch tested for bacteria and if present, clean and sanitize the entire starch mixing, storage, and supply system. Once cleaned, use an approved biocide to prevent recurrence. Harper/Love's Harlocide is a good long-term biocide and preservative that will prevent bacterial infestations. Periodic retesting of the adhesive may be necessary to monitor bacterial control. *See Harper/Love's May 2003 newsletter for more information on combating bacteria and proper use of a biocide.*
- A water leak in the TVC system heating coils can pump additional water into the adhesive. Also corrugator wash-up water being sent back to the storage tank will break down the viscosity. It takes only 5 gallons of water to break down the viscosity of 700 gallons of starch adhesive to the point where bonding problems can occur.
- Excessive shear from pumps, agitators, and lines may be breaking down the adhesive viscosity. The size and rpm of a gear pump can cause excessive shear on the adhesive. The solution may be to slow down the speed by changing the pulley diameter or increase pump size to allow higher volume at a lower rpm. The plant can also change to an

air operated diaphragm type pump. *See Harper/Love's August 2003 newsletter for more information on pumps.* The adhesive may need reformulating to improve stability over a longer period of time.

Can my corrugator top belt be too tight and what problems can it cause?

- Yes, excessive belt tension can cause uneven glue pattern on the DB liner across the machine due to inadequate belt pressure on the board. If the top belt is too tight it can hold the ballast rolls or shoes up, causing an air gap between the hot plates and the bottom liner, creating an inconsistent glue line. Too much tension can also hold the belt up off the board, causing poor board contact with the hot plates, which will cause warp and bonding problems. This uneven contact can cause temperature differences of 60°F from the center of the web to the edges, increasing warp issues. Excessive tension also causes additional wear on the machine bearings that will eventually cause belt tracking problems. *See Harper/Love's April 2002 newsletter for more information on proper belt tension and how to test for it.*

You are invited to e-mail your technical questions to: experts@harperlove.com

• LiquiBond Blue

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In this issue:

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Harper/Love Adhesives Corporation

Leaders in the science
of making
good adhesives better™



LIQUIBOND BLUE™

Performance enhancer

Harper/Love's LiquiBond Blue is a unique fourth-generation adhesive performance product that combines natural and man-made ingredients. It is designed to be used on all board grades and paper combinations. LiquiBond Blue will improve bonding and reduce warp while increasing run speeds on all corrugators.

- Improves overall board quality for finishing
- Improves corrugator speeds
- Improves bond quality on all grades of paper
- Reduces warp and waste
- Reduces delamination and loose edges
- Increases carrier solids in the adhesive

Reduces warp and waste!

