

MEMO

AGENDA
FORUM TO DISCUSS THE
DRAFT VOLUNTARY STANDARD FOR REPULPING AND
RECYCLING CORRUGATED FIBERBOARD TREATED TO
IMPROVE ITS PERFORMANCE IN THE PRESENCE OF
WATER AND WATER VAPOR

March 21, 2005
1:00 P.M. CDT

- 1:00 P.M. Welcome and Review of Agenda
- 1:05 P.M. Anti-Trust State and Comments
- 1:10 P.M. Background Discussion
- 1:20 P.M. Brief Summary of the Draft Voluntary Standard
- 1:30 P.M. Review of Comments Received Prior to the Forum and
Response to Those Comments
- 2:00 P.M. Discussion of the “Path Forward” for Approving the
Voluntary Standard and Publishing an Approved Document
- 2:05 P.M. Open Floor for Comments and Questions
- 2:55 P.M. Wrap-Up and Close Forum by 3:00 P.M.

FORUM

*Draft voluntary standard for
repulping and recycling
corrugated
treated for moisture protection*

March 21, 2005
Chicago



Corrugated Packaging Alliance

- A corrugated industry initiative jointly sponsored by the American Forest & Paper Association (AF&PA) and the Fibre Box Association (FBA)
- Mission:
 - To foster the growth and profitability of corrugated in applications where it can be demonstrated, based on credible and persuasive evidence, that corrugated should be the packaging material of choice; and
 - To provide a coordinated industry focus that effectively acts on industry matters that cannot be accomplished by individual members.



Moisture Barrier Alternatives

GOAL: To retrieve 100% of all corrugated in the normal OCC recycle stream.

ACTION STEPS:

- Encourage the development and use of recyclable products by member companies
- Develop an industry-wide recyclability test
- Consistently mark all corrugated that can be recovered in the normal OCC recycle stream
- Encourage the development of iceless cooling solutions



Corrugated Packaging Alliance

- **Directed by:** Joint Committee of AF&PA and FBA members

AF&PA Members

I-P

Interstate

Simpson

Weyerhaeuser

FBA Members

G-P

Temple-Inland

PCA

SSCC

- **Co-chairs:** Bart Doney (Temple-Inland) and Jim Keller (Weyerhaeuser)



CPA

Actions Taken

2002

Rescinded former Draft Standard because

- Required separate recycle stream
- Testing and claims were proceeding even though separate recycle stream was deemed impractical by retailers and collectors

Commissioned study of current practices



CPA

Actions Taken

2003 - Quantitative research with FBA members

- 18.4 MM MSF (4.8%) being treated
- 1.4 MM tons (5.4%)

Treatment Type		End-use	
Cascaded	25%	Poultry	41%
Impregnated	43%	Produce	39%
Curtain-coated	23%	Meat & Fish	7%
Other	9%	Undefined	12%

- Current replacement penetration 9%
- Lots of products with recyclability claims
- Lack of standard inhibits development efforts



CPA

Actions Taken

2003

- CPA Poll of Retailers
 - 73% negative on wax (Willard Bishop 12/03)
 - Winn-Dixie and Kroger ask suppliers to stop sending wax
 - Wal-Mart declares they have found substitute: RPC
 - Retailers assume all alternatives can be recycled.



CPA

Actions Taken

2004

- CPA and sponsoring organizations (AF&PA and FBA) vote to renew standard work:

“The ad hoc Moisture Barrier Recyclability Standard Committee is to develop and recommend criteria for testing and verification of the claim of repulpability and recyclability of wax substitute and modified wax products on combined corrugated board... with a goal to help protect the volume, quality, value and image of our industry and its products at a time of questionable future demand.”



Participating Company Members of Ad-Hoc Committee

Georgia-Pacific

Sonoco

International Paper

Smurfit-Stone

Longview Fiber

Temple-Inland

The Newark Group

Weyerhaeuser

Packaging Corp. of
America



Legal Oversight

- Antitrust
- Standard setting activities
- Today's meeting



Draft Voluntary Standard

Introductory Section

- Introduction
- Purpose
- Scope
- Definition of Key Terms



Draft Voluntary Standard

Test Method Section

- **Part One – Repulpability**
 - Laboratory scale method
 - 100% charge of treated corrugated, 1 ¼"x4" pieces
 - Blender/Disintegrator
 - Screening step
 - Accepts measured for fiber yield
 - Repeat Repulpability Test procedure
 - 2 sets of tests to confirm repulpability of treated product
 - Detailed procedures in Appendix A



Draft Voluntary Standard

Test Method Section

- **Part Two – Recyclability**
 - Pilot plant scale method
 - 20% treated corrugated/80% untreated control
 - Control must be same material as used in the treated board
 - Pulping, 7-in. x 15-in. strips
 - Screen with 0.0625-in. holes
 - Screen accepts with 0.010-in. slots



Draft Voluntary Standard

Test Method Section

- **Part Two – Recyclability** (*cont'd.*)
 - Pass accepts through a lightweight reverse centrifugal-type cleaner
 - Form handsheets with pulp accepts
 - Physical properties tests
 - Stickies/Spot count test
 - Repeat Recyclability Test procedure
 - Detailed procedures in Appendix B



Draft Voluntary Standard

Performance Levels Section

- Fiber yield requirements
- Operational impact requirements
- Product requirements
 - Appearance
 - Angle of slide
 - Water drop penetration
 - Short span compression
 - Bursting strength



Draft Voluntary Standard *Certification/Marking Section*

- Manufacturers of the boxes may certify compliance (if product passes protocol)
- Any capable laboratory may be used
- Special modified Corrugated Recycles symbol



- Box manufacturer's name & location required



Draft Voluntary Standard

Test Report Section

- 9-page test report section
 - 7 page test report
 - 2 page submission form
- Test report signed by Laboratory Manager
- Submission form signed by an Officer of the Company
 - Sent to FBA with test report form



Review of Comments *Overview*

- Approximately 20 people submitted comments and questions
- More than 60 comments and questions received
- Multiple people commented on several of the same issues
- Questions reviewed by Committee March 16-17



Review of Comments *Responses*

ISSUE:

% charge of treated to untreated material in Recyclability Test

RESPONSE:

- Original work was done at 10% charge, but was based on source separation
- Study of boxes at grocer distribution centers shows 8% treated boxes on average with surges of 20% or more treated products in the bales received in the mills at times
- While some companies wanted a higher percentage, the 20% represents the committee's best determination of an appropriate level, taking into account mill issues and the need to include as many alternatives as possible.
- Protocol designed for normal OCC recycle stream product, not concentrated bales from corrugated box plants or processors



Review of Comments *Responses*

ISSUE:

Questions about test variability, precision data (repeatability and reproducibility), need for additional tests

RESPONSE:

- No TAPPI std. for obtaining precision data for laboratory and pilot plant trials
- Precision statements are not appropriate for standard laboratory practices
- Use TAPPI std. test methods for physical properties test, where appropriate
- 2 sets of tests per sample is lowest that can be used for statistical significance
- Both Control & Treated samples are repeated in the Repulpability & Recyclability Tests
- Some companies on committee feel we do not need to repeat tests on Control samples
- Plan to revisit need for repeat of Control Tests in 18 months



Review of Comments *Responses*

ISSUE:

Small number of qualified labs, limited testing availability

RESPONSE:

- We realize there is a testing bottleneck
- 2 labs available, 2 more interested
- Plan to take steps to investigate simplifying test protocol
- Any simplification must provide equivalent results
- Simplification = more labs, lower costs



Review of Comments *Responses*

ISSUE:

WIM (5% wax to fiber ratio) will not pass protocol. Failed testing at 20% and at 10% charge

RESPONSE:

- We recognize there is a large amount of WIM in the market
- WIM is not our first target for conversion; wax cascaded and curtain-coated are more serious problems for mills
- Some treatment materials to replace WIM are being offered now
- Expect more WIM will be converted
- Nothing in protocol prevents people from running WIM as they presently do, as long as they do not mark boxes as being in compliance with this protocol



Review of Comments

Responses

ISSUE:

Consider lab certification vs. box manufacturer?

RESPONSE:

- Critical that officer of box mfg. Company sign submission form
- Lab manager must sign test report form

ISSUE:

Allow a lab the option of using the Recyclability screening accepts to make paper on a paper machine instead of making handsheets?

RESPONSE:

No, we don't want to do this because paper machine process not widely available, too expensive and would increase variability between labs



Review of Comments *Responses*

ISSUE:

Difficulty obtaining sufficient sample material of control to run 80% of the "same" material. Delete the word "same" in "Definitions of Key Terms" and from "Test Method, Part 2: Recyclability?"

RESPONSE:

No, we won't make this change. It is critical to use same board for control tests as the board used in that was treated.

ISSUE:

Size of the equipment needed for the Recyclability Test is not specified in protocol

RESPONSE:

We will reword the protocol to clarify that pilot plant scale equipment is required to run this portion.



Review of Comments *Responses*

ISSUE:

Use of forward cleaners & high density cleaners not included; limits "potential solutions" to "lowest common denominator" mills

RESPONSE:

Our intent is to provide a protocol for determining repulpability & recyclability of treated boxes using equipment common to a majority of mills to be certain most mills can recycle any product that meets the requirements.



Review of Comments *Responses*

ISSUE:

What is intent of Performance Levels, Operational Impact section?

RESPONSE:

We want to be able to conduct the entire procedure without using acid wash on the flat screen in the repulpability test or dismantling pressure screens to clean them before finishing the recyclability test. No visible deposition of the materials is allowed in the disintegrator during the repulpability test or in the pulper during the recyclability test. The protocol will be re-worded to clarify this.



Review of Comments

Responses

ISSUE:

Use other screens beside Valley flat screens for Repulpability Test?

RESPONSE:

Yes, we will reword the protocol to show that it is permissible to use any open flat screen, such as the Valley and Somerville screens.

ISSUE:

Use other image analysis tools besides Verity Image Analysis software for stickies/spot count test?

RESPONSE:

Yes, we will reword the protocol to clarify that any appropriate image analysis tool can be used.



Review of Comments

Responses

ISSUE:

Is Waring blender blade shown in the drawing commercially available?

RESPONSE:

No, but you can use the drawing to fabricate one in a local machine shop.

ISSUE:

Is there a correlation between blender/disintegrator and full scale pulping?

RESPONSE:

There is no universal correlation. Correlation must be made on a case by case basis at each mill. It is a common practice to use a blender and/or disintegrator to match pulping effect in mills.



Review of Comments

Responses

ISSUE:

Will you consider augmenting the protocol with a test for micro-stickies?

RESPONSE:

No, we don't want to further complicate the test. The spot test for contaminants is our contaminant quantification strategy.

ISSUE:

Did we intend to require use of "artificially hardened" water as stated in Test Method, Part 1: Repulpability?

RESPONSE:

No, this is a holdover from earlier work. It will be deleted. We have not used artificially hardened water in any testing done so far.



Review of Comments *Responses*

ISSUE:

Does "No Visible Deposition" apply to the Repulpability and the Recyclability Tests?

RESPONSE:

Yes, in that there can not be any visible deposition on the disintegrator in the Repulpability Test or in the pulper in the Recyclability Test

ISSUE:

Is the 1-gallon blender specified in Repulpability Test the correct size?

RESPONSE:

Yes, the drawing shown for the special blade is correct for a 1 gal blender. This is what we have used for all tests so far.



Review of Comments

Responses

ISSUE:

Is 7"x15" sample size correct for Repulpability Test?

RESPONSE:

No, the Repulpability Test specifly calls for 1.25"x4" samples; the Recyclability Test calls for 7"x15" samples.

ISSUE:

Can we run the protocol with only one simple screen to screen out rejects?

RESPONSE:

No, we can't allow any variance from the protocol; must complete all steps of protocol to use the special corrugated recycles symbol. However, we will investigate simplifying the protocol.



Review of Comments

Responses

ISSUE:

With thousands of box designs, how do you envision implementation of protocol?

RESPONSE:

We did not intend to test box designs, only materials; suggest anyone submitting samples test the lightest weight board with heaviest weight treatment anticipated; then, if you use more fiber with the same treatment weight, no need to retest; if you want to reduce the treatment weight with the same fiber weight, no need to retest.



Review of Comments *Responses*

ISSUE:

How much test material needed & what is approximate cost to run protocol?

RESPONSE:

In tests to date we have used 150 lb treated, 700 lb untreated; but, work with the lab you use to be sure you have enough; range of cost has been estimated to be \$6,000-8,000 per sample set.



Review of Comments

Responses

ISSUE:

Disintegration speed for the disintegrator sounds very high. Will it break down a solid film layer of PE?

RESPONSE:

This is a standard piece of lab equipment run at it's normal speed; no indication it will break down PE enough to let pieces go through screen.

ISSUE:

What reject amounts are allowed?

RESPONSE:

Maximum of 20% based on the total weight of sample or 15% based on the bone dry fiber charge.



Review of Comments

Responses

ISSUE:

Appendix C, Test Report, mentions some treatment types. Recommend adding PE, PET and other recyclable poly materials to list.

RESPONSE:

We have shown some examples, but can't list all potential material types. The word "other" adequately covers other recyclable materials.

ISSUE:

Method is different in Europe. Recommend discussions with PTS.

RESPONSE:

We recognize the method used in Europe is different, but, in Europe performance requirements are different because many of handling and cooling methods are different; also, transportation distances are different. But, we will stay abreast of what's available in Europe and track it.



Review of Comments

Responses

ISSUE:

Must a box with wax replacement material meet same performance level as one with wax treatment?

RESPONSE:

It was never our intention to measure or infer the performance of boxes or treatments; this is between box producer , treatment material producer and customers; we will not measure performance of boxes



Review of Comments

Responses

ISSUE:

How was the 85% fiber recovery level determined?

RESPONSE:

In our original work in early 90s we polled repulping mills to determine the minimum commercially acceptable fiber yield. Beginning with the earlier work, our committee determined temperature was the only process condition change we wanted to make in the protocol. Members felt the 85% fiber yield is still appropriate . Since our committee represents a high percentage of the volume of recycled fiber recovered, recycled fiber consumption, paper mills and containerboard production in the USA, we felt 85% is reasonable.



Review of Comments

Responses

ISSUE:

Protocol seems to preclude wax treated boxes.

RESPONSE:

If wax products can be modified to pass the protocol so they can be repulped, recycled and not adversely affect our products' performance, they can be used.

ISSUE:

Will you make available test data generated to date for analysis of data precision?

RESPONSE:

Yes, we will post data on our website, not identified as to box manufacturer or the manufacturer of the treatment used. We will show intended applications for the treatments and test results of each sample set tested.



Review of Comments

Responses

ISSUE:

What if a product passes the protocol, but certain mills refuse to accept it for recycling?

RESPONSE:

This is an issue for the recycling market to address.



Path Forward

- Incorporate changes to the standard
 - Comments received to date, as well as all comments from the March 21st Forum, were reviewed by the Committee resulting in several minor technical changes to the protocol. Other wording regarding the testing of currently marketed products and when changes to approved products would trigger a requirement for retesting were also addressed.
- Present recommendation to appropriate association Boards of Directors
 - Committees of the AF&PA, FBA, and CPA have voted to adopt and release protocol with minor changes. However, we still can't predict, nor should anyone rely on an assumption that this protocol will be adopted. See posting of the Board of Director's balloting on this site on May 15.
- Announce results of Board actions by May 15
- **If implemented**, monitor submitted test results on a de-identified basis, and review standard in 18 months



Open Floor Comments & Questions



Open Discussion

- **QUESTION:** Why do you use a special blade for the blender rather than using the standard blade?
- **ANSWER:** It's used because there are other treatments besides coatings used for moisture and/or water vapor. The standard disintegrator alone will not get the same pulping action as you will have in a pulp mill. Over the years we developed the procedure that takes into account wet strength. It gives more action as opposed to the standard disintegrator alone. We believe it gives more real world results by using the blender and the disintegrator.
- **QUESTION:** Did you test many different types of pulpers and blades before you came up with that procedure?
- **ANSWER:** We are going by work done by my predecessors, so can't comment on that. We tried not to recreate all the work that had been done before.



Open Discussion

- **QUESTION:** Why didn't you determine the consistency between labs?
- **ANSWER:** There are no existing methodologies for determining the reproducibility between labs for pilot plant and laboratory trials. Also, we had neither the time or money to run a multitude of tests.
- **QUESTION:** Forest Products Laboratory has funding to support some work in the recycling area. Would you be interested in having them help with a round-robin and trying to determine the reproducibility between various labs?
- **ANSWER:** We will consider this possibility. It's a matter of time and money. We believe the marketplace will not wait for us to come up with the time, money and energy to do such work before adopting the draft voluntary standard. We can consider such a round-robin as we work on simplifying the protocol.



Open Discussion

- **QUESTION:** If I am a producer of a new box treatment that meets the needs of the industry and I come up with a modification of the treatment, how do I know if I have to re-test the modification?
- **ANSWER:** If there is a change in the treatment used, you will have to retest.
- **QUESTION:** What if I just add a small level of viscosifier, or something that is a minor change – seems like you will lock people into not being able to innovate once they get a material into the market. Not a good idea. Need to set up a trigger – I am not running same exact product day in and out. What if the starch I have been using becomes unavailable and I need to go to a different supplier?
- **ANSWER:** No, but if you added something that might affect repulpability, you would have to retest.



Open Discussion

- **QUESTION:** How do you define that? How do you say, its probably not going to change it? What is a significant change?
- **ANSWER:** If you go by the heaviest application you can apply you have given room to back up and it won't change. When doing the test, go to the extreme, the heaviest application. Then, unless you change the chemistry of the product, you won't have to retest. Then you are not using the same product. The person that produces the box and is going to use the symbol has the responsibility to decide if it needs retesting.



Open Discussion

- **COMMENT:** You said there was an average of 8% treated boxes in the grocers' distribution centers in your study. Somehow you increased that to 20+%. Being in wax industry, I don't see an issue where you'd be anywhere even remotely close to 20%.
- **ANSWER:** We did a study of DCs and found 8% treated boxes in the DCs; any one, two or more bales could have more than that.
- **COMMENT:** The possibility exists. I guess you could get an entire stream of it and that's not going to happen. We'd like to see 5-7% represent an upper limit with safety built in, we'd be able to live with 10%.



Open Discussion

- **COMMENT:** Also, I'd like to see you include high density cleaners. I want to give the majority of mills the ability to work with this stuff. It seems that you are trying to make a high performance material run in lowest common denominator mill.
- **ANSWER:** A lot of mills don't have that type of cleaner and are running recycled fiber now.



Open Discussion

- **QUESTION:** Are there definite numbers of who has what type of cleaners?
- **ANSWER:** There has been no survey to determine these numbers. We just polled members of our committee to determine what their mills had. A typical recycle plant is going to remove metal; high density cleaners are used to remove metallic material historically. There could be a product out there that's high density, but it has not been something important in removing contaminants.



Open Discussion

- **QUESTION:** But, if there was a treatment like that would you support using it?
- **ANSWER:** Yes, but I can't speak for other mills. It is important not to add another element making it easier to dump a bunch of stuff in that will negatively impact the mills.
- **QUESTION:** What addition level now causes problems with wax?
- **ANSWER:** Not much, but I can't say. (One company said more than ½ of 1% by weight.)



Open Discussion

- **COMMENT:** I believe an 8% slug would be unusual.
- **ANSWER:** This is a complicated issue; 20% is a number that the committee, after extensive deliberation, agreed upon, based on our best estimates of what the potential % of treated material can be. In the real world, what we see on an average basis in the supply chain doesn't apply in the mill systems. It comes to the mills in discrete batches, not as a steady flow. Every machine is different and every load is different.



Open Discussion

- **QUESTION:** The draft protocol was never officially passed and put into place, right? So, now we need to change the one that wasn't used, and come up with something and get it out in the marketplace then spend 18 months validating if it's the right protocol or not? Is that fair?
- **ANSWER:** Yes, if that is what the committee agrees to after 10 months' work, after considering stakeholder input following our news release and this public forum. Then, if our sponsors agree with our recommendations, that is what we plan.



Open Discussion

- **QUESTION:** So, if we're going to change the protocol, what products are in the market today that would pass the original protocol and won't pass the new one?
- **ANSWER:** We don't know which products were tested because we used samples on a blind basis from multiple companies; but we had 7 of 9 that passed at 20%. We had a sample of WIM that failed at both 20% and 10%. One replacement for a wax cascading product passed at 20% twice.



Open Discussion

- **QUESTION:** Are there then 9 products that will be affected?
- **ANSWER:** No, we know there are other companies offering materials and we don't know which products have been tested. We only know that some replacement products for wax cascading, curtain coating and WIM have passed the draft protocol.
- **QUESTION:** We don't know the effect on the marketplace of changing the protocol that was never passed to this new one?
- **ANSWER:** No, it was not the charge to this committee to determine the market effect. We do know that only 1 or 2 products passed the original protocol during the earlier work that was done. We now have a number of products that have passed the revised draft protocol, including at least one product for each of the 3 major end use application types.



Open Discussion

- **QUESTION:** Is the new draft protocol now harder to pass than the original protocol?
- **ANSWER:** There is no evidence of that from the combinations of materials that have passed the revised draft protocol. When we started ten years ago, a lot of companies were making untrue claims of recyclability. So, we tried to develop something to keep the companies from putting stuff out there that really didn't work in the recycle mills. At that time, once the original draft was proposed at the 10% charge level, I don't believe anyone had anything that passed. There was little available. However, after we stopped work on the original draft protocol, we understand 1 or 2 products did pass that draft protocol. That draft protocol was still arbitrary, but it worked pretty well. In the present day, with slight modifications ten years later, a lot of people are working on it, and a number of products have passed at 20%. We can't answer who would pass at 10% vs 20%, but it's not a variable degree issue – it is either black and white, yes or no. Either you got it or you don't'.



Open Discussion

- **COMMENT:** I'm just pointing out the committee hasn't done the work of figuring out what the impact will be on the market.
- **ANSWER:** There is currently a backlog of testing at NC State; as we understand it, the entire backlog is from members of this committee testing products; not from general market since issuance of the draft standard/protocol.



Open Discussion

- **COMMENT:** The source separation issue caused a rewrite of the standard because the absence of source separation prohibited metering in a 10% batch; that's why the committee went to 20%.
- **COMMENT:** The only absolutes are 0 and 100%. If we had an unlimited budget and unlimited time, more testing could be done.
- **COMMENT:** Why is this the committee's job? It is the producer's job – test your product and find out.
- **RESPONSE:** Yeah, but we can't get the testing through NC State.



Open Discussion

- **COMMENT:** The committee has to try and understand the impact of the change. Not just implement it and see what happens.
- **RESPONSE:** Yeah, but we're being driven by the retailers.
- **RESPONSE:** That's why the Boards of Directors will discuss it.



Open Discussion

- **QUESTION:** All samples should be tested twice. Were all 9 samples submitted tested twice?
- **ANSWER:** No, only 2 of the 9 sets were tested twice. Due to limitations of time and funds, the committee elected to test only 1 set that had passed the protocol and 1 set that had failed the protocol a second time. Results were similar on the second set of tests.



Open Discussion

- **COMMENT:** 43% of waxed product is WIM. We agree that the cascaded and curtain coated waxes are the biggest problem, but you can't say we're not going to handle WIM with this protocol. It's too high a portion of the treated boxes.
- **COMMENT:** Be careful because we have the ability as a coatings company to make everyone's life miserable. I can make one that will pass the protocol but it won't meet price requirements, or performance requirements. If I put out a statement that I passed the protocol, it muddies the water. The retailers will want it; but they won't pay for it!



Open Discussion

- **QUESTION:** Did anyone look at the protocol to determine what currently used products will pass it?
- **ANSWER:** No, we asked companies to submit samples that represent what is out there – we wanted some acrylics or emulsions, some wax cascade alternatives, some impregnating alternatives and some curtain coating alternatives. We got that but don't know which specific coatings were submitted or who made the boxes. We don't know what financial impact this will have on the industry. We don't know how many different sets of samples companies will need to test. We don't know what products the companies will want to pay for testing. They will probably test what is most promising.



Open Discussion

- **COMMENT:** If you look at box plant trimmings, they are often downgraded & not sent in as 100% charge for repulping as you might think.
- **COMMENT:** We are the largest producer of boxes in Canada, have the largest research group in pulp and paper and largest recycling arm; and a number of waxed box producing plants. We have had a full time staff working on wax replacements for 2 years. To see a standard like this plays in very well to what we want to see but the way it is written, we can't support it. Our different business groups got together and determined:



Open Discussion

1. Mill group didn't like it because the batch process that happens in pilot processes doesn't account for deposits on the machine long run. We ran several treatments thru pilot paper making process. Some passed with flying colors. Put them on the paper machine and had a catastrophe.
2. Box group didn't like it because of 20% charge. You know the numbers. We do too: 4-5% of the North American boxes are waxed; 10% of boxes in grocers; of these, 7% are curtain coated and 30% cascaded. If we take cascaded boxes at 20% charge, this is way beyond what anyone is ever going to give us. No way we are going to be happy with a charge as high as 10%. Even with a bale coming through at higher %, it will fall into a pulper that already has other material in it so it will be diluted. Unless you get a whole truck of treated waste, you won't reach 20%.
3. Specialty corrugated group liked it because they deal with European standards.
4. There is no degradation of performance of paper based on our trials. That is unreasonable at 10-20% charge, apart from very small amounts..
5. I want to see the test data.



Open Discussion

- **COMMENT:** One company says a maximum of 1% wax in corrugated is recyclable without degradation of paper performance.
- **QUESTION:** Regarding Image Analysis, there were comments on the procedure that is used. There is a difficulty. Image Analysis should meet requirements of TAPPI T-277, which refers to TAPPI T-563. TAPPI T-563 is to measure relative blackness, and the things we are talking about are not black. How do you cause the wax to contrast with a background so you can measure it?
- **ANSWER:** When you heat it on a platen, it spreads all over the paper. That's how you get the contrast. It turns the paper black, so it's darker than the surrounding paper.



Open Discussion

- **COMMENT:** That doesn't answer the question of measuring with T-563.
- **ANSWER:** The committee will investigate the discrepancy mentioned between T-277 (which our protocol requires) and T-563 to see if there is some additional clarification needed in the protocol.
- **COMMENT:** You have referred to our software. It's different than everyone else's. We use a means of contrast. Your procedure selects a specific means of causing the contrast. We look at statistical mode to determine what the background is. Then from that mode we take constant offsets to calculate the offset at which the spot will be measured. This is different from other systems. That's why we call our software True Verity . It always measures the same regardless of background so you get the same contrast even as the background changes.



Open Discussion

- **QUESTION:** Has there been any thought to establishing an image analysis standard sheet?
- It is not a trivial issue. There are subtle things about how you distinguish what is a wax particle and what is not. There is room for a lot of variability.
- **ANSWER:** Our intent is to look at spot count, not to determine what it is, where it came from, or if can you get rid of the spots in the system. What's the relative difference between the number of large spots on untreated vs. treated stuff? That's what matters. If this protocol goes forward we will learn a lot in next 18 months.
- **COMMENT:** Calibration for Image Analysis does not exist. This is a problem.



Open Discussion

- **QUESTION:** Are you sure what you are looking at is wax and not hot-melts?
- **ANSWER:** The intent is to find relative differences in spot count. You have material coming from a box plant. You don't know what it is. You look for relative differences of spots. I don't care what the material is. What is the difference in spots? If it is great enough that it goes forward to the paper machine and makes that paper heavy in spot counts where it's unsaleable, that is the issue.
- **QUESTION:** So then you're correlating the spot count tests to actual machine results?
- **ANSWER:** You get to a certain threshold of increases in spots and it will show up on the machine.



Open Discussion

- **COMMENT:** So, based on our information, if your difference in spot count is x amount, you will see difference in spots on the machine.
- **COMMENT:** I suggest a test of the protocol and machine trials to see that hot melts are not just an indicator or a transfer of the wax. Because, in our tests we saw the transfer did occur on a handsheet. When it got to the machine it became academic.



Open Discussion

- **COMMENT:** Get the handsheet off handsheet mold, dip it in water, then you will see the difference of wax out of the handsheet dryer. We advocated a technique of controlling the handsheet dryer. They are crude. They don't distribute temperature evenly. As we increase temperature, we can get hot melts to grow and wax should disappear. I suggest that as a very short test that will take about 4 hours. You can see the presence of wax on handsheets by dipping it in water.



Open Discussion

- **QUESTION:** Is there a guarantee if a treatment passes the protocol on a handsheet, it will pass on the paper machine?
- **ANSWER:** If it passed the protocol it still may cause problems on the paper machine. There is no way we can guarantee that it will not cause a problem.

- **QUESTION:** Microstickies lead to deposition and problems. Microstickies cause the most deposition problems. Therefore, are we doing a disservice to the recycling community by not measuring and trying to eliminate microstickies?
- **ANSWER:** This test doesn't have a stickies test in it. It has a spot test but not a test for stickies. It has a deposition check on some parts (i.e., deposits on blender) and a handsheet as a possible disqualifier for stickies, because this was originally started as a means of dealing with wax.



Open Discussion

- **QUESTION:** All these things are not resolving the micro-stickies problem. What is being done on developing tests for microstickies? Macrostickies we are able to identify and control.
- **ANSWER:** If the future says we will have coatings that cause micro-stickies problems, this protocol is not suited to identify them. It is outside of our experience with coatings. That has not been my experience, but will these coatings will have microstickies in them in the future? I'm familiar with adhesive from labels causing micro-stickies, but are you saying the coatings could have microstickies in them? We have had trials we have successfully passed trials down to the paper machine, have accumulation on press sections of paper machine.



Open Discussion

- **COMMENT:** We have had some accumulation on the paper machine, but what was the chemistry? Was it a sticky? Nothing like a PVA. Small particles suspended.
- **COMMENT:** If the proposal does not include mill trials, that logo doesn't mean anything.



A Final Note

Please note that the protocol is not final. It may change, or its issue may be delayed or precluded, until it passes the votes of the two association governing bodies and a final legal audit.

Revisions have been made to the draft protocol based on the forum and review by association committees and boards. Some of these revisions were not discussed in the forum and are therefore not reflected in this slide presentation.



Forum Attendees

Brett Kendall	Norampac Inc.	Oscar Katov	Weyerhaeuser
Jamie Kalyta	IGI	Joe Michaud	The Newark Group
Fei Wang	IGI	Ray Osmus	SSSC
Randy Schulz	Appleton	David Boarman	Temple-Inland
J. McCarthy	Appleton	Lindsey Barnes	Citgo Petroleum
Tom Quick	Smurfit-Stone	Steve Russell	Cargill Inc.
Jeff Mayovsky	Weyerhaeuser	David Batz	JP
John Homoelle	Michelman	Paul Gloor	JP
Don Hoest	Michelman	Jan Walter	Western Michigan
Mahendra Doshi	PPR	Anna Dutko	Board Converting News
Robert de Jong	2 Fiber Consulting	Glenn Rogers	Pratt Industries
Roy Rosenberger	Verity IA	Gary Bernard	Ludlow Coated Products
Donnie Bristow	Georgia Pacific		



Wrap-Up

