

THE CHEMMUNICATOR

Welcome to the first issue of *The Chemmunicator*, a publication of Chemsultants and ChemInstruments. This newsletter will be available on a quarterly basis. We hope you find the information helpful to your everyday business.

Peel Adhesion testing of small labels – How to do it

by Don Eppink, Sr. Chemist – Physical Testing Chemsultants International

Several standard methods exist to test adhesion or bond strength of pressure sensitive labels but all assume the label material is of sufficient size to meet the method requirements. Many converted labels are too small. This does not mean they cannot be tested, it means that some procedural steps must be modified.

The small label must have a leader attached to one end to facilitate clamping in the jaw of the tester. That can be accomplished using either an aggressive masking tape or for difficult labels, a silicone adhesive tape (see Figure 1).



Figure 1

Label application to the test panel is usually performed in the standard manner, but it must be remembered that, because of the smaller size, the pressure on the label is usually greater than typical.

The greatest deviation from the standard method is in data capture. To assure the results have validity, a graphical representation of the data stream is essential. Initiate data capture a short time before label removal begins and continue collecting data a short time after complete removal. Review the resulting graph to assure the section of label removal is relatively flat. Eliminate data from the stream before and after the flatter portion of the curve (Figure 2), average those that remain (Figure 3), then normalize to the desired units.

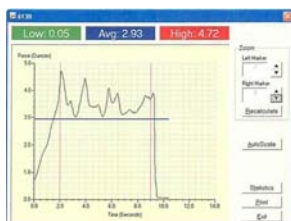


Figure 2

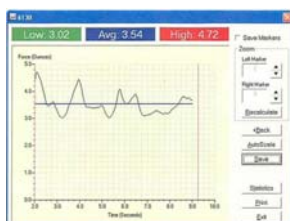
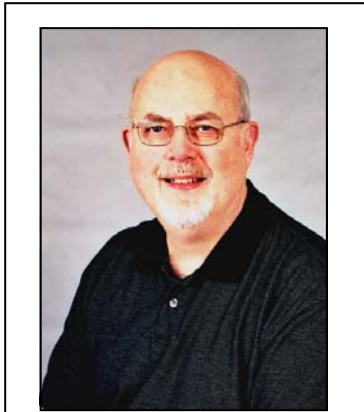


Figure 3

The deviation described is best for comparing labels of similar size, tested in an identical manner. Comparison of the results by the modified method to full size results may not be valid.

Volume 1, Issue 1
May 2009

Meet Our Staff



Meet Don Eppink. Don is responsible for client laboratory testing, and trains new staff in proper test methods and techniques.

He is also the A2LA Quality Manager for the Chemsultants Laboratory, responsible for maintaining and updating the Chemsultants Lab Quality System to meet ISO 17025 requirements.

Don has been a member of the Chemsultants team for over 14 years and has 35 years experience in R&D, Process/Product Engineering and laboratory management functions.

Flexural fracture of a pressure scored line PSA label stock liner

by Joe Mausar, Director of Marketing 7 Regulatory Affairs, Chemsultants International

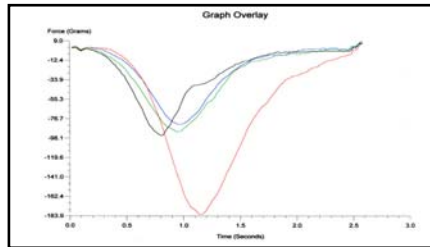
A Chemsultants study of various scored PSA liner papers has shown the Probe Material Analyzer PMA-1000 tester produces repeatable results which offer the user the ability to evaluate various levels of fracturability of machine produced score lines. Test results produced can be very effective in the analysis of score line functionality (fracturability) in PSA paper liners and other converted papers.

Objectives of the study were to identify the level of force required to fracture a machine produced score line through a controlled level of paper flexing force, and differentiate acceptable (fractured) versus unacceptable (not fractured) machine produced score lines.

The study procedure included using a standard PMA – 1000, which included a custom 15⁰ ramped sample hold down fixture. A custom T-Bar stainless steel probe comprised of a standard probe arm with a 3/8" diameter bar affixed at a 90⁰ angle was utilized to apply the probe pressure to the scored side of a sample. Test settings parameters included: Insertion distance, Insertion speed, Dwell time, Retraction distance and Retraction speed.

For a full copy of the study report and results please click here:

[Score Line Study](#)



Area of good fracture performance

Area of poor fracture performance

Stainless steel test panels - Why they are important to you

by Matt Johnson, Production Manager, ChemInstruments

The standard surface for testing in the adhesive market has been the Stainless Steel Test Panel. The specifications for these panels have remained constant for a number of years allowing the industry to build up a large reliable data base of test results. These allow companies to compare their results internally and with customers and against competitors. It is important that the testing surface is maintained in its original state as any change to the surface can affect the results of the tests conducted using that panel. In this regard, any panel that shows signs of wear such as scratch or buff marks should be removed from service.

There is no easy way to determine the life of a test panel as every adhesive and cleaning procedure will have a different impact on its finish. We recommend that a panel be set aside from each batch of Test Panels purchased for use as a baseline. When you believe that your testing results are starting to vary because of changes to the Test Panel surface, use this panel to check your data. The other area where Test Panels may acquire damage is in storage. To help customers with this need we have marketed the TPH-100 Test Panel Holder. The TPH-100 holds up to 24 Test Panels in a manner which protects the test surface from damage.

If you have any further questions regarding Test Panel cleaning or storage you can contact us or follow this link to the Test Panel Tip Sheet on our web site. http://www.chemsultants.com/cheminstruments/test_panels.html#panels

Coating Methods – How to know what type to use and when?

by Tom Besselman, Operations & Process Development Director, Chemsultants International

In the coating industry, a standard question that comes up is – What is the best way to coat this material? The answer is **always** ...It depends.

It depends on several key factors related to the rheology of the coating, the amount of coating sample, the thickness and accuracy of the final product and coating equipment at hand. The final coating requirements are typically a target coatweight +/- 10%, free of defects such as bubbles and streaks and dried to less than 2% volatiles.

Below is a table that may guide you in your next coating decision.

Coating Methods

Range of Applicability

Coating Process	Viscosity Cp	Wet Thickness um	Coating Accuracy %	Maximum Speed m/min
Reverse Roll	50 - 100K	12 - 1200	5	400
Forward Roll	20 - 1000	10 - 200	8	200
Calendar	50K - 5000K	100 - 2000	10	200
Gravure	10 - 5K	2 - 50	2	700
Knife over Roll	100 - 50K	25 - 750	10	150
Slot Die	5 - 20K	15 - 250	2	400
Extrusion	50K - 5000K	15 - 750	5	700
Curtain	50K - 125K	2 - 500	2	500

Remember, all ranges in the table are good places to start, but there are many factors that lead to a successful coating run. It just depends. Contact us for more information at:

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