



Introduction to Recycling Compatible Adhesive Standards

Version 5

April 9, 2007

The standards on this web page were developed by the US Postal Service and provide a guideline from TLMI.

A Problem

Pressure sensitive adhesives (PSA's) cause problems in producing and using recycled paper pulp. PSA's present in recycled paper can become small particles during processing and result in "stickies" that can build up on process equipment and cause defects in the final product paper. Paper recycling mills pay a price for stickies problems including lower product selling prices, down time, and equipment clean up costs. The cost of stickies to paper companies is estimated to be more than \$700 million per year.

Origin of Stickies

The most problematic adhesives are those that are attached to a paper backing such as paper labels. During pulping, as the paper is reduced to individual paper fibers, the adhesive tends to shred into particles that are too small to be easily removed. If the adhesive is attached to a plastic backing like a bottle or film tape, the adhesive remains with the backing and is removed early in the recycling process by screens.

A Solution

The solution to the stickies problem is to make adhesives easier to remove during paper recycling. Recycling Compatible Adhesives (RCAs) are a class of adhesives that remain large enough after pulping to be substantially removed by slotted screens. The residual adhesive passing through the screens can be further removed by flotation. Removal efficiencies of RCAs can be as high as 99% in laboratory recycling experiments.

Standards for Recycling Compatible Adhesives

The RCA specification and test methods listed below are based on US Postal Service Specification 1238F for postage stamps with environmentally benign adhesives. By meeting the RCA specification, an adhesive supplier or converter can qualify either an adhesive or an adhesive coated paper product as recycling compatible. Qualified PSAs also conform to the requirements of Federal Executive Order EO 13148, Section 702, "Greening the Government Through Leadership in Environmental Management – Environmentally Benign Adhesives".

Being Part of a Solution

Converters, printers, and consumers can do their part to reduce the environmental cost of adhesives by specifying and purchasing paper to paper labels coated with RCAs. The USPS converted all the adhesives on self adhesive postage stamps to RCAs in 2001. Since then, converters have been able to purchase RCAs from several adhesive suppliers. Today, recycling compatible labels are also commercially available.

Committee Members;

Fred Gustafson - 3M Office Supplies Division (Chair)
Brian Duffy – Green Bay Packaging Inc.
Brad Fellow – Spinnaker Coating, LLC
Calvin Frost – The Channeled Resources Group
Andrew Graham – Smyth Companies, Inc.
Carl Houtman – USDA, Forest Service
Jay Jagodinski – Green Bay Packaging Inc.
Tapio Martti – Novamelt
Richard Oldack – Dyna-Tech Adhesives, Inc.
Wayne Richter – WS Packaging Group, Inc.
Terie Syme – Prestige Label
Wayne Tabor – Resource Label Group
Dylan Uboldi – Ricoh Electronics, Inc.
William Weernink – Smyth Companies, Inc.