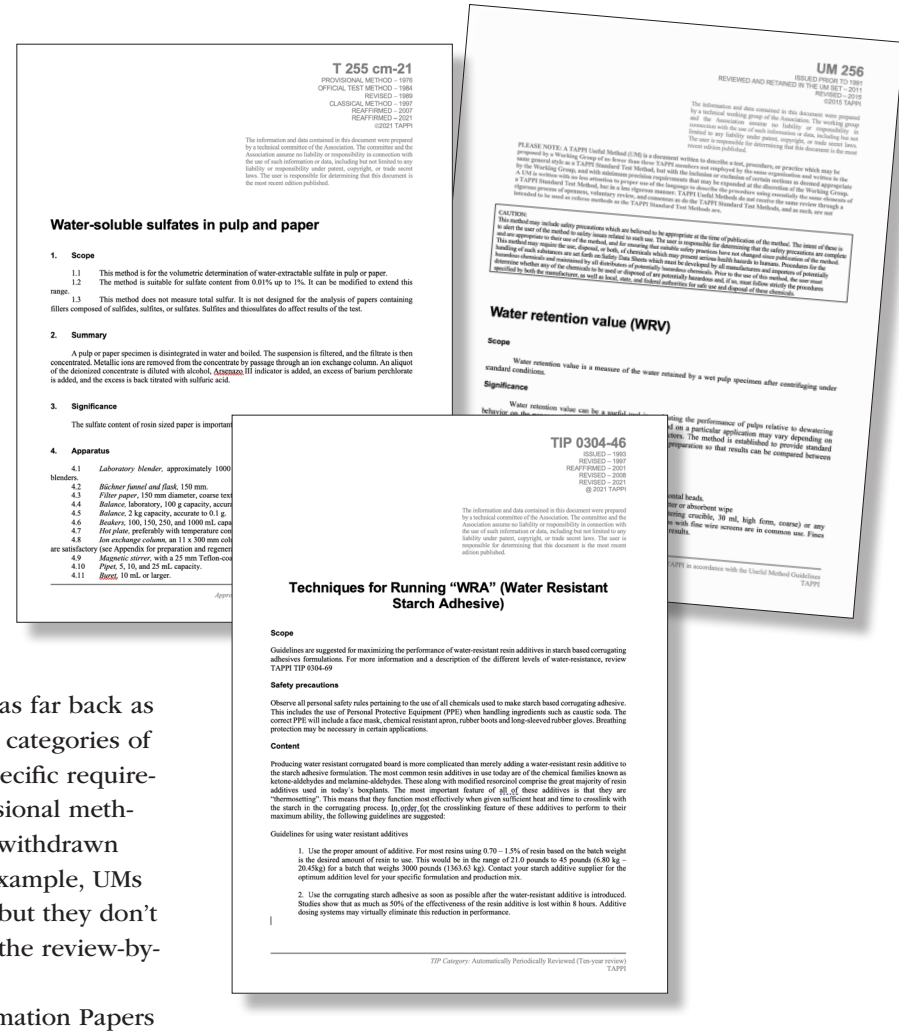
Editorial



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TAPPI Standards development: Authors and reviewers are welcome

Readers of *TAPPI Journal* (*TJ*) and those involved with R&D and process and product quality will be familiar with TAPPI Standard Test Methods. These test methods are necessary for validating research and ensuring the quality of end products. In addition to test methods, TAPPI also publishes information that isn't directly related to test methods, such as technical information and definitions, which include specifications, guidelines, and glossaries. All Standards information is developed with the consensus of a technical working group that adheres to set procedures.



T 255 cm-21
PROVISIONAL METHOD – 1976
OFFICIAL TEST METHOD – 1984
REVISED – 1989
CLASSICAL METHOD – 1997
REAFFIRMED – 2007
REAFFIRMED – 2021
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Water-soluble sulfates in pulp and paper

1. Scope

1.1 This method is for the volumetric determination of water-extractable sulfate in pulp or paper.
1.2 The method is suitable for sulfate content from 0.01% up to 1%. It can be modified to extend this range.
1.3 This method does not measure total sulfur. It is not designed for the analysis of papers containing fillers composed of sulfides, sulfites, or sulfates. Sulfites and thiosulfates do affect results of the test.

2. Summary

A pulp or paper specimen is disintegrated in water and boiled. The suspension is filtered, and the filtrate is then concentrated. Metallic ions are removed from the concentrate by passage through an ion exchange column. An aliquot of the deionized concentrate is diluted with alcohol, Arsenazo III indicator is added, an excess of barium perchlorate is added, and the excess is back titrated with sulfuric acid.

3. Significance

The sulfate content of rosin sized paper is important

4. Apparatus

4.1 *Laboratory blender,* approximately 1000
blenders.
4.2 *Büchner funnel and flask,* 150 mm.
4.3 *Filter paper,* 150 mm diameter, coarse text
4.4 *Balance,* laboratory, 100 g capacity, accura
4.5 *Balance,* 2 kg capacity, accurate to 0.1 g.
4.6 *Beakers,* 100, 150, 250, and 1000 mL capa
4.7 *Hot plate,* preferably with temperature con
4.8 *Ion exchange column,* an 11 x 300 mm col
are satisfactory (see Appendix for preparation and regener
4.9 *Magnetic stirrer,* with a 25 mm Teflon-co
4.10 *Pipet,* 5, 10, and 25 mL capacity.
4.11 *Buret,* 10 mL or larger.

UM 256
ISSUED PRIOR TO 1991
REVIEWED AND RETAINED IN THE UM SET – 2011
REVISED – 2015
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PLEASE NOTE: A TAPPI Useful Method (UM) is a document written to describe a test, procedure, or practice which may be proposed by a Working Group of no fewer than three TAPPI members not employed by the same organization and written in the same general style as a TAPPI Standard Test Method, but with the inclusion or exclusion of certain sections as deemed appropriate by the Working Group, and with minimum precision requirements that may be expanded at the discretion of the Working Group. A UM is written with no less attention to proper use of the language to describe the procedure using essentially the same elements of a TAPPI Standard Test Method, but in a less rigorous manner. TAPPI Useful Methods do not receive the same review through a rigorous process of upmost, voluntary review, and consensus as do the TAPPI Standard Test Methods, and as such, are not intended to be used as referee methods as the TAPPI Standard Test Methods are.

CAUTION:
This method may include safety precautions which are believed to be appropriate at the time of publication of the method. The intent of these is to alert the user of the method to safety issues related to such use. The user is responsible for determining that the safety precautions are complete and are appropriate to their use of the method, and for ensuring that reasonable safety practices have not changed since publication of the method. This method may require the use, disposal, or both, of chemicals which may present serious health hazards to humans. Procedures for the handling of such substances are set forth on Safety Data Sheets which must be developed by all manufacturers and importers of potentially hazardous chemicals and routinely updated by all distributors of potentially hazardous chemicals. Prior to the use of this method, the user must determine whether any of the chemicals to be used or disposed of are potentially hazardous and, if so, must follow strictly the procedures specified by both the manufacturer, as well as local, state, and federal authorities for safe use and disposal of these chemicals.

Water retention value (WRV)

Scope

Water retention value is a measure of the water retained by a wet pulp specimen after centrifuging under standard conditions.

Significance

Water retention value can be a useful

using the performance of pulps relative to dewatering
d on a particular application may vary depending on
ckers. The method is established to provide standard
preparation so that results can be compared between

ostal heads.
ner or absorbent wipe
ering crucible, 30 mL (high form, coarse) or any
e with fine wire screens are in common use. Fines
results.

APPI in accordance with the Useful Method Guidelines
TAPPI

TIP 0304-46
ISSUED – 1993
REVISED – 1997
REAFFIRMED – 2001
REVISED – 2008
REVISED – 2021
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Techniques for Running "WRA" (Water Resistant Starch Adhesive)

Scope

Guidelines are suggested for maximizing the performance of water-resistant resin additives in starch based corrugating adhesives formulations. For more information and a description of the different levels of water-resistance, review TAPPI TIP 0304-69

Safety precautions

Observe all personal safety rules pertaining to the use of all chemicals used to make starch based corrugating adhesive. This includes the use of Personal Protective Equipment (PPE) when handling ingredients such as caustic soda. The correct PPE will include a face mask, chemical resistant apron, rubber boots and long-sleeved rubber gloves. Breathing protection may be necessary in certain applications.

Content

Producing water resistant corrugated board is more complicated than merely adding a water-resistant resin additive to the starch adhesive formulation. The most common resin additives in use today are of the chemical families known as ketone-aldehydes and melamine-aldehydes. These along with modified resorcinol comprise the great majority of resin additives used in today's boxplants. The most important feature of all of these additives is that they are "thermosetting". This means that they function most effectively when given sufficient heat and time to crosslink with the starch in the corrugating process. In order for the crosslinking feature of these additives to perform to their maximum ability, the following guidelines are suggested:

Guidelines for using water resistant additives

1. Use the proper amount of additive. For most resins using 0.70 – 1.5% of resin based on the batch weight is the desired amount of resin to use. This would be in the range of 21.0 pounds to 45 pounds (6.80 kg – 20.45kg) for a batch that weighs 3000 pounds (1363.63 kg). Contact your starch additive supplier for the optimum addition level for your specific formulation and production mix.

2. Use the corrugating starch adhesive as soon as possible after the water-resistant additive is introduced. Studies show that as much as 50% of the effectiveness of the resin additive is lost within 8 hours. Additive dosing systems may virtually eliminate this reduction in performance.

TIP Category: Automatically Periodically Reviewed (Ten-year review)
TAPPI

Types of TAPPI test methods

Standards development at TAPPI began as far back as 1920. TAPPI now publishes six different categories of test methods, each of which has very specific requirements and scope: official method, provisional method, standard practice, classical method, withdrawn method, and useful method (UM). For example, UMs describe tests, procedures, or practices, but they don't qualify as Standards and don't undergo the review-by-consensus process.

TAPPI also publishes Technical Information Papers (TIPs) containing specialized information like data and software calculations used in the manufacture, evaluation, and description of pulp, paper, and related products. The TIPS may contain testing procedures or methods used to evaluate equipment but don't cover pulp and paper testing or test methods.

Currently, there are 23 UMs, 300 TIPs, and 238 Standards. Standards are available at a discounted price to TAPPI members.

Also, TAPPI has been certified by the American National Standards Institute (ANSI) as an American National Standards development organization since 2009. This means that TAPPI procedures adhere to the standards set by ANSI in terms of openness, balance, public announcements, and due process. As a result, TAPP Standards are considered to be American National Standards.

Group participation is key to development

One must be a TAPPI member to propose a standard, TIP, or UM that adheres to TAPPI's specific guidelines through the Standards Submissions page, where you can also join a Standard-Specific Interest Group (SSIG) or participate in a Standards Advisory Review Group (SARG). For every standard, there is one SSIG that is responsible for maintaining and reviewing it. SSIGs are in a range of subject categories, and there are currently more than 240 such groups.

Acting as a reviewer is an important way to advance standards for the industry. The process for joining is simple, according to TAPPI Standards Manager Brittaney Lovett.

"Just take a look at which subject category appeals to you and matches your field of expertise, click on it, select which SSIG to join based on the Standards that interest you, and enter your information," said Lovett. "You can join as many SSIGs as you'd like, and there is no particular title or affiliation that you must have, as our groups are intended to be very diverse and reflect a range of backgrounds and perspectives. Also, participation in SSIGs is open to both TAPPI members and non-members."

Each SSIG needs to have at least 10 members to participate in the review process for a particular standard. In addition to reviews of proposed new test methods, all existing TAPPI Standards are reviewed every five to 10 years. A Standards Engagement Task force works to keep the review process moving, but more reviewers are needed, and the participation requirements are not overwhelming.

"There are many TAPPI Standards up for review, and reviewers are needed in all areas, but especially in Pulp and Chemical Properties," said Lovett. "We estimate that it takes less than 10 hours per year to participate in an SSIG, which involves reading and commenting on the draft method and then voting affirmative, negative, or to abstain."

If you are interested in writing or participating in TAPPI Standards, TIPs, or SSIGs, please visit the TAPPI Standards page online. If you have particular questions, you may contact Brittaney Lovett at blovett@tappi.org or TAPPI Standards at standards@tappi.org and TAPPI TIPs at tip@tappi.org. **TJ**

