

Voluntary Standard
For Repulping and Recycling Corrugated
Fiberboard Treated to Improve Its
Performance in the Presence of Water and
Water Vapor

Purpose

1. The application of this Voluntary Protocol is only for linerboard, corrugating medium, combined board, and corrugated products made from these materials, collectively known as “corrugated fiberboard.” The purpose is to encourage the development of treatments to corrugated fiberboard that will provide water resistance or some other desirable characteristic that are repulpable and recyclable, and will replace existing treatments that also provided water resistance or some other desirable characteristic, but did not allow the corrugated fiberboard to be repulpable or recyclable. The goal is to return to the OCC stream corrugated fiberboard that formerly was not accepted into that stream.
2. This standard establishes a repeatable method for simulating a commonly used subset of repulping and recycling processes. It is intended to evaluate the impact of repulping and recycling treated corrugated fiberboard on containerboard mill operations and final products.
3. This standard establishes a method for identifying treated corrugated that can be repulped and recycled in this selected subset of processes. It establishes minimum levels of performance for the handsheets made from treated corrugated, repulped and recycled in accordance with a detailed test protocol given in Appendices A & B. This standard is not intended to preclude the development or use of any technological advances in mill or treatment processes. It is intended to encourage the development, use and repulping and recycling of treated corrugated products for use in high-moisture environments.

Scope

1. This standard applies repulping and recycling process technology either in effect or readily achievable in mills currently involved in recycling.
2. This standard establishes a **screening method** to determine the repulpability and recyclability of treated corrugated products that have not previously been considered recyclable.
3. The test method in this standard has two parts: **Part 1** determines the **repulpability** of treated corrugated by determining fiber-on-fiber yield when only the treated corrugated is processed in accordance with this standard (Appendix A). **Part 2** determines the **recyclability** of the treated corrugated by evaluating its effect on mill operations and finished products when it is added to untreated corrugated in the amounts specified (Appendix B).
4. This voluntary standard does not relieve the user from compliance with all applicable local, state and federal laws and regulations, and contractual agreements.
5. This standard is not intended to address the functionality or marketability of the treated corrugated or of mill products that use the treated corrugated as a fiber source.
6. This standard does not address all of the factors that should be considered in the development of a repulpable and recyclable treatment. The companies that develop treatments and treated corrugated and test them under this standard are responsible for making sure that, in addition to being repulpable and recyclable, the products will be safe and suitable for their intended applications— e.g., packaging in contact with food— and will not create other non-desirable environmental effects at the point of use or disposal.
7. Treated corrugated containers recovered for recycling should not be contaminated by their contents, such as hazardous or perishable materials.

Definitions of Key Terms

Fiber-on-fiber yield is the amount of fiber that remains after the processing action, expressed as a percentage of the fiber present in the material to be tested.

Handsheets are sheets made from a suspension of fibers in water in an operation, whereby each sheet is formed separately by draining the pulp suspension on a stationary sheet mold.

OCC (Old Corrugated Containers) is a grade of waste paper comprised of untreated corrugated boxes that have been used for the purpose for which they were originally purchased and have subsequently been source separated from other waste.

Recyclable means used paper, including in-plant and post-consumer waste paper and paperboard, which is capable of being processed into new paper or paperboard using the process defined in this standard.

Recyclability test sample consists of a minimum of 20% (by weight) of the treated corrugated to be tested and the remainder of the untreated corrugated.

Repulpable means the test material that can undergo the operation of re-wetting and fiberizing for subsequent sheet formation, using the process defined in this standard.

Treated corrugated is the linerboard, corrugating medium, combined board or corrugated products that have been subjected to a specific treatment for the purpose of improving its performance in the presence of water or water vapor. The level of treatment used in the test must be equal to or greater than the level of treatment to be used in the field.

Untreated corrugated/control is the same linerboard, corrugating medium, combined board or corrugated products that have not been subjected to any treatment to improve performance in the presence of water or water vapor.

TEST METHOD

Preliminary Analysis: Before beginning the test protocol, determine the moisture content of the treated corrugated sample.

PART 1: Repulpability

A 100% charge of treated corrugated is repulped in a Modified Waring Blender and a British Disintegrator in water at a pH of 7 (± 0.5 pH) that is maintained at 125°F (± 10 °F) following the procedure outlined in Appendix A. The pulped material is separated in a screen with 0.010-inch or smaller slots to determine fiber recovery as a percentage of the amount of fiber charged. Detailed procedures for repulpability are given in Appendix A.