

The information and data contained in this document were prepared by a technical working group of the Association. The working group and the Association assume no liability or responsibility in connection with the use of such information or data, including but not limited to any liability under patent, copyright, or trade secret laws. The user is responsible for determining that this document is the most recent edition published.

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 openness, 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 suitable 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 Material Safety Data Sheets which must be developed by all manufacturers and importers of potentially hazardous chemicals and maintained 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.

Testing of grease-repellant treated paper

Scope

This method describes a procedure for testing grease repellency of flexible packaging materials. It is an accelerated test designed to measure the repellency and resistance of oil and grease penetration of fluorochemically treated flexible packaging materials.

This test is intended to supplement TAPPI T 454 "Turpentine Test for Voids in Glassine and Greaseproof Papers" and TAPPI T 507 "Grease Resistance of Flexible Packaging Materials."

Safety precautions

Due to the volatile nature of the organic solvents used in this UM, all procedures must be run under a fume hood and away from any source of ignition.

Significance

This method is used as a quality control check where fluorochemical size is applied to paper grades.

The oleophobic test oils give a useful comparison of one treatment with another, but there is no fixed relationship between oleophobic ratings and effectiveness in an end use test of different types of treatment on different base sheets.

Apparatus

1. *Reflector viewer box* (see Fig. 1)
2. *Glass-stoppered dropper bottles*, marked from 1 through 8.

Approved by a Working Group of TAPPI in accordance with the Useful Method Guidelines

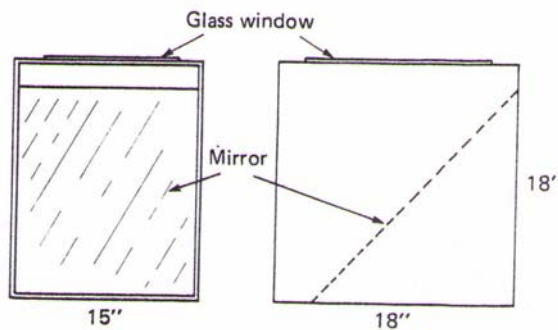


Fig. 1. Reflector viewer box.

Reagents

Component	Oleophobic rating and bottle number
Mineral oil	1
65/35 mineral oil/ <i>n</i> -hexadiene	2
<i>n</i> -Hexadecane	3
<i>n</i> -Tetradecane	4
<i>n</i> -Dodecane	5
<i>n</i> -Decane	6
<i>n</i> -Octane	7
<i>n</i> -Heptane	8

Sampling and test specimens

From each test unit obtained in accordance with TAPPI T 400 "Sampling and Accepting a Single Lot of Paper, Paperboard, Containerboard, or Related Product," cut at least 25 specimens 280 mm × 280 mm (11 in. × 11 in.). Specimens are to be free from folds, creases, or obvious blemishes. Specimens are to be clean and tester should avoid placing the fingers in the area to be tested.

Conditioning

Condition test specimens for 24 h in an atmosphere in accordance with TAPPI T 402 "Standard Conditioning and Testing Atmospheres for Paper, Board, Pulp Handsheets, and Related Products."

Procedure

Place one test specimen on the reflector viewer glass surface at a time and position so the treated side faces up. In case of two-side treatment, the surface that will normally be exposed to the oil in the package should face up. Beginning with the lowest numbered test liquid, carefully place a drop without impact at four locations on the test specimen. Observe the opposite side of the specimen for one minute through the reflector viewer. If no penetration occurs within the 1-min time interval, place a drop, without impact, of the next highest numbered test liquid at four adjacent locations on the same specimen and again observe the opposite surface through the reflector viewer for 1 min. Continue this procedure until one of the test liquids penetrates the specimen. Penetration can easily be determined by observing through the mirror the penetration of room lighting which appears as a bright, irregular shape in the test liquid dot area.

The oil repellency rating of the specimen is the highest numbered test liquid which will not penetrate for a period of 1 min.