

Rapid Deformation (Impact) (D 2794)]. In this cert letibility is evaluated by dropping a large bullet shaped weight from a measured height down a collection guide tube onto the uncoated surface of class sheet. The test is the errol cons a reverse impact test. Microscopic examination of the impacted area is employed for evidence of cracking in the coating. The coating can be tested to the point of metal failure, a factor which depends on the thickness and strength of the substrate used.

A test more specific to the can industry involves use of the Erichsen Lacquer Testing Instrument. With this device a cup is actually formed from a section of coated metal and the corners of the formed cup are examined for signs of inadequate flexibility (T. J. Bell, Inc., 1340 Home Ave, Akron, Ohio or A. M. Erichsen, GMBH 587 Hemer, Sundwig, Germany).

*Extraction Testing*—Concentrations levels of coating components capable of being extracted by the container contents must be below a defined limit. The Food and Drug Administration has established a series of limits and has defined certain liquids to be used for testing based on the planned contents of the container. They are described in detail in the Code of Federal Regulations, No. 21, Section 175.300. An extraction technique is also described in detail in this government publication.

*Gloss Measurement*—The specular gloss of a coated sample is measured using a 60° gloss meter [ASTM Test Method for Specular Gloss (D 523)]. The meter should be equilibrated and calibrated against standard panels. The meter is placed over the panel to be tested, several readings are taken at different spots on the panel, and an average of these readings is recorded. Care must be taken to control film thickness as deviations in gloss level will be observed at varying thickness s

Color Measurement—The customer will assign an acceptable level of deviation of the final color of the sheets or the cans based on a defined standard. Spectrophotometric analyses using L A B ranges are reported [ASTM Test Method for Calculation of Color Differences from Instrumentally Measured Color Coordinates (D 2244)].

Blocking Resistance—Frequently, sheets of coated product are stacked and stored before being carried to the next station for processing. Such storage can often occur after an oven operation, which means that the sheets are stacked at an elevated temperature. As sheets are fed to a pile, the pressure imposed on the lower members of the stack can become considerable, and the sheets must resist adhering to each other. Efficient and rapid movement of these sheets individually for subsequent processing is essential to achieve an economical container production rate. Simple tests to evaluate the ability of coatings to resist this sticking phenomenon are commonly developed that are acceptable to both the customer and the supplier.

In one such test a series of coated sheets or panels are stacked face to back. Pressure, usually supplied via a properly placed weighted block of metal, is imposed on the top sheet or panel of the stack. The stack which can be stored at controlled temperature for defined periods of time is examined after cooling for ease of separation. The weighted block of metal is often of such a physical dimension that the resistance to sticking of the coated panels can be determined conveniently (usually reported in pounds/square inch).