Tek Tip

MARKING AND LABELING SYSTEMS - UL 969

Definition: A specific combination of face stock, printing process and adhesive. A system may also include an overlamination or overprint coating.

THE FOLLOWING IS AN OVERVIEW OF THE UL 969 REQUIREMENTS--A COPY OF THE COMPLETE DOCUMENT IS AVAILABLE UPON REQUEST.

The requirements in the UL 969 Standard cover adhesive attached labels for use as nameplates or markers bearing information, instructions or identification. These labels are intended to be used by manufacturers for application to their device, appliance or instrument.

The labels covered by these requirements typically consist of:

- FACE STOCK- A film or other material that can be printed (film, foil, paper, fabric or laminate).
- LAMINATING ADHESIVE- An adhesive coated on a release liner intended to be bonded to the face stock.
- PRINTING PROCESS- The ink and means by which information is applied (printed) to the face stock.
- OVERCOAT/ OVERLAMINATE- An optional clear material that can be used over printed face stock for protection.
- SUBSTRATE- The material to which the label is applied is considered part of the system.
- LABEL STOCK- An unprinted face stock, adhesive and liner construction that is intended to be used as a label.

PERFORMANCE TESTS

In order to receive a listing under this standard, UL requires that the labels pass a series of permanence and legibility (if printed) tests. These involve:

1. VISUAL INSPECTION- For delamination, curl, wrinkling, bubbles, shrinkage, crazing and legibility.
2. RUB TEST- Label surface rubbed with finger and evaluated for legibility.
3. SCRAPE TEST- Label scraped with steel tool in an attempt to dislodge and/or damage label.
4. ADHESION TEST- Label to have an adhesion value to the selected substrate of not less than 0.5 pounds per inch when tested according to the procedure.

EXPOSURE CONDITIONS

The label or label stock could also be pre-conditioned depending on the intended application. The intent is to simulate and accelerate any effect the end use environment may have on the performance of the label based on the above tests. UL determines what exposures are required based on the intended application. This conditioning could include exposure to any of the following:

- ELEVATED TEMPERATURES
- WATER IMMERSION

- WEATHEROMETER TESTING- Carbon arc per ASTM G23
- CHEMICAL IMMERSION- Gasoline, cooking oil, detergent or whatever applies.
- SOLVENT VAPORS

The labels must then pass all of the above performance tests.

LISTING SERVICE

Upon successful completion of the above testing, UL will report the specific label construction (as described by the label manufacturer) and the results of the tests that were run. The construction detail includes a "General" description and then lists the details of construction. Example:

General - From top to bottom, the label consists of face stock, printing and adhesive protected by a release liner.
Face Stock - 0.005-0.015 in. clear polycarbonate
Printing Process - Screen
Ink - UV ink XYZ supplied by I. M. Black & Sons
Adhesive - recognized Avery Marking and Labeling Systems Materials laminating adhesive “6666”, “6678”, “6789” or “6677”.
Approximate Thickness, Excluding Liner - 0.006-0.022 in.

For a manufacturer it is best to be as broad and generic as possible in the description: include as many gauges and adhesives as possible and do not include trade names or manufacturers of face stock if not required.

UL will then issue a component listing under the file number assigned to the project. This listing or yellow card includes any information a user may need to select a product; example:

PGGU2 August 13, 1996
Component - Marking and Labeling Systems Materials - Component

ABC LABEL CO. **MH12345 (N)**
(C-cont. from B card)
“Stick-em 101”, removable intact. Affixed to aluminum, stainless steel and acrylic enamel, maximum temperature, 150 C (302 F), minimum temperature -40 C (-40 F).
Suitable where exposed indoors or outdoors to high humidity or occasional exposure to water or gasoline

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It is up to the manufacturer to insure that any UL listed labels he makes conform to the requirements for which the listing was awarded. UL should be contacted about any changes in materials or processing. In many cases a minor change in materials (from one manufacturer to another) will involve only a paperwork change. More radical changes in materials and/or processes may require re-testing at UL.