

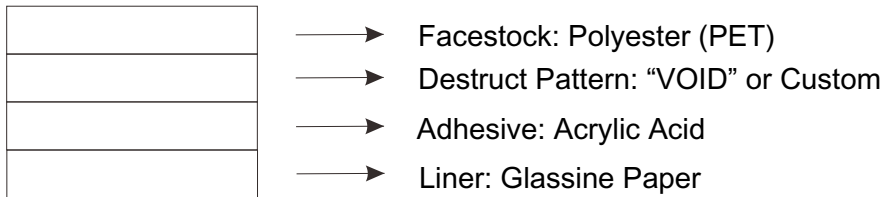
TSG

Label Stocks Data Page

FOD # 0108

SafeLabel™ Tamper-evident Label Stock

Product Construction



<u>Product</u>	<u>Facestock</u>	<u>Destruct Pattern</u>	<u>Adhesive</u>	<u>Liner</u>
Security Label	1.0/2.0 mil (25/50 micros) Red/Blue/custom Polyester	"VOID"/custom	1.0 mil (25 mics) High-Tenacity Acrylic	2.5 mil (64 mics) Glassine Paper

Features

- 1 Tamper-indicating - designed to produce a message in facestock when removal is attempted, preventing reapplication.
- 2 The compact format of the "Honey Comb" message permits manufacture of small labels down to 10 mm x 10mm.
- 3 Durable polyester facestock for harsh environments.
- 4 Hi-Tenacity acrylic adhesive for high bond to most surfaces.
- 5 Silicone-coated glassine liner for consistent rotary die cutting.

Applications

- 1 Non-transferable labels for automotive, appliance and electronic industries.
- 2 Tamper-indicating labels and seals for telecom, courier, pharmaceutical, and consumer industries.
- 3 Adhesive is coated to target coat weight. Listed caliper is nominal.

Physical Properties

(Typical values based on testing of one lot - not for specification use)

Adhesion: ASTM D-3330 (modified): 180 deg. Peel, 12"/minute (305 mm/min).

	<u>oz/in</u>	<u>N/100 mm</u>	<u>% destruct</u>
Stainless steel (10 minute dwell)	36	39	100
Stainless steel (72 hour RT)	36	39	100
ABS (72 hour RT)	36	39	100
Polycarbonate (72 hour RT)	41	45	100
Polypropylene (72 hour RT)	32	35	100

The following tests are intended as a guide to product performance. Application testing is recommended using actual substrates, expected dwell times, and actual conditioning for best indication of product suitability.

Labels were applied to stainless steel and dwelled 24 hours RT before conditioning. Results were considered acceptable if no significant loss of adhesion occurred and 100% of the "VOID" message transferred to the steel panel.

Chemical Resistance Bond is secure when exposed to the following:
Gasoline - one hour at room temperature
Automotive oil - 72 hours at 120 deg. F (49 deg. C)
Weak alkali - 4 hours at room temperature
Weak acid - 4 hours at room temperature
MEK - one hour at room temperature
Sodium chloride solution (5%) - 72 hours at room temp.

Water Resistance Withstands exposure to water at room temperature for 100 hrs.

Humidity Resistance Withstands exposure to 90 deg. F (32 deg. C) and 90% relative humidity for 168 hours.

Temperature Resistance Withstands short-term exposure (days, minutes) from -40 deg. F (-40 deg. C) to 175 deg. F (80 deg. C). Recommended maximum service temperature is 150 deg. F (65 deg. C). Labels will continue to hold up to 300 deg. F (1150 deg. C) short-term exposure but may not produce tamper-evident message after prolonged high temperature exposure.

Liner Release:

	<u>grams/inch</u>	<u>N/100mm</u>
180 deg. Angle, 90"/minute (230 cm/min)	10	4

Application

Assume all surfaces to which these label stocks will be applied are contaminated - metals may be oily or dusty, plastics may be coated with mold release agents, dirt, etc. Any surface contamination will adversely affect adhesion and the destruct message; therefore, it must be removed prior to application by wiping with a solvent such as isopropyl alcohol.

Application temperature, pressure, and dwell time are all important variables to produce adequate adhesion and assure the message appears when the label is removed or when tampering is attempted. For best results, the label should be applied when all materials are over 50 deg. F (10 deg. C). Higher initial bonds can be achieved through increased application pressure (firm hand or squeegee pressure should be sufficient). The bond will increase in time, depending on the substrate. Metals and high surface energy materials. For best results, wait 24 hours (at room temperature) before testing.

Processing

Incoming Labelstock Every slit roll has been tested for the presence of the "VOID" message. The leading edge of every slit roll is tabbed with a 1.5"(38 mm) strip to simulate tampering, indicating that the message is functional on the leading test for the presence of the message on every roll of labels or seals as processed.

Printing It is important to avoid covering the surface of the label with opaque graphics to the extent that the voided message is hidden when destructed. See the Technical Bulletin for a current listing of recommended inks (category: Polyester, Press Printable.)

Diecutting The compact "Honey Comb" message allows manufacture of labels as small as 10 mm x 10 mm. Application testing (actual size) is recommended to ensure adequate adhesion to the application surface.

Dispensing Care should be taken to avoid pre-destructing the labels during handling and liner removal. For best results, slowly remove the liner from the label at a 90 deg. Angle and minimize handling the adhesive side of the label.

ACTUAL MESSAGE: "VOID" or Custom.

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Product Suitability

The temper-indicating mechanism depends upon adequate adhesion of the label to the substrate. A sufficient bond may not develop on all surfaces due to low surface energy, contaminated, or textured surfaces (see Application section for some suggested techniques). It is important to determine the suitability of the product in the intended application by carefully testing with application surfaces and real life conditioning.

The primary function of the product is to produce a Partial-transferable (non-reusable) label or seal by causing the destruct message ("VOID"/Custom) to appear on the facestock when removal from substrate is attempted. Since no tamper-indicating feature is 100% tamper-proof, careful consequences of tampering could be severe, such as loss of life or significant monetary loss, these products are not recommended to be the sole means of package or product tamper indication. In these instances, additional methods in combination with the labels should be considered so that the tamper-indicating features are commensurate with the requirements of the application.

Shelf Life

Labelstock retains its performance properties for at least two years from date of manufacture if properly stored at 72 deg. F (22 deg. C) and 50% relative humidity. It is recommended that roll stock and converted labels be kept in plastic bags for best performance.

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Technical Data: All physical properties, statements, and recommendations are either based on tests we believe to be reliable or our experience, but they are not guaranteed. TSG recommends each user determine the suitability of the products for the intended use.

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