UL PERFORMANCE MATERIALS

UL YELLOW CARD FOR PLASTICS

ADD MORE PROPERTIES, WIN NEW CUSTOMERS

PERFORMANCE & CERTIFICATION. SIMPLIFIED.

As a plastics manufacturer, you undertake rigorous measures to ensure your products meet the safety standards as well as quality and performance requirements of OEMs. That's where the UL Yellow Card comes into play – as a safety and quality guarantee, and a low-maintenance marketing tool.

WHAT IS A UL YELLOW CARD?

The Yellow Card is a globally respected digital product information card that lists multiple safety and performance-related properties for a polymeric material tested by UL to appropriate standards.

It is the ideal recognition for manufacturers of materials or components to promote products and their properties to global markets and existing or potential customers.

The card provides substantial information on safety certification and performance testing in a very compact, simple and easy-to-read format.

It provides verification that a material is appropriate for specific applications and helps ensure that the manufacturer is using a tested and certified material, as well as being monitored at regular intervals by an independent test laboratory.

UL TESTING CAN INCLUDE:

- Ignition and burning characteristics from thermal and electrical sources
- Electrical, physical and mechanical characteristics
- The effect of exposure to elevated temperatures, cold, water, ultraviolet rays, chemical fluids, etc.

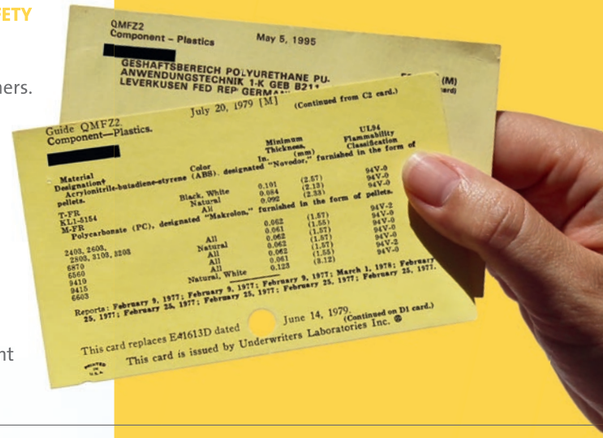
A Yellow Card is automatically issued when polymeric materials receive a UL Recognized Component Mark. Certified materials are added to the UL iQ™ and UL's Prospector® databases – bringing immediate visibility to your Yellow Cards as thousands of designers, engineers, and suppliers search and utilize our databases monthly to verify important safety and performance critical features.

HISTORY OF THE YELLOW CARD – THE START OF A NEW AGE OF SAFETY

When the "golden age" of plastics started in the early 1940s, UL began to investigate the combustibility of new synthetic polymers. The first Yellow Cards recorded all components certified under UL's Component Recognition Program, including plastics, switches and all other devices intended for use in finished products.

Companies used the 3x5 inch cards on yellow stock to promote the safety of their products to customers. By the late 1960s, in addition to the manufacturer's name and the material grade designation, the Yellow Card included the UL 94 Flame Rating.

In 1972, UL published the first "Yellow Book, a directory for all client test data and the predecessor of the current UL iQ™ database.



GIVE VALUE TO END PRODUCT MANUFACTURERS

The Yellow Card helps shorten the path for manufacturers seeking certification for their end-products or systems. Using UL tested and certified components, identifiable through the UL Recognized Components Mark on the Yellow Card, can save time and money by eliminating the need for further material testing.

UL RECOGNIZED COMPONENT MARK

These are marks consumers rarely see because they are specifically used on component parts that are part of a larger product or system. The component recognition marking is found on a wide range of products, including some switches, power supplies, printed wiring boards, some kinds of industrial control equipment and thousands of other products. Recognized products and materials are permitted to claim compliance with the standards to which they were tested, within conditions of acceptability in the end application (such as specified minimum thickness).

ADD PERFORMANCE CREDENTIALS, BOOST VISIBILITY.

UL Yellow Cards are not limited to certification – they can be a highly effective marketing tool. The best method to add value to a Yellow Card is to increase its coverage beyond safety certification parameters. Material manufacturers can boost product discoverability by including the performance properties their customers are looking for – all backed up with reliable third-party verification by UL.

For example, with a Yellow Card, material manufacturers can provide reliable evidence that their products meet important industry requirements, such as the ROHS Directive or a non-halogen and non-chlorine & non-bromine certification.

THE WHITE CARD

PROMOTE YOUR INTER-NATIONAL QUALIFICATIONS

The White Card, an extension at the bottom of a Yellow Card, allows you to promote your product's performance credentials to the global markets. It relates to international standards, while the information on the Yellow Card is typically relevant to North America.

ISO Tensile Strength

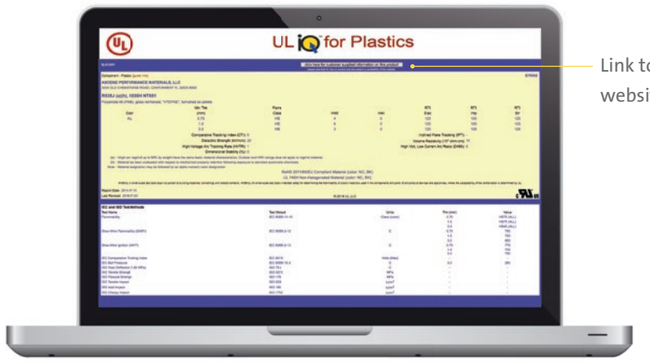
IEC Glow-Wire Flammability / IEC Glow-Wire Ignition

ISO Izod Impact

IEC Comparative Tracking Index

YELLOW CARDS HELP MANUFACTURERS FIND YOU

UL Yellow Cards are listed in various UL databases, which are used by end product manufacturers to find providers of verified materials and components. If they search for specific material properties and don't find your products, they'll choose another provider.



Link to your website

UL IQ™ DATABASES

The UL iQ™ family of free databases is a suite of relational databases that allow users to search for UL Certified Components and review relevant safety certification and material performance data. A website link can be added to an existing yellow card, allowing users to quickly access a provider-specific website. The URL can lead to your company website, product brochure, contact information page, or any other website page. Each yellow card can have one unique product link.
iq.ul.com

PROSPECTOR® DATABASE

UL's Prospector® is the premier database for manufacturers to quickly find the precise materials they need. Bringing together thousands of suppliers, Prospector offers an online service to sort and search materials by properties, applications, safety data, performance characteristics and more. Prospector offers a Yellow Card plug-in – enabling you to showcase your compliance and performance test data in the trusted UL Yellow Card format on your own company website.
ULProspector.com

HOW TO READ A YELLOW CARD

A Yellow Card contains multiple specialized terms and abbreviations. See below for an explanation of the terms and abbreviations most commonly found on UL Yellow Cards.

Note: For some tests a Performance Level Category (PLC) may be assigned. This is typically a numeric rating from 0 – 5, where each number represents a range of property values, and 0 represents the best rating available.

Flame Class – UL94

Tests for Flammability of Plastic Materials for Parts in Devices and Appliances, now harmonized with IEC 60695-11-10, 60695-11-20, ISO 9772 and ISO 9773. There are twelve UL 94 specified flame classifications assigned to materials based on the results of these small-scale flame tests.

HWI – Hot Wire Ignition

The test method for the determination of resistance to ignition of plastic materials from an electrically heated wire is described in the Standard ASTM D 3874.

HAI – High Arc Ignition

The HAI test determines a material's ability to withstand electrical arcing either directly on or just above the surface of the plastic material. This can occur in the presence of open switch contacts or in the event of the failure of an electrical connection.

RTI – Relative Thermal Index

The maximum service temperature for a material where a class of critical property will not be unacceptably compromised through chemical thermal degradation over the reasonable product lifetime. Electrical RTI is associated with critical electrical insulating properties. Mechanical impact RTI is associated with critical impact resistance, resilience and flexibility properties. Mechanical strength RTI or mechanical without impact is associated with critical mechanical strength where impact resistance, resilience, and flexibility are not essential.

CTI – Comparative Tracking Index

ASTM D 3638 (IEC 60112) Method: This test is used as a measure of the susceptibility of the material to tracking.

Dielectric Strength

The test method for the determination of the dielectric breakdown and strength of insulating materials, described in the Standard ASTM D 149 (IEC 60243).

HVTR – High Voltage Arc Tracking Rate

Test method to determine the susceptibility of the test material to track or form a visible carbonized conducting path over the surface when subjected to high-voltage, low-current arcing.

Dimensional Stability

For measuring changes in linear dimensions of plastics, described in the Standard ASTM D 1042 (ISO 2796).

IPT – Inclined Plane Tracking

Described in the Standard ASTM D 2303, used as a measure of the susceptibility of a material to track.

Volume Resistivity

Testing according to ASTM D 257 (IEC 60167), procedures for the determination of d-c volume resistance, volume resistivity, surface resistance, and surface resistivity of electrical insulating materials.

High Voltage, Low Current Arc Resistance

Testing to ASTM D495, based on the number of seconds that a material resists the formation of a surface-conducting path when subjected to an intermittently occurring arc of high-voltage, low-current characteristics.

Example Yellow Card, other information and ratings may be shown

Component – Plastics

E12345

XY PLASTIC COMPANY
GERMANY

Grade ABC (f1)(f3)

Polycarbonate (PC), furnished as pellets

Color	Min Thk (mm)	Flame Class	HWI	HAI	RTI Elec	RTI Imp	RTI Str
ALL	0.75	V-1	0	0	80	80	80
	1.0	V-0	0	0	120	120	120
	3.0	V-0	0	0	140	140	140

Comparative Tracking Index (CTI):	0	Inclined Plane Tracking (IPT):	60 min at 1kV
Dielectric Strength (kV/mm):	32	Volume Resistivity (10x ohm-cm):	14
High-Voltage Arc Tracking Rate (HVTR):	0	High Volt, Low Current Arc Resis (D495):	5
Dimensional Stability (%):	0.0		

(f1) - Suitable for outdoor use with respect to exposure to Ultraviolet Light, Water Exposure and Immersion in accordance with UL 746C

(f3) - Suitable for use with respect to exposure to detergents, bleach and solutions typically used in fluid containing parts of laundry equipment, in accordance with UL 2157

RoHS 2011/65/EU Compliant Material (color: ALL)
UL 746H Non-Halogenated Material (color: ALL)

ANSI/UL 94 small-scale test data does not pertain to building materials, furnishings and related contents. ANSI/UL 94 small-scale test data is intended wsolely for determining the flammability of plastic materials used in the components and parts of end-product devices and appliances, where the acceptability of the combination is determined by UL.

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Last Revised: 2016-07-20

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IEC and ISO Test Methods

Test Name	Test Method	Units	Thk (mm)	Value
Flammability	IEC 60695-11-10	Class (color)	0.75	V-1 (ALL)
			1.0	V-0 (ALL)
			3.0	V-0 (ALL)
Glow-Wire Flammability (GWFI)	IEC 60695-2-12	C	1.0	960
Glow-Wire Ignition (GWIT)	IEC 60695-2-13	C	1.0	960
IEC Comparative Tracking Index	IEC 60112	Volts (Max)	3.0	CTI600
IEC Ball Pressure	IEC 60695-10-2	C	3.0	130
ISO Heat Deflection (1.80 MPa)	ISO 75-2	C	3.0	124
ISO Tensile Strength	ISO 527-2	MPa	3.0	60
ISO Flexural Strength	ISO 178	MPa	3.0	55
ISO Tensile Impact	ISO 8256	kJ/m^2	3.0	40
ISO Izod Impact	ISO 180	kJ/m^2	3.0	70
ISO Charpy Impact	ISO 179-2	kJ/m^2	3.0	9.0
ISO Heat Deflection Test	ISO 75-2	C	3.0	124

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