

Wire and cable solutions



Solutions

Safety. Science. Transformation.™



What sets us apart

History of trust – UL Solutions evaluates more than 70 different wire and cable categories to national and international standards.

Technical know-how and integrity – UL Solutions services are backed by safety science, engineering and regulatory expertise. UL Solutions engineers and safety experts can effectively impart our technical knowledge to customers, helping them improve results and build a culture of safety.

Worldwide recognition – For seven consecutive years, UL Solutions was the No. 1 issuer of CB Test Certificates, issuing more than any other National Certification Body (NCB) under the IECEE CB Scheme.

International affiliations – UL Solutions' connection with highly recognized regulatory authorities and certification bodies across the globe helps us provide insightful knowledge and services to our customers.

Global reach – Reaching beyond the widely recognized UL Mark for U.S. and Canada, UL Solutions offers testing and certification services for most Latin American, European and Asian countries, which empower our customers to gain access to their desired marketplace.

Our presence and reach



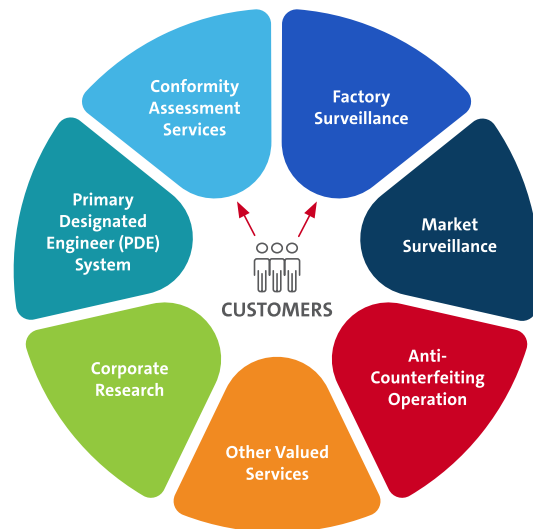
Behind the Mark

UL Solutions' Follow-Up Services apply to any product carrying the UL Mark to verify that the product still meets the original requirements it was certified under. Throughout the lifetime of a UL Certification, we conduct regular inspections of production facilities and products, working towards an end goal of total compliance. Our comprehensive factory surveillance system is an objective, impartial, third-party assessment to help ensure that you are delivering the quality and performance that will help you stand out among the competition.

UL Solutions is a thought leader in both certification and standard compliance, providing up-to-date knowledge and expertise to customers regarding new and changing technologies.

To support activities that combat counterfeiting, pirating and other forms of intellectual property theft, our Global Security and Brand Protection (GSBP) group has developed a comprehensive, multi-dimensional strategy based on three essential tenets: education, enforcement and partnerships.

UL Solutions market surveillance activities protect the integrity of our work by investigating product incident reports and by proactively surveying products on the market. The holographic label system sets us apart by



offering confidential security features for customers, regulators, buyers, retailers and users.

Get more out of your UL Certifications from **UL Product iQ®**, **our online certification directory**. Product iQ is designed to help code authorities easily verify our certifications for code compliance. Additionally, UL Product iQ Marketing Solutions connects you with engineers, architects and product developers to promote your products.

Types of Wire and Cable

Appliance wiring material (AWM)

AWM used inside enclosures or to connect components

Building wire

Wire and cable used to wire homes, factories, offices and other locations

Flexible power cable

Flexible cords, cord sets and power supply cords

Communications cable

Plenum (CMP), riser (CMR) and general purpose cable (CM)

Optical fiber cables

Fiber optic cables and accessories used in telecommunications and network systems

Decorative and seasonal lighting

Seasonal lighting strings or decorative lighting strings and outfits, as well as artificial pre-lit Christmas trees

High-speed wired connectivity

Electronic cable used to carry signals and data

Wiring harnesses

Multiple wire assembly devices

Energy and utilities

Medium- and high-voltage cable and cable accessories for power generation, transmission and distribution



The UL Mark is the single most accepted certification mark in the United States, appearing on 22 billion products annually. Our certifications demonstrate that your products have been tested to applicable standards. UL Solutions' recognized regulatory expertise provides critical credibility to authorities and the marketplace. Once a product meets the applicable certification criteria, it may be eligible for UL Certification and carrying the applicable UL Mark.

The Enhanced and Smart UL Certification Mark have been created to deliver greater clarity and acceptance in the market today. The Mark anticipates changing marketplace needs and the evolving nature of product safety. The benefits of the Enhanced and Smart UL Certification Marks include:

- Enhanced clarity and acceptance
- Greater transparency into a product's compliance
- Bundling of current and future Certifications
- Faster deployment
- Easier access to product information by end-user

UL Smart and Enhanced Marks may be used on products in lieu of the UL Listed and UL Classified Marks, typically those that consist primarily of the "UL" in a circle and the word "Listed" or "Classified." Use of the UL Smart and Enhanced Mark is optional. A manufacturer may continue to utilize the UL Listed or UL Classified Mark. The UL Listed or UL Classified Mark, described in a manufacturer's UL Solutions Follow-up Services procedure, may be used indefinitely. However, manufacturers are encouraged to transition to UL Smart and Enhanced Marks when they find value in transitioning to the UL Smart and Enhanced Mark.



Enhanced Mark

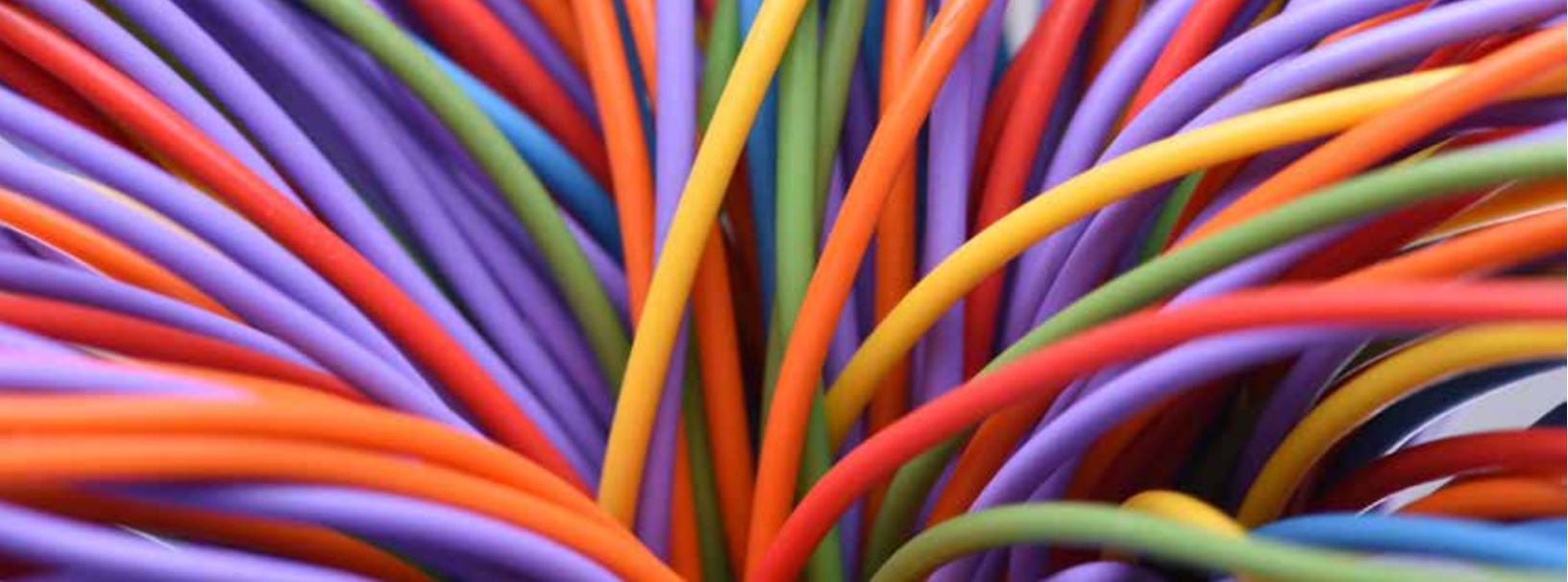


Smart Mark

Current users of the UL Listed and UL Classified Marks can make the transition to the UL Enhanced and Smart Marks when they see value.

Please visit [our Marks Hub](#) for more information.

THE UL MARK IS THE SINGLE
most accepted
certification mark
IN THE UNITED STATES. 



Listing service – If a product carries one of these marks, it means UL Solutions found that representative product samples met UL Solutions requirements. These marks are seen commonly on appliances and computer equipment, furnaces and heaters, fuses, electrical panel boards, smoke and carbon monoxide alarms, fire extinguishers and sprinkler systems, personal flotation devices, bullet resistant glass, and thousands of other products.

The UL Listing Marking appearing on a product typically consists of four required elements:

- “UL” in a circle symbol
- Word Listed
- Product name
- Issue/serial number or alphanumeric control number



Component Recognition service – intended solely for use on components of equipment that is UL Listed or Classified/Verified, our Component Recognition service evaluates components or materials for use in a complete end-product. Upon completion, manufacturers will then participate in UL Solutions’ Follow-Up Services.



Classification service – UL Marks for our Classification service appear on representative samples of products that UL Solutions has evaluated with respect to specific properties, a limited range of hazards or suitability for use under limited or special conditions.

The UL Classification Marking appearing on a product typically consists of four required elements:

- “UL” in a circle symbol
- Word Classified
- Product name or company name/file number
- Issue/serial number or alphanumeric control number

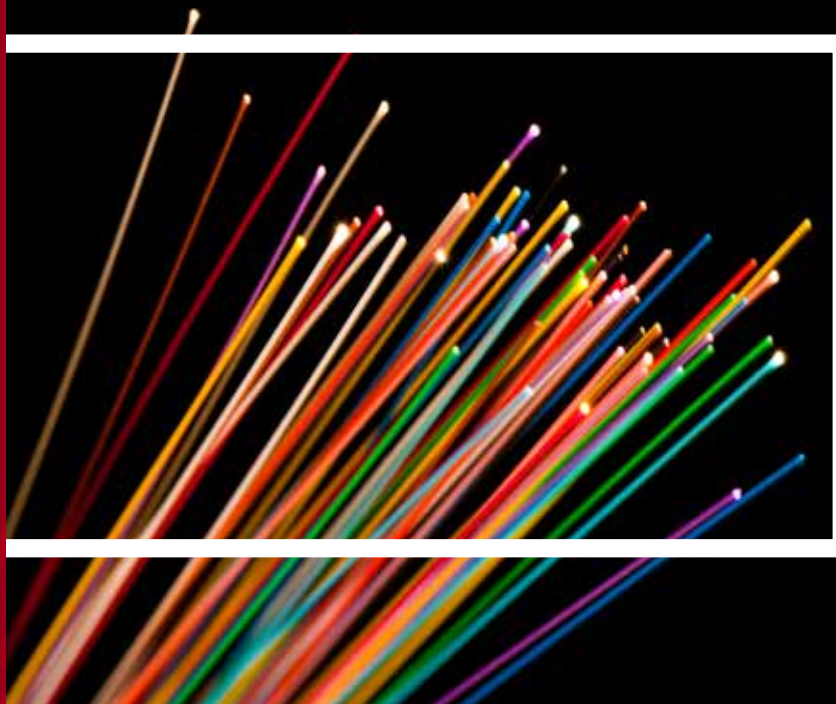
Information identifying the scope of UL Certification will also appear on the product.

If a product carries one of the marks above, it means UL Solutions found that representative product samples met the applicable requirements. These marks appear on end-products and components suitable for factory and field installation. All of the products carrying these marks are covered by our Follow-Up Services program to determine that products continue to be manufactured in compliance with the applicable requirements.



Performance Verification – focused on evaluation of specific performance characteristics against predefined standards, such as transmission performance. Products covered under this service are authorized to bear the performance Verified Mark.

Gain visibility into product performance requirements in early stage



Pre-Certification Evaluation

The pre-certification evaluation program is designed to help prepare for the formal product certification process. As part of the deliverables for this service, we will provide a test program, sample requirements, expected turnaround time, and a quote to conduct the testing. Our pre-certification program allows high flexibility to conduct research and development and product manufacturing for submittal to UL Solutions on one's own timeline.

Key benefits

- May accelerate time to market and saves money by reducing rework and additional testing
- May avoid delays due to communication downtime
- Provides clearly defined project scope prior to the main certification process for an accurate certification quote
- Provides information about applicable requirements so you can incorporate them into product development early on
- Helps identify potential noncompliant issues that can delay product launches
- Gains additional visibility into the certification process timeline
- Higher flexibility to schedule sample production in order to minimize disruptions to manufacturing operations
- Includes credit of pre-certification project costs toward the overall product certification cost

Research testing

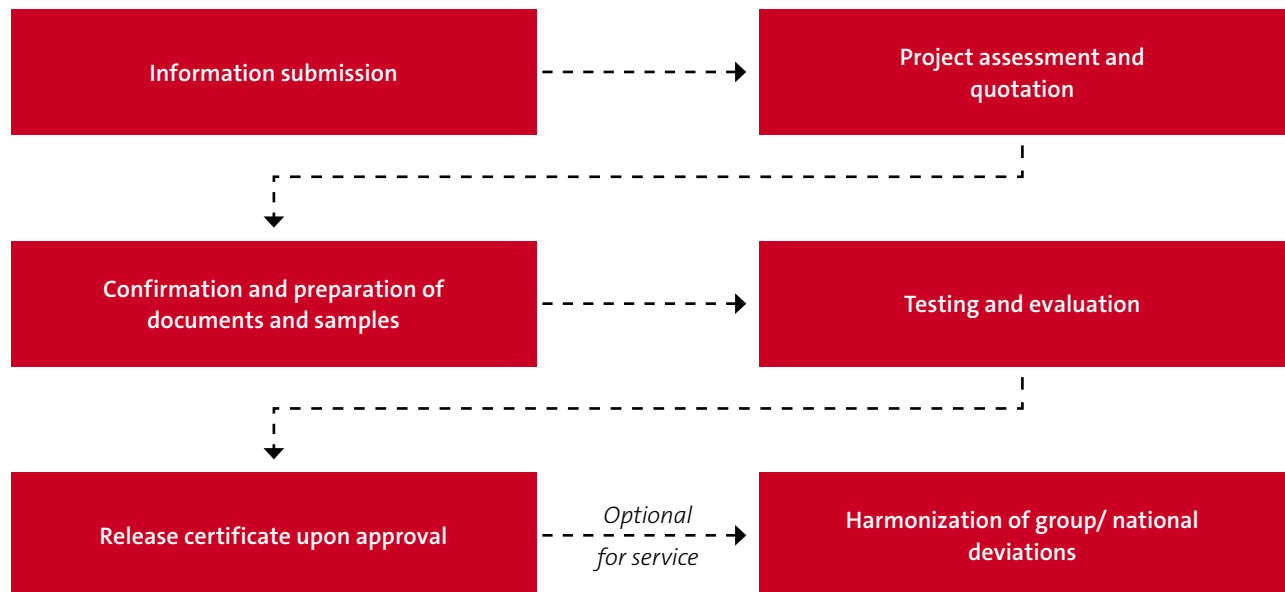
Research testing helps you build compliance into your products from the start by involving UL Solutions in the pre-production development phase, enabling a decreased product-to-market cycle. Targeted testing based on investigation needs helps identify the compatibility of insulation/jacketing materials before cables go into production. Certain research test data may also be eligible for a subsequent UL Certification project.

Research testing is applicable to copper and optical-fiber products and comprised of any test from the portfolio of UL Solutions wire and cable Standards, as well as tests from various national and international requirements.

Key benefits

- Discover material weaknesses and advantages at an early stage in the product development process
- Perform only those tests that are critical to your research
- Understand standard requirements at an early stage for adaptation to product development accordingly
- Acquire knowledge that may be vital to the development of new products
- Receive a UL Solutions letter report upon completion of research testing, which may be applied later in the UL Certification process

Workflow for application



Managing product safety and compliance across the supply chain

Flammability testing

UL Solutions' long history of being the world's leading source for fire safety research and technologies position us to provide large- and small-scale flammability testing for certification to UL Solutions, national, regional, international and other industry standards and requirements. UL Solutions has also developed predictive models as a tool with significant confidence in its accuracy to gauge large-scale flame test performance of communications cables based on small-scale cone calorimeter testing. These models provide cost-effective means to help predict real-world risks of fire.

Key benefits

- Helps you gain global market access through well-proven global programs
- Provides worldwide recognition through UL Solutions trusted flammability testing services

Examples include:

Large-Scale Flame	NFPA 262; UL 1666; UL 1685; CSA C22.2 No. 0.3-09 (R2019)
Small-Scale Flame	VW-1; FT1; FT2; vertical flame and horizontal flame
International Test Protocols	IEC 61034-2; IEC 60332-1-2; IEC 60332-3 Series; EN 50399 (CPR)
Cone Calorimeter	Cost-effective tool to predict NFPA 262 (plenum) and UL 1666 (riser) performance

NFPA 262: the Standard Method of Test for Flame Travel and Smoke of Wires and Cables for Use in Air-Handling Spaces
UL 1666: the Standard Test for Flame Propagation Height of Electrical and Optical-Fiber Cables Installed Vertically in Shafts
UL 1685: the Standard for Vertical-Tray Fire-Propagation and Smoke-Release Test for Electrical and Optical-Fiber Cables
CSA C22.2 No. 0.3-09 (R2019): Test Methods for Electrical Wires and Cables





Facilitating access to the global marketplace

Global Market Access

Navigating the regulatory landscape of global markets is a complex and challenging task. By collaborating with UL Solutions to handle your global market access needs, you can tap into UL Solutions experts and facilities throughout the world, using our resources and services to reach your destination smoothly. UL Solutions knowledgeable experts will first seek to understand your needs, working with you to find the best cost-effective compliance option to meet your needs, and then guide you through the process every step of the way.

Region	Global Marks	Product types
North America	UL Mark, C-UL Mark, C-UL-US Mark, NOM	• Low voltage cables (1000V) • Plugs and socket-outlets • Appliance couplers • Cord sets • Interconnecting cords • Extension cords • Electric vehicle (EV) cables • Communications cables • Optical fiber cables • Coaxial cables
South America	UL-AR S Mark, UL-BR INMETRO Mark, ANATEL Mark	
Europe	ENEC Mark, D Mark, Nordic Certification, UL-EU Mark, CE Mark for Construction Products Regulation (CPR)	
Asia	CCC Mark, BSMI Mark, EAC Mark, PSE Mark, S Mark, KC Mark, SNI Mark, SIRIM Mark, Safety Mark, TISI Mark, CR Mark, ISC Mark, ISI Mark, UL-JP Mark	

UL Solutions has four National Certification Bodies (NCBs) and over 50 CB Testing Laboratories (CBTLs) in the IECEE CB Scheme.

Key benefits

- Gain recognition through our trusted testing and certification services
- Acquire diverse knowledge of regional regulatory requirements
- Accelerate time to market and reduce costs
- Minimize missteps and time lost due to rework
- Optimize process flow and procedures for follow-up factory inspection

European Construction Products Regulation (CPR) for cables

Ensure your cables are compliant with Construction Products Regulation (CPR)

Construction Products Regulation (CPR) requirements became mandatory in the European Union (EU) on July 1, 2017, for power, control and communications cables manufactured or imported into the EU that are to be permanently installed in buildings.

UL International (Netherlands) B.V. became System 1+ Notified Body (Number 2821) on Nov. 3, 2020, and can offer CPR testing and certification, which allows products to bear the CE marking.

The regulation provides unified requirements for reaction to fire for power, control, communications and optical fiber cables intended for installations in all types of construction works in all EU member states.

Cables are categorized by seven performance classes based on their reaction to fire. Additional subclasses are available based on smoke production, flaming droplets and acidity.

In addition to testing, classes are defined by Assessment and Verification of Constancy of Performance (AVCP) system ranging from 1+, initial type-testing and factory inspection and ongoing assessment of factory production control (FPC) with audit testing of samples by the notified product certification body, to the lowest AVCP System 4, only requiring initial type-testing and FPC by the manufacturer. The system 1+ would be a similar approach to our Safety Certification Scheme.

Class	EN ISO 1716	EN 50399	EN 60332-1-2	EN 61034-2	EN 60754-2	AVCP
A _{ca}	R	—	—	—	—	1+
B1 _{ca}	—	R	R	O	O	
B2 _{ca}	—	R	R	O	O	
C _{ca}	—	R	R	O	O	
D _{ca}	—	R	R	O	O	3
E _{ca}	—	—	R	—	—	
F _{ca}	—	—	R**	—	—	4

R = required tests O = optional, additional tests for subclasses ** = may be carried out by the manufacturer

Key benefits

- Gain access to the EU market by ensuring the compliance of your products is assessed competently, consistently and with impartiality
- Gain recognition by leveraging UL Solutions expertise in fire testing and global certification along with years of experience in conducting CPR testing
- Get seamless support from experienced engineers and technical experts locally as well as in your target market
- Reduce time and cost by integrating with other global testing and certification requirements under our comprehensive service solution



Verifying performance and marketing claims

UL Solutions performance Verification service allows manufacturers to demonstrate their cable and/or cabling products are evaluated for performance. Cables certified for safety may also need to comply with industry performance standards. We can also design custom testing programs based on your proprietary specifications.

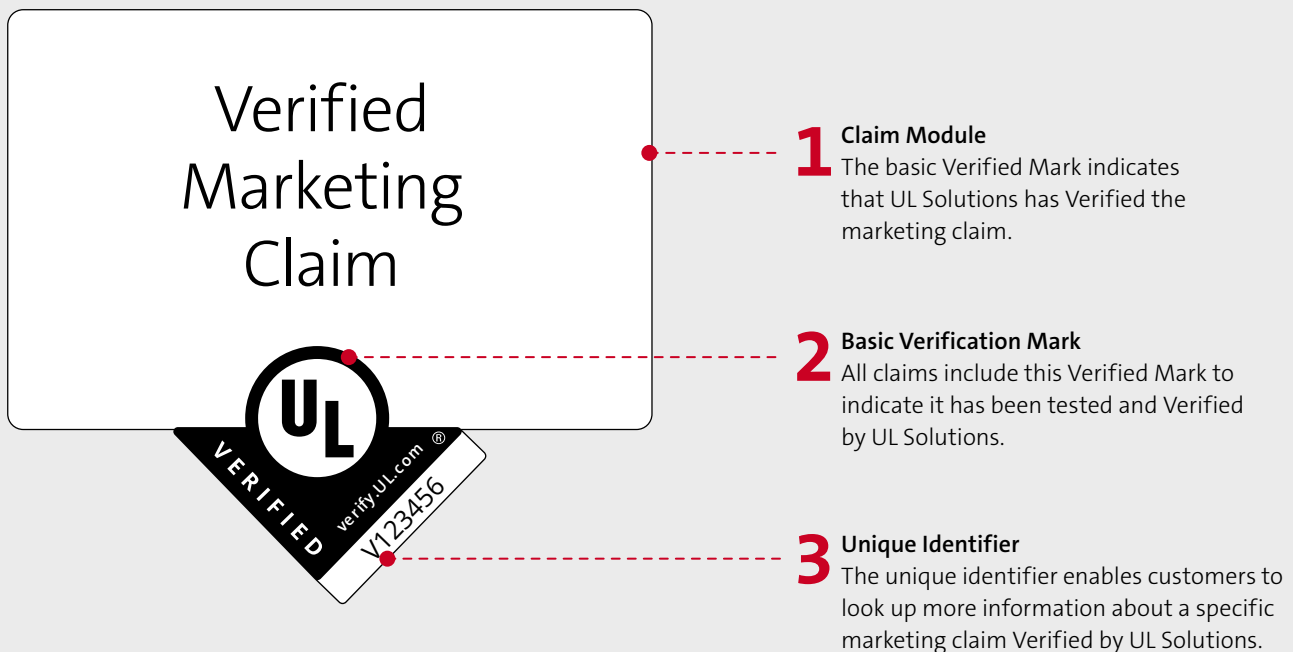
Our Verification process for your company's marketing claims can help your brand stand above competition. 91% of consumers personally verify brand packaging claims by checking labels and searching for information on third-party sites. You can stand out in the crowded marketplace with independent confirmation of your product's key features or benefits with the UL Verified Mark.

Key benefits

- Clear differentiation in the highly competitive market
- Gain technical expertise and guidance
- Qualify for a recognized and accepted performance Mark or Verified Mark
- Build customer trust and brand equity in a sustainable way

Anatomy of the UL Verified Mark

The UL Verified Mark is a distinctive way to differentiate your brand and its marketing claim. It starts with the basic UL Verified Mark and includes two important modules.



Evaluating environmental impact

Environmental product declarations

An Environmental Product Declaration (EPD) is a comprehensive, internationally harmonized report created by a product manufacturer that documents the ways in which a product, throughout its life cycle, affects the environment. UL Solutions certifies that all information in a manufacturer's finished EPD is accurate. Knowing a product's environmental impact at each stage of its life cycle has become a critical driver for purchases and specifications. With our Certified EPDs, manufacturers can disclose their environmental impact in a credible, streamlined and universally understood manner.

Key benefits

- Demonstrate your commitment to sustainability while showcasing your willingness to go above and beyond – all in the name of transparency and clarity
- Cater to the U.S. and Europe's policy requirement for green government and commercial procurement policies
- Help purchasers better understand a product's sustainable qualities and environmental repercussions
- Equip manufacturers with a valuable tool for differentiation and empower them to make more informed purchasing decisions



Certification for combustion corrosivity properties, Halogen Free (HF) materials and Low Smoke Halogen Free (LSHF) cable

UL Solutions offers a certification program specifically for wire and cable materials based on the IEC 60754 series of standards for gases that develop during combustion of materials from cables. The program evaluates two parts: halogen gas content and acidity (pH) and conductivity.

UL Solutions also has another material recognition program specifically for wire and cable materials based on the IEC 62821 series of standards (Part 1: General Requirement & Part 2: Test Methods). Materials evaluated to the above standard would be authorized to use the Halogen Free (HF) designation for materials used in wire and cable constructions.

Finally, a finished cable certifications program is developed based on the IEC 62821 series of standards – Part 3: Flexible cables (cords). Cables evaluated to this standard would be authorized to allow the Halogen Free (HF) and Low Smoke Halogen Free (LSHF) surface mark.

Key benefits

- Eliminate repetitive lot testing
- Help promote consistency within the industry with globally recognized standard/test methods
- Create level playing field across industries
- Listing in UL Product iQ®, with additional opportunity for product promotion

To learn more about UL Solutions services for wire and cable, please visit [UL.com/wirecable](https://www.ul.com/wirecable).



UL.com/Solutions

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