

Insulating Tape

Teraoka has a large selection of electrical insulation tapes that have acquired the following UL certifications. Transformers with permitted maximum temperature of 105°C or higher are required to be certified by UL. Teraoka products are used in many insulation systems.

- UL1446: Electrical Insulation System (EIS)
- UL746B: Long Term Property Tests for Plastic Materials [Temperature Rated]
Dielectric breakdown voltage, tensile strength, etc. are included in temperature evaluation items for checking if a product can hold an initial characteristic within a certain range when exposed to a certain temperature for 100,000 hours.
- UL746A: Short Term Property Tests for Plastic Materials [Comparative Tracking Index (CTI)]
This is a phenomenon in which repeated small electric discharges on the surface of an insulator create carbonized conductive tracks on the surface of the insulator, eventually reaching dielectric breakdown.
The higher the value, the better the resistance to tracking.
- UL510: Flame Retardant
Tests for Flame Retardancy of Insulating Tape

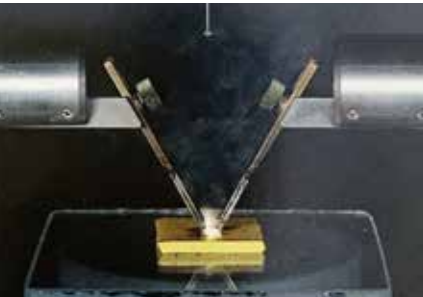
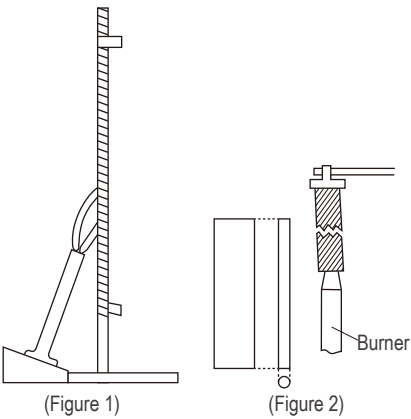
Plastics

- UL94: Tests for Flammability of Plastic Materials
This is the flame retardancy evaluation commonly conducted by UL. This certification is obtained for other than insulating tape applications.

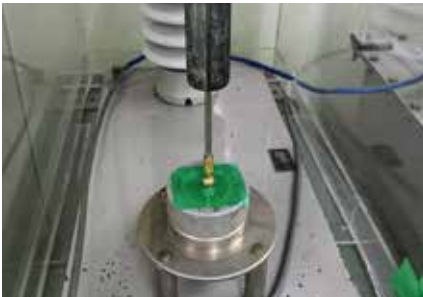
UL Tests for Flame Retardancy

Flame retardant adhesive tape has a high degree of fire resistance due to its self-extinguishing base support or adhesive, therefore, it does not catch fire easily even if it touches flame. Even if it is touched by an intense fire and burns, the burning rate is significantly slower than for normal adhesive tape and the spread of flames is minimal.

	UL 510(FR)	UL 94	
Title	Insulating tape (FR: Flame test)	Test for Flammability of Plastic Materials for Parts in Devices and Appliances	
Class	—	V	VTM
Materials	Insulating tape	Plastic materials for parts in devices and appliances (Laminate and Molding material)	Thin plastic materials (Sheet and Film)
Specimen	A steel rod is to be rotated, and the fixture tilted so that the tape wraps with an overlap equal to one half the width of the tape (Figure 1)	127mm×12.7mm A thickness of no more than 12.7mm	Rolled into a cylindrical shape, the test piece was taped (Figure 2)
Grade	Flame retardant	V - 0, 1, 2	VTM - 0, 1, 2



Test method of CTI (Comparative Tracking Index)



Test method of breakdown voltage



Sample of power transformer

Adhesive Tapes for the Energy Industry

TERAOKA supports the energy industry with adhesive tapes.

In a variety of areas, Teraoka adhesive tape technology is indispensable in our lives.

High-voltage power transmission

Teraoka technology is used in high-voltage power transmission, which efficiently transmits the electricity generated at power plants.

Electric generator

Hydroelectric power generation captures the energy of water as it flows from mountains back to the sea. Teraoka technology is used in the turbine to supply electricity to homes.

Superconducting coil

Teraoka technology is used in superconducting coils, which support the powerful magnetism for magnetically levitated (Maglev) linear motor cars.

Transformer

Electrical transformers are indispensable facility for voltage conversion. Teraoka technology has been used for many years.

Wireless power supply

Teraoka technology can be used for wireless power supplies, not only for mobile devices but also for future applications that require large amounts of electrical power.

Smart Grid

Teraoka technology is used in electric automobiles as well as easy-to-use, efficient future smart electrical power grid systems.

Solar panels

Teraoka technology is used in solar panels and solar batteries for electrical generation, which are drawing attention as sources of renewable energy.

Polyester film adhesive tape			
Tape No.	Backing	Type of adhesive	Standards met (Standard met varies depending on product thickness)
610S	PET (#25 #50)	Rubber-based	
630F	PET (#25)	Acrylic-based	UL510FR UL temperature rated 130°C UL746A CTI ≥ 600V
630F2	PET (#50)	Acrylic-based	UL510FR UL temperature rated 130°C UL746A CTI Backing side 500V Adhesive side ≥ 600V
631S	PET (#12 #25 #38 #75 #100)	Acrylic-based	UL temperature rated 130°C UL746A CTI ≥ 600V (#25)
631S2	PET (#50)	Acrylic-based	UL temperature rated 130°C UL746A CTI ≥ 600V
638F1	PET (#25)	Acrylic-based	Halogen free flame retardant UL510FR UL temperature rated 130°C UL746A CTI ≥ 600V

Combination adhesive tape			
Tape No.	Backing	Type of adhesive	Standards met (Standard met varies depending on product thickness)
673F	PET+Polyester non-woven fabric	Acrylic-based	UL510FR UL temperature rated 130°C UL746A CTI ≥ 600V
681S	Nomex(R) paper+Nomex(R) paper	Acrylic-based	UL510FR
684F	PET+Polyester non-woven fabric	Acrylic-based	UL510FR

Nomex(R) adhesive tape			
Tape No.	Backing	Type of adhesive	Standards met (Standard met varies depending on product thickness)
560S	Nomex(R) paper (#3 #5)	Acrylic-based	UL510FR UL temperature rated 200°C
561S	Nomex(R) paper (#2 #3 #7)	Silicone-based	UL510FR UL temperature rated 200°C
5661	Nomex(R) paper (#2)	Acrylic-based	Halogen free flame retardant UL510FR UL temperature rated 155°C Low VOC(toluene free)
566F	Nomex(R) paper (#2 #3)	Acrylic-based	Halogen free flame retardant UL510FR UL temperature rated 150°C

Epoxy resin impregnated tape			
Tape No.	Backing	Type of adhesive	Standards met (Standard met varies depending on product thickness)
5100	Glass cloth	—	High tensile strength. Heat resistance. With both side tacked. White
5110 0.16	Polyester non-woven fabric	—	With both side tacked. White, Black
5113 0.15	Polyester non-woven fabric	—	With adhesive. Excellent initial adhesion strength(tack). Good for work. White, Black

Kapton(R) film adhesive tape			
Tape No.	Backing	Type of adhesive	Standards met (Standard met varies depending on product thickness)
650S	Kapton(R) film (#12 #25 #50)	Silicone-based	UL510FR UL temperature rated 200°C
652S	Kapton(R) film (#25)	Silicone-based	UL510FR UL temperature rated 200°C Thick adhesive type.
653F	Kapton(R) film (#25)	Acrylic-based	UL510FR UL temperature rated 200°C
653S	Kapton(R) film (#25)	Acrylic-based	
654S	Kapton(R) film (#25)	Silicone-based	UL510FR UL temperature rated 200°C Strong adhesion

PPS,PEEK,PEN film adhesive tape			
Tape No.	Backing	Type of adhesive	Standards met (Standard met varies depending on product thickness)
480	PPS (#25)	Silicone-based	UL510FR UL temperature rated 155°C
4812	PPS (#25)	Acrylic-based	
4920	PEEK	Acrylic-based	
635F	PEN (#25)	Acrylic-based	UL510FR UL temperature rated 150°C
636F	PEN (#50)	Acrylic-based	UL510FR

PTFE film adhesive tape			
Tape No.	Backing	Type of adhesive	Standards met (Standard met varies depending on product thickness)
8410	PTFE	Silicone-based	UL510FR
846	PTFE impregnated glass cloth	Silicone-based	UL510FR

Cloth backing adhesive tape			
Tape No.	Backing	Type of adhesive	Standards met (Standard met varies depending on product thickness)
570F	Acetate cloth	Rubber-based	UL510FR
576F	Acetate cloth	Acrylic-based	UL510FR Halogen free flame retardant
540S	Glass cloth	Silicone-based	UL510FR UL temperature rated 200°C
541S	Glass cloth	Rubber-based	
551F	Polyester cloth	Rubber-based	UL510FR

Conductive adhesive tape			
Tape No.	Backing	Type of adhesive	Standards met (Standard met varies depending on product thickness)
1825	Conductive cloth	Acrylic-based conductive	UL510FR
8304	Aluminum foil (0.020)	Acrylic-based conductive	
8315	Electrolytic copper foil (0.018)	Acrylic-based conductive	

Adhesive tape for electrical construction			
Tape No.	Backing	Type of adhesive	Standards met (Standard met varies depending on product thickness)
302	PVC	Rubber-based	JIS C 2336
347	PVC	Rubber-based	Includes capsules containing red pepper extract, which is hated by rat.
420	PE	Rubber-based	Self-fusing

*UL510FR = UL510 Flame retardant