UBE Polyimide Film Exhibits Industry Leading Heat Resistance

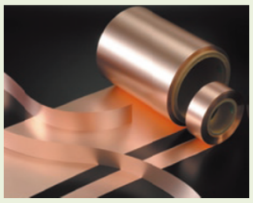
UPILEX®

ユーピレックス

Super-heat resistant polyimide film produced from UBE's exclusive "BPDA (Biphenyl tetracarboxylic dianhydride)" monomers.
This formulation is unique to UBE and exhibits outstanding dimensional stability, low water absorption and very high chemical resistance.

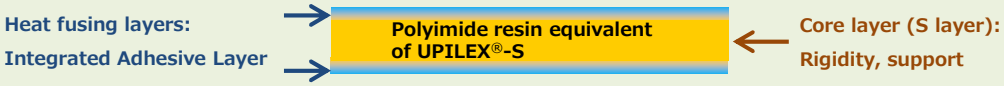
Surface thermal adhesion grade

UPILEX®-VT
UPILEX®-NVT



"UPILEX®-VT" and "UPILEX®-NVT" are heat bonding polyimide films having heat fusing layers on both side of the film, created by the polyimide resin equivalent of "UPILEX®-S".
High quality flexible circuits without an adhesive layer are obtained, by heating and pressing "UPILEX®-VT" or "UPILEX®-NVT" with metal (Cu, SUS, Al) foil.
In addition, they are also available for bonding films comprised of metal, ceramic and other materials.

- Flexible circuits without adhesive are produced.
- This offers high tensile strength and tear strength.
- Offering the same low water absorption, low dimensional change and high heat resistance as "UPILEX®-S", with the addition of laminate workability in the heat press.



■■ Grades and Area factor of "UPILEX®-VT, NVT" ■■

Type	Grade	Thickness (μm)	Width* (mm)	Area factor (m²/kg)
UPILEX®-VT	12.5VT	13	510, 520	54.9
	20VT	20	510, 520	35.1
	25VT	25	510, 520	28.0
	50VT	50	510, 520	13.9
UPILEX®-NVT	12.5NVT	13	510, 520	55.1
	20NVT	20	510, 520	35.5
	25NVT	25	510, 520	28.4
	50NVT	50	510, 520	14.0

*For custom widths, please contact us.

(1) Mechanical properties

Property	Unit	Standard value		Measurement Method
		UPILEX-25VT	UPILEX-50VT	
Tensile strength	MPa	530	540	ASTM D882
Tear strength	N/mm	3.0	4.3	IPC-TM-650 2.4.17.1
Elongation	%	90	90	ASTM D882
Tensile modulus	GPa	7.5	7.6	ASTM D882
Density	$\times 10^3 kg/m^3$	1.43	1.44	ASTM D-1505-03

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(2) Electrical properties

Property	Unit	Standard value		Measurement condition	Measurement Method
		UPILEX-25VT	UPILEX-50VT		
Dielectric strength	kV	7.2	10.5	60Hz	ASTM D149
Dielectric constant	-	3.2	3.3	1GHz	Triplate-Line Resonator
		3.2	3.3	10GHz	Triplate-Line Resonator
Dissipation factor	-	0.005	0.004	1GHz	Triplate-Line Resonator
		0.007	0.007	10GHz	Triplate-Line Resonator
Volume resistivity	Ω·m	$>10^{14}$	$>10^{14}$	DC 100V	ASTM D257
Surface resistivity	Ω	$>10^{15}$	$>10^{15}$	DC 100V	ASTM D257

(3) Thermal properties

Property	Unit	Standard value		Measurement condition	Measurement Method
		UPILEX -25VT	UPILEX -50VT		
Thermal linear expansion coefficient (50-300°C)	ppm/ °C	20	20	-	Fine linear dilatometer
Heat shrinkage	%	0.31	0.35	300°C, 2h	JIS C2318
Thermal decomposition temp. at 5% weight loss	°C	584	582	In Air	TG-DTA
Flammability	-	V-0	V-0	-	UL94

(4) Chemical properties

Property	Unit	Standard value		Measurement Method
		UPILEX -25VT	UPILEX -50VT	
Water absorption	%	1.1	1.4	ASTM D570
Moisture Absorption	ppm/ %RH	14	13	UBE method

Packing and handling precautions

(1) Packing example

(2) Handling precautions

- When handling “UPILEX®” at high temperatures attention should be paid to ventilation. This is because DMAC, which “UPILEX®” contains traces of, produces carbon monoxide at temperatures over 300°C and at high temperatures, in excess of 500°C, “UPILEX®” generates pyrolytic products.
  Ventilation should be adequate to ensure that concentrations of DMAC and carbon monoxide are kept to safe levels (10ppm and 100ppm). In addition, breathing safety equipment, such as organic gasmasks, should be used to prevent the inhalation of fumes.

- Please refer to Safety Data Seat (SDS) before use.

(3) Content Statement

The content provided is based on materials, data and information currently available and no guarantee is given with regard to content, physical properties or hazardous and harmful effects.
Furthermore, handling precautions relate to normal handling. In unique situations requiring special handling, please use safety measures appropriate for the application and process.

UBE Corporation

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