

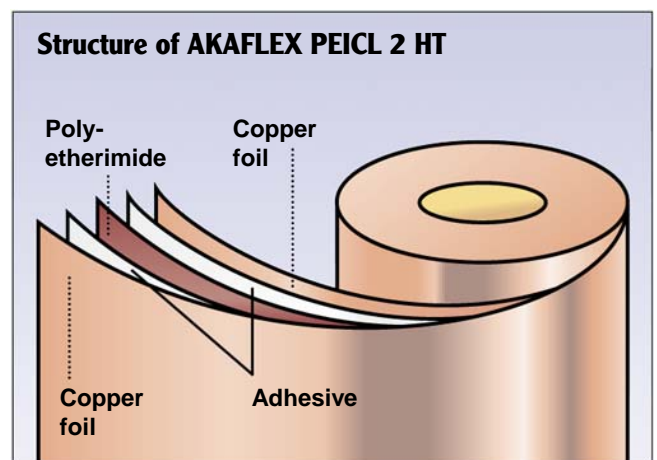
AKAFLEX® PEICL HT: Copper laminates on a polyetherimide-film backing for flexible printed circuits

The AKAFLEX® PEICL HT programme

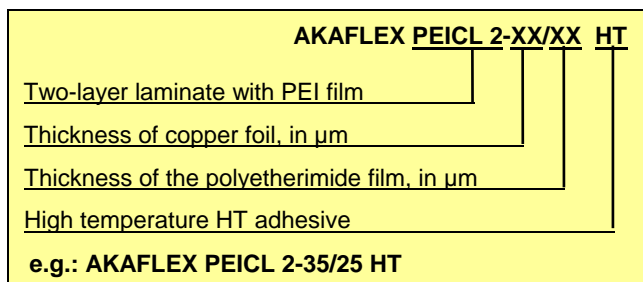
AKAFLEX PEICL HT is available from KREMPEL as

- ✓ two-layer laminates and
- ✓ three-layer laminates.

Polyetherimide film (PEI) is used as the backing material for the copper. This is laminated with electrolytic (ED) copper foil on one or both sides. A modified epoxy system characterised by very good temperature stability has been developed for the HT product family. In combination with polyimide film, the bonding system used here reaches a temperature index per UL 796 of 150 °C. AKAFLEX PEICL HT is **halogen-free**. The bonding system with polyimide film meets the requirements of **UL 94V-0 for flame retardance**. The PEI film is classified in **VTM-0**.



Designation for a two-layer laminate



Standard types of AKAFLEX® PEICL HT

Standard type designation	Thickness of copper foil	Thickness of polyetherimide film
Two-layer laminates		
PEICL 2-35/25 HT*	35 µm	25 µm
PEICL 2-35/50 HT	35 µm	50 µm

*Data being developed

**Other types
on request**

Processing AKAFLEX® PEICL HT

AKAFLEX PEICL HT can be processed »reel to reel« by screen-printing or photolithography and the standard etching and cleaning techniques. The technical advantages in manufacturing are assured in this way.

A comprehensive range of **coverlays** for **mechanical protection** of the etched circuits is available from KREMPEL. Diverse **bonding films** are also available for manufacturing **multilayer** circuits.

We use modified **epoxy-resin adhesives** only. This means that no special plasma treatment is necessary in the manufacture of flexible multilayer circuits.



Quality assurance

All AKAFLEX products are subject to the procedures of on-going quality control as defined in the Quality Assurance Handbook of August Krempel Soehne. This quality assurance system is certified as meeting the requirements of ISO 9001 and ISO/TS 16949. For AKAFLEX PEICL HT, testing is performed on the master reels according to the methods of IPC-TM 650.

Certified according to ISO 9001 and ISO/TS 16949

Availability of AKAFLEX® PEICL HT

- ✓ **Standard reel width:**
610 mm or 305 mm;
other widths on request
- ✓ **Standard reel length:**
150 m;
other lengths on request
- ✓ **Format:**
As requested by the customer
- ✓ **Packaging:**
Reels suspended in robust corrugated-cardboard cartons
- ✓ **Standard cores:**
Inside diameter 76 mm
- ✓ **Certificate:**
Test certificate according to EN 10 204 - 2.2

halogenfree

Technical data for AKAFLEX® PEICL 2-35/50 HT
35 µm copper foil / 50 µm polyetherimide film

Laminate properties	Test method IPC-TM 650	IPC-4202/2 (for PEI film)	Typical values			
Peel strength						
- as delivered	2.4.9	--	> 2	N/mm	> 11.4	lb/in
- after solder dip	2.4.9	--	DBD	N/mm	DBD	lb/in
- after temperature cycling	2.4.9	--	DBD	N/mm	DBD	lb/in
Tensile strength*	2.4.19	> 103	110	N/mm ²	>16.0x10 ³	psi
Failure strain*	2.4.19	> 35	105	%	> 105	%
Initial tear strength*	2.4.16	> 5	> 5.2	N	> 18.7	oz
Flexural strength	2.4.3 Equipment per 2.4.3.1 Test mandrel d=2 mm	--	DBD	cycles	DBD	cycles
Dimensional stability, MD/TD (after etching and 30 min. at 150 °C)	2.2.4 Method C	--	0.1/0.05	%	0.1/0.05	%
Solder-bath stability at 288 °C	2.4.13 B	--	180	sec	180	sec
Dielectric strength*	ASTM D 149	> 78.74	180	V/µm	4600	V/mil
Flame retardance*	UL 94	VTM-0	VTM-0	--	VTM-0	--

- N/A = Not Applicable
- DBD = Data Being Developed
- * = Values for the Polyetherimide film

