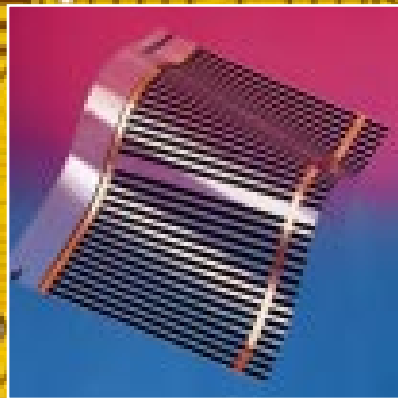
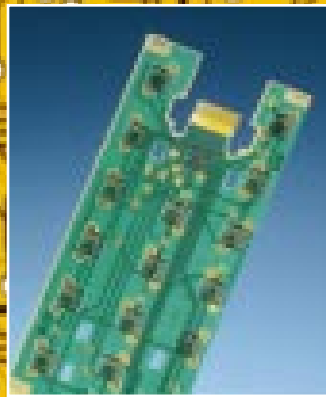
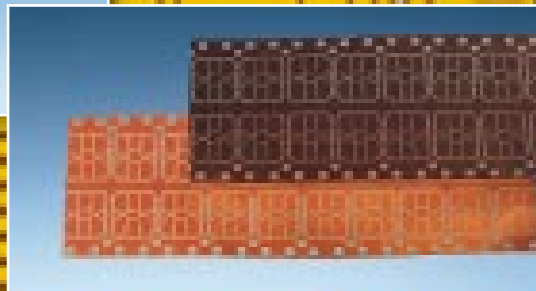
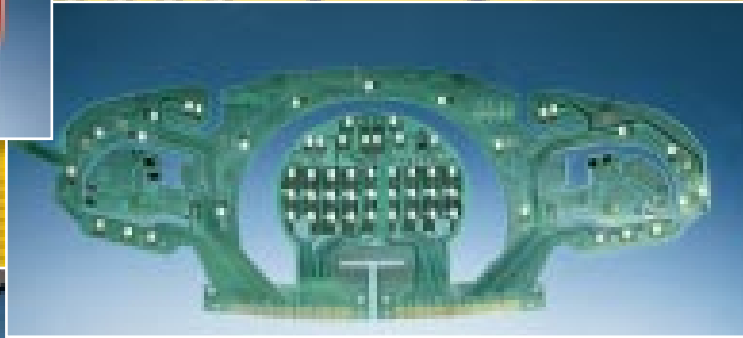
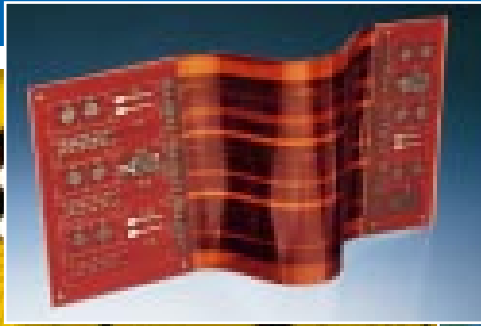


Base Materials and Special Laminates



Materials from KREMPEL:

The basis for technically and economically successful solutions.

Materials for flexible printed circuits

AKAFLEX® is an all-inclusive product family of flexible and semi-flexible base materials, coverlay films, bonding films and adhesive prepregs. These products are designed for manufacturing flexible printed circuits and are characterised by many outstanding advantages:

- AKAFLEX® provides the right solution in meeting the technical and economic requirements by individual selection of the metal foils and backing materials for the particular job in question.
- AKAFLEX® can be processed by all common techniques for producing flexible circuit boards.

Flexible base materials

We manufacture two and three-layer laminates for manufacturing flexible printed circuits from the following components:

Backing material:
 PET = AKAFLEX® PCL
 PEN = AKAFLEX® PENCL
 PI = AKAFLEX® KCL
 and others
Copper foil:
 EDHD, RA
Adhesive:
 Modified epoxy resin

The components are selected on the basis of the requirements for the circuit. The laminates therefore have distinct technical properties: AKAFLEX® PCL is available with different degrees of dimensional stability in accordance with IPC. AKAFLEX® PENCL is based on a backing film with a higher continuous-heat resistance. AKAFLEX® KCL stands out by its high peeling strength, excellent solder-bath resistance as well as its good dimensional stability.

Semi-flexible base materials

We manufacture two and three-layer laminates for the production of semi-flexible printed circuits from the following components:

Backing material:
 Glass-fibre fabric prepreg
 = AKAFLEX® GHE
Copper foil:
 EDHD
Adhesive:
 Modified epoxy resin

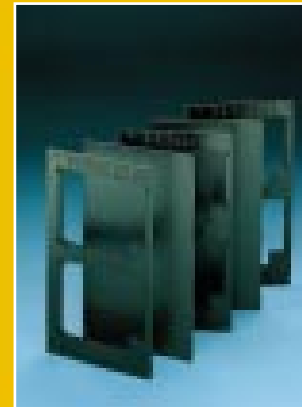
AKAFLEX® GHE is a cost-effective and technically interesting alternative to the classic base materials. Even though the good stiffness of our laminate is conspicuous, it is still flexible and can be shaped and folded. AKAFLEX® GHE can be processed by all common techniques for producing flexible circuit boards and is suitable for all soldering processes and SMD procedures.

Coverlay films, bonding films, adhesive prepregs

Backing material:
 PET = AKAFLEX® PDF and PTP
 PEN = AKAFLEX® PENDF
 PI = AKAFLEX® KDF
 and others
Without backing material:
 = AKAFLEX® CDF (adhesive film)
Adhesive:
 Modified epoxy resin,
 polyester resin

We manufacture coverlay films coated with adhesive on one side for protecting etched circuits, as well as bonding films coated with adhesive on both sides and adhesive prepregs for manufacturing high-quality multilayers from the components listed opposite:

- AKAFLEX® stands for constancy in product quality – guaranteed by ISO 9001.
- AKAFLEX® meets the requirements of IPC specifications.
- AKAFLEX® polyimide-based laminates and coverlay films meet V0 according to UL 94 and are environmentally friendly thanks to our halogen-free adhesive systems.
- AKAFLEX® products are available on reels or supplied as sheets.



Materials for solder frames and test adapters

PREGNIT LM 2000 is an electrically conductive fibreglass-reinforced plastic sheet material for use in solder frames and vacuum adapters. Solder-frame systems increase the flexibility and safety in mounting, transporting and soldering the circuit boards. Protection against electrostatic discharge is given by the specifically adjustable electrical conductivity. Our PREGNIT LM 2000 is of high mechanical, thermal and chemical resistance, and is also straightforward to process. The good thermal conductivity guarantees a long service life and the outstanding surface smoothness cuts down on the otherwise tedious cleaning processes.

Starting material:
 Glass-fibre fabric prepregs
Resin:
 Electrically conductive epoxy resin of very high heat resistance

Materials for Smart Cards

Other technologies are also used for the Smart Cards than for flexible circuits. We supply the materials for these on the basis of PET, PEN, PI and impregnated glass fabrics. At KREMPEL, you will find solutions specially tailored to meet your specific requirements, whereby a joint development in collaboration with you is also possible using other types of polymer backing materials.

Backing material:
 PET, PEN, PI, glass fabric
 and other polymers
Resin:
 According to the application
 in question

Laminates with special metal foils

Metal-foil laminates take up a major position in the field of special laminates. We bond various types of metal foils to different polymer films – exactly to your requirements. The laminates are the starting point in manufacturing foil-type heating systems for example, or are used as shielding materials.

Backing material:
 PET, PEN, PI
 and other polymers
Metal foil:
 Aluminium, copper-nickel, brass
 and other metals
Resin:
 According to the application
 in question

Materials with adhesive properties

We supply adhesive-coated materials for special applications. The adhesive is a psa (pressure-sensitive adhesive) modification which does not require the application of heat for the lamination process. All common polymer films can be used as the backing material.

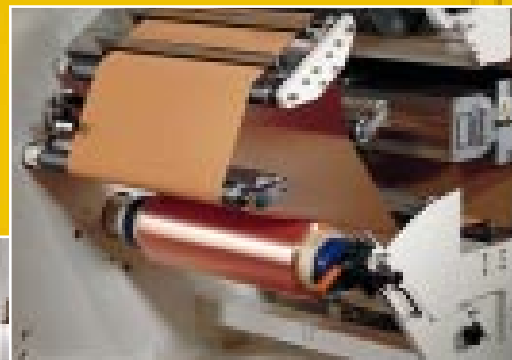
Materials for solar engineering

For the manufacture of solar-cell modules, we offer laminates made of TEDLAR® and polyester film. They are characterised by their excellent mechanical, electrical and chemical properties. It is especially the outstanding weathering resistance which makes our laminates an ideal material. The laminates can also be coated with primer on one side for further processing.

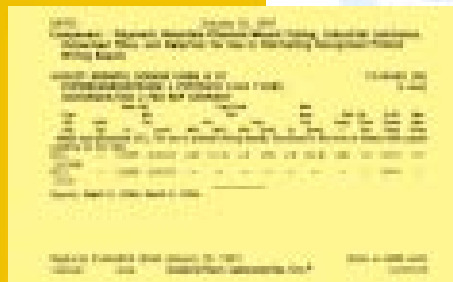
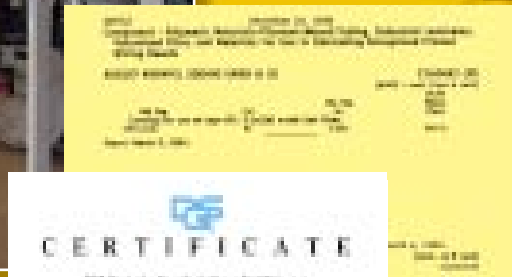
■ This overview shall provide an initial insight into the range of products we manufacture. For further information, please ask for our special brochures as well as the technical data sheets for any areas of particular interest.

High-tech made by KREMPEL

The requirements from the market for flexible printed circuits and special laminates are increasing all the time. In KREMPEL, you have found a partner you can rely on at all times: We manufacture our flexible base materials and our special laminates using state-of-the-art production equipment and each is special development for manufacturing materials having particularly high requirement profiles.



KREMPEL is certified to ISO 9001: i.e. the high quality standards are guaranteed in production, testing and distribution. Testing the quality here is in accordance with IPC requirements. And of course, a number of our products are UL V0-recognised as well.



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