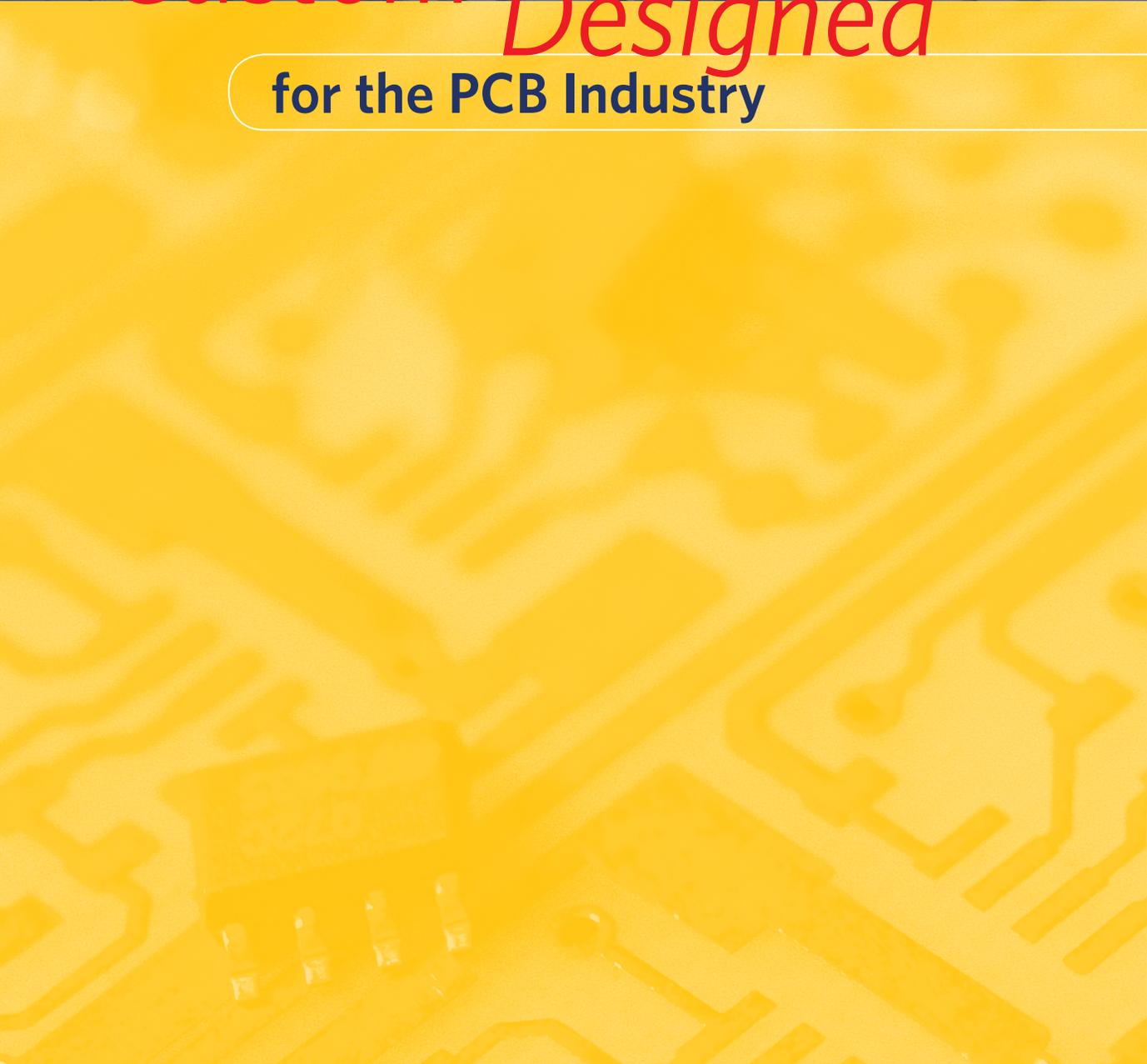


Kodak
Printed
Circuit
Board
Products

Custom Designed

for the PCB Industry



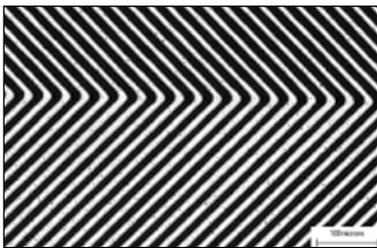
KODAK PCB PRODUCTS

WHY CHOOSE KODAK PCB FILM?

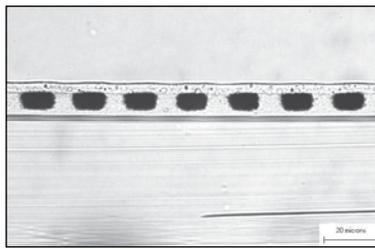
Our films have been developed exclusively for PCB applications using advanced techniques that came directly out of Kodak's century of imaging experience. In fact, more than twenty years ago Kodak invented the nucleated emulsion technology that has proven so valuable and effective in PCB manufacturing today. And we have been improving that technology ever since.

EXCELLENT IMAGE QUALITY

No matter what the application, achieving the best possible image is critical. The film image affects the quality of your final output. But more than that, a high-quality image is a business requirement. Without excellent images, you can't operate efficiently and productively. And of course, bad images cost you money. KODAK PCB Films provide sharp, high-quality, fine line images as small as 10µm.



TOP VIEW
Note: Small particles in the clear area are 1-3µm optically clear matte beads for improved vacuum contact.



SWOLLEN GEL CROSS-SECTION OF EMULSION

Film: KODAK ACCUMAX
Photoplotter Film APR7
Plotter: ORBOTECH 7008
Resolution: 1.25µm

Image produced at Kodak's
PCB Research Laboratories
in Harrow, England.

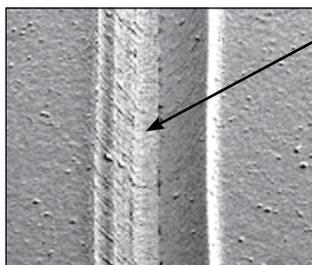
SUPERIOR DIMENSIONAL STABILITY

Films that are not dimensionally stable can't provide the precision and consistent results that today's applications — and your customers — demand. Kodak's one-sided gel technology makes our PCB films extremely stable. They are 25% less sensitive to humidity compared to the competition — giving you an extremely flexible product that is less variable and allows you to work more efficiently.

Additionally, APR7 Film is preconditioned by Kodak during the manufacture of the film, using a roll-to-roll process in a clean room environment. This provides the customer with a "ready-to-use" silver film that has been equilibrated to the industry's average environment of 50% RH.

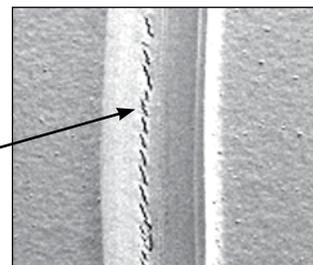
EXTREMELY HIGH DURABILITY

You need PCB films that are not only stable but durable. No matter what your application, you need images you can count on. Images have to be sharp, accurate, and as free of defects as possible. Films with limited resistance to abrasions just won't do the job. KODAK ACCUMAX Films are tough — ideal for creating extended-life phototools. These highly-durable films feature a special overcoat that protects the emulsion, making them extremely durable and in turn, resistant to abrasions, therefore saving you time and money.



**KODAK Photoplotter
Film APR7**
NO BREAKTHROUGH
AFTER FOUR PASSES

**Conventional OM
PCB Film**
EMULSION BREAKTHROUGH
AFTER FOUR PASSES



REPETITIVE SCRATCH TEST

KODAK ACCUMAX FILMS

The family of KODAK ACCUMAX Films provide sharp line-edge quality for first-generation artwork with feature sizes down to 10µm. They offer permanent anti-static performance to resist the attraction of dust and dirt, and an excellent scratch and abrasion resistant overcoat for long phototool life.

Our premium PCB film, KODAK ACCUMAX Photoplotter Film APR7, provides superior dimensional stability and makes use of Integrated-Booster-Technology processing for very fine line resolutions. Other key features include:

- Extended red sensitivity for HN and LD photoplotters
- Matte on the emulsion side provides rapid draw-down to photo resist

FILM PACKAGING

Our PCB films are packaged with an eye toward ensured cleanliness. This approach to cleanliness not only results in fewer artifacts and imaging quality issues, but it makes your work just a little bit easier.

Kodak's specialized packaging includes:

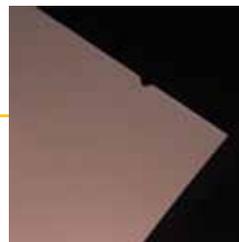
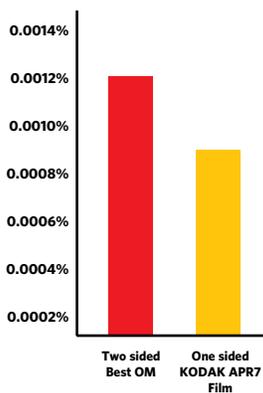
- Durable, vacuum-sealed, multi-layer foil bag providing abrasion protection during shipping and an oxygen and vapor barrier for longer shelf life
- Clear plastic sleeve protects the foil bag from dust
- Plastic stiffener board helps to optimize cleanliness
- Film is notched in the upper right-hand corner for easy identification in darkrooms
- Unique bag label provides complete product information and genealogy for quality control

FILM PROCESSING CHEMICALS

Processing is crucial in the production of high-quality phototools. That's why KODAK Processing Chemicals have been specifically developed and manufactured to meet the most demanding PCB requirements.

KODAK ACCUMAX Rapid Access Developer is formulated to be both clean-working and extremely stable. The developer start-up and replenisher solutions are diluted in the same ratio from the same concentrate, making it virtually impossible to over replenish your process. It also guarantees consistent day-to-day processing results. The processing chemicals are packaged in five-litre bottles designed for easy handling in cleanroom conditions. The bottles are induction sealed for freshness and to guard against leakage. In addition, all bottles are stamped with a batch code and expiration date to comply with ISO quality standards.

% SIZE CHANGE PER % CHANGE IN RH



PCB FILM APPLICATIONS

Our PCB products are used in a variety of applications in the electronics industry, including phototool creation for:

- Prototypes
- High-complexity circuit boards
- High-volume circuit boards

Kodak

WHICH PHOTOPLOTTER FILM IS RIGHT FOR YOU?

Choose the KODAK ACCUMAX Film that will help you deliver outstanding outputs to keep your customers coming back. For more detailed information on how to choose the right product for your applications, please visit www.kodak.com/go/pcbproducts and use the "Product Selection Tool" found in the "Product Literature & Tools" section of the website.

KODAK ACCUMAX Photoplotter Film APR7

Dual red sensitivity at 633 nm and 670 nm for use with photoplotters using helium-neon (HN) or red laser-diode (RLD) exposing sources. Single-sided gel and factory preconditioned for the ultimate in dimensional stability. Contains ultra-fine matte on the emulsion side to improve handling and vacuum draw-down to photo resist. APR7 Film is designed for use with the following photoplotters:

Manufacturer	Model
UCAMCO / Barco	BG-7300, BG-7400, BG-3800, BG-3900, BG-7500, SilverWriter, Calibr8tor
Dainippon Screen	RG 7000, RG 7500, RG 8000, RG 8500
First EIE SA	RP 200, RP 300, RP 500, RP 700, RP 800
UCAMCO / Gerber	Crescent 30, Crescent 40
Lavenir	PULSAR 8000SE
Orbotech	LP 7008 and LP 9008, LP-9

KODAK ACCUMAX Photoplotter Film RED7

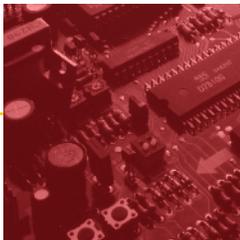
Dual red sensitivity at 633 nm and 670 nm for use with photoplotters using helium-neon (HN) or red laser-diode (RLD) exposing sources. Emulsion-side matte to provide rapid draw-down to photoresist. RED7 Film is designed for use with the following photoplotters:

Manufacturer	Model
UCAMCO / Barco	BG-3800, BG-3900, BG-7300, BG-7400, BG-7500, SilverWriter, Calibr8tor
Dainippon Screen	RG 4000, RG 7000, RG 7500, RG8000, RG8500
First EIE SA	RP 200, RP 300, RP 500, RP 700, RP 800
Escher-Grad	Equinox
UCAMCO / Gerber	Crescent 30, Crescent 40
Lavenir	PULSAR 8000SE
Orbotech	LP 7008 and LP 9008, LP-9

KODAK ACCUMAX Photoplotter Film ABG7

Designed to produce high-quality phototools on raster imaging photoplotters, and other artwork generators with output at 488, 532, 543, and 565 nanometres. ABG7 Film is designed for use with the following photoplotters:

Manufacturer	Model
Heidelberg	MW 800, MW 1550
CSI	Fire 9000
Dainippon Screen	RG 6500
Excellon	LPG 2001
Mania Barco (Gerber)	Flat Bed 28
Lavenir	RPG Series, Pulsar 8000
Mivatec GmbH	Miva 16xx, 25xx, 26xx, 28xx
Orbotech	5008, 5008 XP
Pentax	LPP-3677, LPP-3800



For more information on our complete line of KODAK Printed Circuit Board Products, call your local sales representative or visit

www.kodak.com/go/pcbproducts

IT'S NOT AN ART. IT'S A SCIENCE.

➤ Don't leave anything to interpretation.



**USE KODAK PRODUCTS
CUSTOM DESIGNED
FOR PCB APPLICATIONS.**

**A CENTURY OF EXPERIENCE
PROVIDING TODAY'S TECHNOLOGIES.**

Innovation and excellence. For more than 100 years these have been the corner stones of Kodak's growth. Drawing on Kodak's extraordinary knowledge database, our research and development teams have developed the most customer preferred Printed Circuit Board Films on the market. We are dedicated to making imaging easier, more useful, faster, and more cost effective for our customers.

SUPPORT YOU CAN COUNT ON

From training to customer services to technical assistance, our support is worldwide and world-class. We provide what you need to get the job done, leaving you free to concentrate on your production critical objectives.

KODAK'S QUALITY STANDARDS

Kodak is a company built on belief in the importance of standards. Our product lines have achieved both **ISO 9002** and **ISO 14001** certification, and we are continually seeking to attain additional certification required to meet our customers' needs. All of our ISO certificates and certificates of analysis for PCB products can be found on our website.

ABOUT KODAK PCB FILMS

KODAK PCB films are developed and manufactured by Kodak's Aerial and Industrial Materials business (AIM), part of the Commercial Film Group. Our products are used to manufacture a wide range of products, from the cell phone in your pocket to satellites in orbit.

Kodak's expertise covers the complete range of imaging, from image acquisition, analysis, and integration, to solving your next big challenge. Kodak is your total imaging solutions provider.

Eastman Kodak Company
Aerial & Industrial Materials
Printed Circuit Board Products
e-mail: pcbproducts@kodak.com

For more information on our complete line of KODAK Printed Circuit Board Products, call your local sales representative or visit

www.kodak.com/go/pcbproducts

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