Card Substrates for hybrid ID Cards with high security and durability
Cards are used in a variety of application environments.
A variety of application environments

Cards are used in a variety of application environments

ACCESS: Visual inspection and contact
BANKING: Contact and thermal stress
TRANSPORT: Contact and thermal stress
SECURITY: Visual inspection and contact
Handling activities induce stress:

- Scratching / bending
- Moisture / fluids / liquids
- Temperature

Additional challenge by

- frequency of use
- time
For each project different solutions can be considered. 
The main selection criteria are:

- Functional requirements
- Targeted Cost level
- Required Security level

A wide variety of materials can be considered:

- Paper and Laminates
- PVC
- PETg
- PC
- ...
Traditional solution for ID Cards: POLYCARBONATE

- Delivers single material cards
- Strict production parameters
- Polymer chemistry invented in the 1950’s
- Upper cost range
- Production based on BPA (health issue)
- Generic properties across vendor portfolios
Highly innovative...

...with great benefits:

- EXTRA PROTECTION SHIELD thanks to durable materials
- PERFECTLY COMPATIBLE with existing core and features
- STRONG and yet FLEXIBLE cards
- VERY COST COMPETITIVE materials
- ENERGY EFFICIENT production process

→ Creation of a HYBRID CARD with PETF
What is PETF?

PETF is a crystalline Biaxially Oriented Polyester Film (BOPET).

Primary advantages:
• thermal stability
• mechanical strength
• dimensional stability
• chemically inert

The ideal choice for industries where superior performance is required.
Why is PETF so durable?

Structure is all that counts

Amorphous state:
All parts are randomly (dis)ordered.

Internal variety of interactions.
Why is PETF so durable?

Structure is all that counts

Amorphous state:
All parts are randomly (dis)ordered.

Internal variety of interactions.

Biaxially stretching results in a crystalline structured unit.

Internally a single type of interactions is present.
Your benefits with PETF

The HYBRID CARD with PETF

RIGID PETF SHIELD + FLEXIBLE CORE

Hybrid Construction = Best of both worlds
Your benefits with PETF – Durability testing

PETF: Superior performance in comparative Bending test

SOURCE: Agfa Internal Lab test
## Your benefits with PETF – Durability certification

**PETF: FOGRA Certified for Bending and Torsion test**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description of test</th>
<th>Standard of test method</th>
<th>No. Of samples tested</th>
<th>Complies with requirements of test standard</th>
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</thead>
</table>
Your benefits with PETF – Mechanical Strength

PETF: Superior Resistance to bending at micro perforation

Full PC card

Hybrid PETF card
Your benefits with PETF – Extremely resistant

PETF: Superior performance in Full Flip-Over test (FF-O)

- Full PC card 18 x FF-0
- Full PVC card 25 x FF-0
- PETF/PVC Hybrid card 30 x FF-0
- PETF/PETg Hybrid card 30 x FF-0
Your benefits with PETF - Chemical Resistance

PETF: Superior performance in Chemical Resistance (30 min. MEK)

- **Full PC card**
- **Full PVC card**
- **PETF/PVC Hybrid card**
- **PETF / PETg Hybrid card**

In the shield card construction, the strong material (PETF) is positioned on the outside of the card, countering all external influences. Besides a very good heat resistance, the resistance of the card against external impact is outstanding. This kind of card construction is fundamental for a long lifetime.
Your benefits with PETF - D2T2 Printing

PETF: Superior compatibility with D2T2 Printing

Full PC card

PETF Hybrid card
PETF Laser Engraving = uniquely different technology

**TRADITIONAL PC LASER FILM**

Colour by lasering results from **burning the substrate** (Carbonization process)

**INNOVATIVE PETF LASER FILM**

Colour by lasering results from **controllable colouring technology** (No Carbonization)
PETF Laser Engraving = uniquely different technology

**TRADITIONAL**

PC LASER FILM

Resolution of data engraving determined by **burning** process

**INNOVATIVE**

PETF LASER FILM

Resolution of data engraving determined by **controllable writing technology**
PETF Laser Engraving = Technology makes fraud visible
PETF for Higher Security level – Re-Write Protection

PETF Laser Engraving = unique protection against laser re-writing

TRADITIONAL PC LASER FILM

NO VISUAL IMPACT

INNOVATIVE PETF LASER FILM

COUNTERFEIT IS WELL VISIBLE
Blistering and Rewriting only in Black and not in Magenta colour

THE ONLY SECURE SOLUTION FOR COLOUR IMAGING
Your benefits with PETF – Compatible with Security Features

PETF delivers great printing quality and is perfectly compatible with

• Market proven Security features
• Personalization technologies
• Standard card manufacturing equipment
• Colour laser personalization
• Chip embedding
• a.o.
Your benefits with PETF – Resistant to skin-oil

PETF : ID Cards are manipulated by human beings...

PETF hybrid cards can resist to frequent manipulation by hand because PETF is resistant to the impact of skin oil.
Your benefits with PETF – Resistant to skin-oil

PETF : ID Cards are manipulated by human beings...

Manipulating PETF hybrid cards does not impact your health because PETF synthesis is based on NON-hazardous chemistry cards.

No use of the endocrine disruptor Bis-Phenol-A (BPA° as in the production of PC).
Besides the choice of the best fit substrate

Cards need to be

- made
- transported
- personalized
- issued
Beyond PETF - Agfa’s Next Generation Solution

Today’s Best Practice: HOW?
Beyond PETF - Agfa’s Next Generation Solution

ABSOLUT-ID

Creating ID’s in an absolute manageable way,

applying an absolute cost controllable fashion,

delivering absolute secure cards.
Integrated Card production

1. Personalisation
2. Lamination
die-cut
chipping
data

- RAW MATERIALS
  - CORE
  - LAMINATE
  - CHIP
  - HOLOGRAM

- CARD INTEGRATOR
- GOVERNMENT
- LAN

- CITIZEN
  - hand over

- SECURE ENVIRONMENT

Time & cost savings!
ABSOLUT-ID · DTR for tamper proof personalization

Personalisation image & data

ABSOLUT-ID
Light sensitive

Image & data exposure

Image & data negative

ABSOLUT-ID
DTR-sensitive layer on PC/PET/PET-G

Security printing

Diffusion Transfer

Finished ID card

Image and data are 'between' guilloche print

No image nor data under guilloche print

Silver salts from the image and data negative migrate between the guilloche security print to form a positive image reproduction in photographic quality
ABSOLUT-ID – Six integrated Benefits

1. **Cash Flow friendly process**
   Value creation just before card issuance → no immobilised cash waiting for personalisation

2. **Affordable Cards**
   integrated web-based card production process

3. **Reliable ID Authentication**
   Counterfeit virtually impossible + detected by simple visual control

4. **Secured Production Flow**
   One single production environment = low security cost

5. **Unparalleled Quality**
   Continuous tone image → high reliability level of visual identity checks

6. **Free choice of card materials**
   Compatible with all card materials with proven durability
Thank you for your attention. Any questions?

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