

bioPoly Vinyl

Introduction of BioPoly™ Vinyl

BioPoly™ Vinyl: a bio-degradable PVC that can be 100% degraded within 3 years

What Is BioPoly™ Vinyl Made Of?

BioPoly™ Vinyl is formulated with 97% PVC and 3% oxo-degradation additive.

With PVC as its primary component, BioPoly™ Vinyl retains the familiar appearance and practical properties of conventional PVC, while the additive is designed to promote oxidative degradation under specified conditions.







How BioPoly™ Vinyl Degrades

BioPoly™ Vinyl is designed to undergo a staged degradation process under suitable conditions.

Step 1: Oxidative Degradation

The active additive promotes the oxidation and cleavage of polymer chains under specified conditions.

Step 2: Embrittlement and Physical Disintegration

As degradation progresses, the material may become less flexible, more brittle, and increasingly susceptible to physical disintegration.

Step 3: Further Biological Breakdown

Following oxidative degradation and physical disintegration, further biological breakdown may occur under suitable landfill conditions.

Designed to promote degradation without significant methane generation.

Related Tests and Technical Evidence

BioPoly™ Vinyl has been evaluated through laboratory testing related to material degradation, UV exposure, and restricted substances.

SGS UV Exposure Testing

BioPoly™ Vinyl was also evaluated by SGS under specified UV exposure conditions. The tested material showed a measurable reduction in elongation at break, indicating a loss of flexibility consistent with oxidative aging.

Scan to View the Full Test Report

SGS

RoHS Testing and Regulatory Support

BioPoly™ Vinyl has been tested by SGS for RoHS-restricted substances, including lead, mercury, cadmium, hexavalent chromium, PBB, PBDE, and regulated phthalates. None of the tested substances were detected above the applicable method detection limits.

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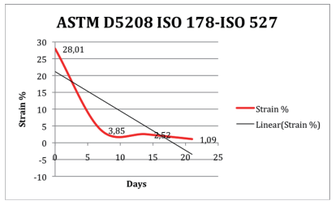
RoHS compliant

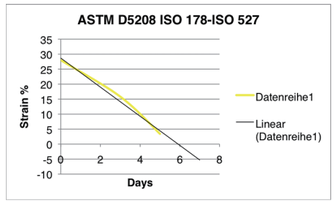
Accelerated Material Degradation Testing

BioPoly™ Vinyl was evaluated using an accelerated oven test based on ASTM D3826 and D5510 at 80°C. The test results indicate that the material is expected to embrittle and disintegrate within approximately 1.6–2.4 years under aerobic landfill conditions, assuming an average temperature of 20°C.

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GEMA POLİMER





Why Choose BioPoly™ Vinyl Over Conventional PVC?

BioPoly™ Vinyl has been evaluated through laboratory testing related to material degradation, UV exposure, and restricted substances.



Same Everyday Durability

With PVC as its primary component, BioPoly™ Vinyl offers the same durability as conventional PVC. Its degradation process requires specific landfill conditions, so its durability remains unaffected during normal everyday use.



Biodegradation Within 3 Years

Formulated with 3% oxo-degradation additive, BioPoly™ Vinyl can biodegrade within 3 years under specified landfill conditions, offering a greener alternative to conventional PVC, which can persist in the environment for extended periods.



PVC-Like Design Flexibility

Made with 97% PVC, BioPoly™ Vinyl offers similar appearance and design versatility to conventional PVC, supporting a range of colors, printed graphics, shapes, and finishes.

Material Specification

Sample Size	472 × 290 mm
Density	1.43
Sample Weight	0.4 kg / 5 pcs (based on 0.38 mm thickness)
Width	915 mm the widest

Length	No limit
Thickness	0.15 - 0.5 mm
Supply Capacity	500 tons/month
Minimum Order Quantity (MOQ)	1,000 kg

Available Supply Forms

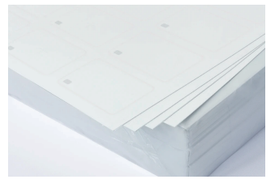
From Materials to Finished Cards

BioPoly™ Vinyl is available in multiple supply forms to meet different manufacturing and purchasing needs, from materials to finished cards.



Large-Format Materials

Larger-format material options for production requirements.



RFID Inlay Sheet

PVC-based inlay sheets with embedded RFID components.



Sheets for Card Manufacturing

PVC-based sheets for card production and customization.



Finished Cards

Standard cards, RFID/NFC cards, magnetic stripe cards, etc.

Applications

BioPoly™ Vinyl may be considered for a variety of card-related applications, including

- Hotel key cards
- Bank cards / Credit cards
- Membership cards
- Loyalty cards
- Gift cards
- Access cards
- Retail and promotional cards
- Business cards

Explore BioPoly™ Vinyl for Your Next Project

Looking for a PVC-based card material with an alternative degradation-oriented pathway?
Contact us to discuss your material requirements, card specifications, or sampling needs.

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