

The Hidden Risks of Low-Cost Chinese-Made Geomembranes

By GNA Editor

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Introduction

The global geomembrane market is experiencing significant disruption due to the influx of low-cost alternatives from China, flooding markets in South America, Africa, SE Asia and of course within China itself. While these products offer a competitive price point, the real cost may come in the form of reduced quality and potential damage to market reputation.



Cost Cutting at the Expense of Quality:

To understand the risks, it's important to look at the methods employed by some manufacturers in China to reduce costs:

- Use of Barefoot Resins:

Unlike fully formulated resins such as Marlex 306/307, some geomembrane manufacturers use barefoot resins without additives, subsequently mixing in cheap, locally produced additives. This often results in geomembranes with inferior durability properties.

- Low Cost Additives:

The antioxidants and stabilizers used may initially show promising S-OIT (Standard Oxidative Induction Time) and HP-OIT (High-Pressure Oxidative Induction Time) responses. However, these less effective and low-permanence additives often perform poorly after exposure to higher temperatures and UV light, greatly reducing the lifespan and effectiveness of the geomembranes.

- Recycled Resins:

Dubbed '*polycrapylene*,' these recycled resins are not permitted under standard specifications like GRI GM-13 but are sometimes added to reduce costs. This inclusion can lead to unpredictable material behaviour under stress such as separation in plane and can bring with them adventitious contamination.

- Insufficient Carbon Black:

Only adding 2% carbon black to the outer layers of a three-layer geomembrane but leaving the bulk of the core layer lightly pigmented which compromises UV resistance and mechanical properties, as the carbon black acts as a stabilizer and absorber of UV radiation.

- Dilution of Resin Quality:

Some manufacturers mix LLDPE (Linear Low-Density Polyethylene) or PB (Polybutylene) with non-geomembrane grade resins to artificially enhance stress crack resistance, which can fail under real-world conditions.

- Variable Thickness and Length:

To escape detection during quality checks, some geomembrane manufacturers reduce the thickness in the middle of the geomembrane rolls or short the length of each roll, practices that can lead to significant issues in projects requiring precise specifications.

Long-Term Implications

The immediate financial savings from using these lower-cost materials can be substantial, but the long-term implications can negate these benefits. When geomembranes fail, they can cause environmental disasters, especially in applications such as hazardous waste containment, water reservoirs, and mining

operations. The cost of clean-up, legal liabilities, and loss of trust can far exceed the initial investment in higher-quality materials.

Buyer Beware: The Need for Vigilance

The lesson here is clear: if the price seems too good to be true, it likely reflects compromises in material integrity and performance. Buyers need to exercise due diligence by demanding transparency in the supply chain, verifying compliance with international standards, and conducting thorough inspections and conformance and compliance testing of geomembranes prior to purchase.



Conclusions

As the market for geomembranes continues to grow, driven by global needs for environmental protection and infrastructure development, the industry must prioritize quality and reliability over short-term cost savings. Emphasizing the use of certified, high-quality materials will not only protect project integrity but also maintain the overall health of the global geomembrane market.

Discerning installers and specifiers should perform independent CQA on the geomembrane materials delivered to site, with 3rd-party audit and laboratory testing to ensure that what is delivered to site complies with the project specification.

When considering the purchase of geomembrane materials from China, quality assurance and compliance with international standards are paramount. ExcelPlas Labs specializes in conducting comprehensive conformance and compliance testing for HDPE and LLDPE geomembranes.

Our Testing Services Include:

1. International Quality Standards Compliance:

- We ensure that your geomembranes meet rigorous international quality standards, providing peace of mind and ensuring the longevity and performance of your installations.

2. Verification of Material Purity:

- Our tests confirm that the geomembranes are free of recycled resins. The presence of recycled materials can compromise the integrity and performance of the geomembrane, making this an essential aspect of our quality assurance process.

3. Heavy Metals Screening:

- We screen for heavy metals to ensure that the geomembranes do not contain harmful substances. Compliance with environmental and safety regulations is critical, and our testing ensures that your materials meet these important standards.

4. Stabilizing Additives Analysis:

- We verify that the geomembranes contain the correct type and level of stabilizing additives. Proper stabilization is crucial for the durability and resistance of geomembranes against UV degradation, thermal oxidation, and other environmental stresses.

Why Choose ExcelPlas Labs? <https://www.excelplas.com/>

- Expertise: With years of experience in polymer and materials testing, ExcelPlas Labs is a trusted name in the industry.
- Accreditation: Our laboratory is equipped with state-of-the-art technology and is NATA and ISO accredited to perform high-precision testing of geosynthetics.
- Comprehensive Reports: We provide detailed test reports that outline the findings and compliance status, helping you make informed decisions.

- Peace of Mind: By choosing ExcelPlas Labs, you ensure that your geomembrane materials meet the highest standards of quality and safety, reducing the risk of failures and ensuring the success of your projects.

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