



### Case Study:

# Permanent Conductivity for Safer Fueling Systems

## Background

A global leader in fuel piping systems for gas stations, needed to ensure **long-term safety and static-free operation** in multilayer fuel pipelines. Eliminating electrostatic build-up is critical to preventing sparks that could lead to fires or explosions.

## Challenge / Need

To meet **ATEX (EU), UL (US), and GB (China)** explosion-proof requirements, the company required a **conductive interlayer** for its four-layer pipe that offered:

- **Interlayer compatibility** for strong adhesion within the multilayer structure
- **Processing stability:** precise melt-flow, thermo-oxidative stability, and controlled crystallization and shrinkage rates during co-extrusion
- **Functional reliability:** stable, permanent conductivity over years of service in harsh outdoor environments

## Solution

Premix provided **PRE-ELEC® TP11820**, a high-density polyethylene (HDPE) compound engineered with **special conductive carbon black** to deliver:

- **Low surface resistance** ( $<10^4 \Omega$ ) ensuring permanent static-dissipative properties
- **Excellent mechanical properties** for strength and durability
- **Outstanding processability**—ideal melt-flow index and thermal stability for multilayer pipe co-extrusion and welding
- **This material forms the critical inner layer** of the company's four-layer fuel pipe, providing a continuous conductive path to safely dissipate static electricity.



## Results / Benefits

- **Enhanced Safety** – Permanent conductivity protects against static discharge, reducing fire and explosion risk.
- **Proven Reliability** – Years of successful global field use with stable ESD performance.
- **Competitive Advantage** – Compatibility with fuel pipe systems certified according to ATEX, UL, and GB standards strengthens the company's position in project bids.

## Get in touch with us

Whether you have questions about our wide range of plastic compounds and materials or need assistance, our team is here to help.

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