

Oil-Filled-MoS2 Nylon for Railcar Wear Pads

When a railcar OEM came to Lehigh Valley Plastics with a recurring issue with excessive wear on their steel-on-steel components during loading and unloading cycles we knew the answer wasn't just a new part. It was a new material.

The challenge was the steel contact points on hopper gates and undercarriages were creating too much friction, leading to downtime, high maintenance costs, and safety concerns. Lehigh Valley Plastics introduced **Oil-Filled with MoS2 Cast Nylon (PA6)** as a high-performance alternative. Its built-in lubrication properties drastically reduce friction and extend service life with no external greasing required.

INDUSTRY: Railcar Manufacturing

APPLICATION: Hopper gate wear pads & guide plates

PROBLEM: Excessive wear on metal-to-metal contact points during loading/unloading cycles, leading to monthly maintenance requirements and operational inefficiencies.

OPERATING CONDITIONS:

- Temperature Range: -20°F to 120°F
- Load weight per cycle: ~20,000 lbs
- Dust and debris-heavy environment

MATERIAL USED: Oil-Filled/MoS2 Cast Nylon

WHY IT WAS CHOSEN:

- Self-lubricating properties reduce need for greasing
- High wear resistance under heavy load and sliding contact
- Lightweight alternative to steel, lowering overall weight
- Performs in a wide temperature range and outdoor conditions

OUTCOME:

- Wear life increased 2x compared to metal pads
- Monthly maintenance reduced to quarterly inspections
- Reduced overall system weight, aiding fuel efficiency
- Lower total cost of ownership

