APPLICATION SUCCESS STORY

Rogers PORON Helps Electric Auto Manufacturer Solve Charge Plug Problem
Rogers PORON® AquaPro™ Foam Keeps Water Out of Battery Charge Plug

CUSTOMER PROBLEM
An innovative electric car company was facing challenges with its vehicle battery charge plug. The existing design did not include any clips to hold it in place, so the closed-cell molded plastic failed due to a loss of the sealing material’s thickness (a property called “compression set”), allowing moisture to permeate the seal through the gap between the molded plastic and enclosure. Pre-launch testing of the new electric car revealed the problem. The manufacturer’s high standards required a quality, long-term solution that would allow them to meet their launch date and exceed the expectation of discerning customers.

THE ROGERS SOLUTION:
PORON® POLYURETHANE FOAMS
The manufacturer incorrectly supposed that a closed-cell material with a "skin" would be better at sealing out moisture. Rogers' PORON® AquaPro™ 37 or 41 was a better choice for this application because the compressible foam gasket conformed more closely to the space between the plug and socket, sealing more completely than the very firm molded plastic plug or other materials like polypropylene or crosslinked polyethylene. The compression set resistance (see description) properties of PORON AquaPro materials allow it to retain its shape and seal over a much longer period of time than polypropylene or crosslinked polyethylene, providing moisture resistance and reducing the number of times the charge plug will need maintenance or repairs.

RESULT
The electric automobile manufacturer selected PORON AquaPro polyurethane material for the vehicle’s charge plug gasket. The compression set resistance properties of PORON foam allowed the gasket to seal out moisture better than other materials, (such as the molded plastic previously in use), and saved the manufacturer money and time by reducing the need for maintenance and repairs.

Compression Set Resistance (CSR) is defined as the ability of a material to resist collapse from the stresses of compression and temperature over time.

What does it do? A material with high CSR extends the life of a product by sealing out dust and light while absorbing shock and maintaining constant spring force.