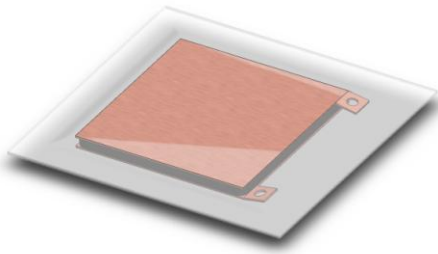
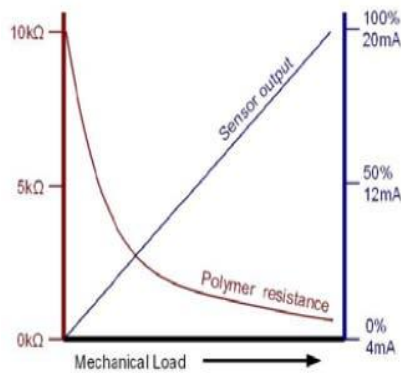


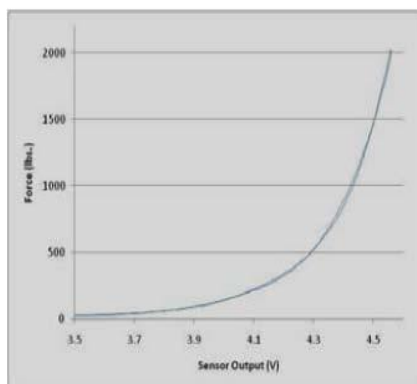
## SensorTech Thin Sheet Force Sensors – How Do They Work?



For its thin sheet force sensors, SensorTech uses a patent pending conductive composite of polyphenylene sulfide (PPS). To make a thin sheet force sensor using the partially conductive polymer composite, SensorTech places the polymer between two electrodes that are in the load path – one electrode on top of the polymer composite, and one electrode on the bottom of the polymer composite. Because the load path travels directly through the electrode/polymer composite sandwich, the polymer sees the full load applied to the thin sheet force sensor.



The polymer's surface resistivity decreases with an increasing load, as seen in the figure to the left. This non-linear response of the polymer is linearized with a conditioner module that has a 4mA-20mA output and a display. The fact that the resistance drops so sharply at low mechanical loads means that the load cell is inherently more accurate at lower loads, which is opposite of strain-gage based load cells and other resistive technologies. SensorTech derives its calibration data at 50% of full scale, to get comparable figures to strain gauge load cells.



SensorTech has been able to get hysteresis below the 1% level. The figure to the right shows applied force vs. the raw (non-linearized) output of the sensor during loading and unloading.

Varying the processing parameters of this technology is constantly improving the repeatability providing this technology with the potential to replace strain gage technology in load cells and thin film sensors in the coming years.