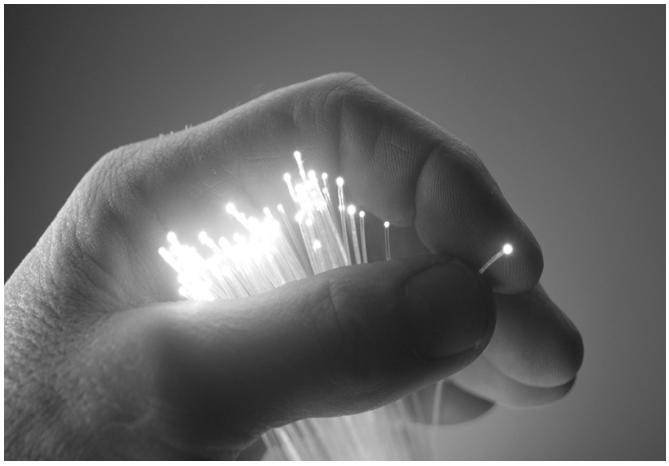
Power Quality in Plastics and Polymers Processing



Plastics and polymers processing requires the use of precise controls that are often hypersensitive to power disturbances.

Plastics and polymers processing is the fourth-largest manufacturing industry in the United States and consumes more than 14 billion kWh of electricity each year. The quality of the electric power used by these manufacturers is critical to the health of their processing equipment and to product quality. Any variations in an injection molding process, for example, can alter the strength of a product by as much as 100%.

The process equipment used in the polymers industry has advanced tremendously over the last few years. Unfortunately, the advances in technology and automation have resulted in increasing susceptibility to problems provoked by inevitable variations in power quality, such as voltage sags or surges. Some processes, such as the production of "plastic" grocery bags and wire coating, demand extremely precise controls that are often hypersensitive to power variations. Even minute fluctuations in the power supply can damage materials and equipment, resulting in costly production losses and missed business opportunities. Process shutdowns caused by power disturbances can mean wasted hours spent on removing large quantities of hardened rubber or plastic from equipment and on restarting operations.

Identifies Ways to Minimize Power Quality Problems in the Polymers Processing Industry

The EPRI project, *Power Quality in Plastics and Polymers Processing,* identifies the particular power quality problems of this industry. The project enlists you and your customers, as well as processing equipment manufacturers, to work together on understanding and developing solutions to power quality problems. The project also works with industry professional and technical associations to foster standards that will encourage the development of equipment that can withstand fluctuations in the electric power supply.

By participating in this project, you draw on EPRI matching funds as well as EPRI expertise. EPRI PEAC Corporation is equipped to evaluate the power quality performance and system compatibility characteristics of plastics and polymers processing equipment over a wide range of electrical conditions.

PROJECT SUMMARY This project will define power quality problems as they apply to the plastics and polymers industry, and it will develop cost-effective strategies for mitigating power disturbances originating within processing facilities. Researchers from EPRI PEAC Corp. will compile descriptions of each of the major processes used in the industry. They will request input from you and your customers for use in the development of testing methods
to determine the sensitivity of polymers processing equipment. Equipment manufacturers will also help shape test procedures.

Experts from EPRI PEAC Corp. will visit the customer site of your choice to determine if such modifications as rewiring, grounding, or installing power conditioning devices would enhance the plant's tolerance to power

disturbances. They will develop power quality case studies that could provide answers to typical power quality problems encountered by the industry. They will also recommend specifications for any processing equipment your customer purchases.

DELIVERABLES

- Primer for energy service providers on major processes used with plastics and polymers
- Test methods for evaluating equipment sensitivity
- One-day visit to the customer site of your choice and technical report on findings and recommendations
- Sensitivity curves for equipment used in the industry
- Power quality case studies
- Recommended specifications for purchasing polymers processing equipment
- *Power Quality in Polymers Processing* newsletter from EPRI PEAC Corp.
- EPRI Power Quality Sales and Marketing Kit, and the EPRI Power Quality Technical Manual for each participating energy service provider

RETURN ON INVESTMENT This project represents a chance for you to improve the value and usability of the power you deliver to your customers—an important accomplishment in the era of electricity deregulation. It will provide you with a better understanding of plastics and polymers production processes and how power quality affects them. It will also encourage processing equipment manufacturers to design products that are compatible with the electric power system. The project will help you reduce downtime for plastics and polymers processors, leading to greater satisfaction and productivity among your customers.

CONTACT INFORMATION For more information, contact the EPRI Customer Assistance Center at 800-313-3774 or *askepri@epri.com*.

PO-112163

EPRI • 3412 Hillview Avenue, Palo Alto, California 94304 • PO Box 10412, Palo Alto, California 94303 USA
800.313.3774 • 650.855.2121 • askepri@epri.com • www.epri.com