

CASE STUDY

Compounding thermoplastic vulcanizate (TPV) made easy

Executive Summary

Achieving good dispersion in Polymer Applications while compounding Polymer with elastomer using a twin-screw extruder is not an easy task. STEER understood this problem faced by several compounders globally and decided to offer an industry solution. By deploying its patented FGT technology and knowhow, STEER will be able to disperse Elastomer in thermoplastic polymer without causing degradation.

Challenges

- Achieving an optimum dispersion while compounding PP with Elastomer
- Avoid shear peaks which can cause degradation of elastomer
- Achieving optimum dispersion of cross linking agent

Objectives

- Develop standard process parameters, including temperature control, using co-rotating twin screw extruder to effectively disperse Elastomer, curing agent in PP matrix
- Achieve good dispersion of the compound in Pellet form



Solutions

- Deployed lab extruder Omega 40H Class L/D: 60 for R&D trials
- Calibrated materials and designed/configured screws for the extruder
- Process parameters, such as, Temperature Profile, Melt Pressure, Melt Temperature, power consumption, RPM, and torque, must be monitored for stability during the trials
- Use of DSA & FKB elements provides gentle dispersive mixing along with elongation mixing of elastomer and cross linking agents, reducing peak shear without shift in desired properties

Results

- STEER special elements will help in obtaining final uniform pellets without any degradation
- Intelligent Compounding practices enabled by patented STEER Omega technology helps overcome an industry-level issue

About STEER

STEER is a creator of materials platform technologies that transform and functionalise materials in the fields of plastics, pharmaceuticals, food & nutraceuticals, biomaterials and biorefining. Founded in 1993 by Dr. Babu Padmanabhan with a vision to steer a new world, STEER today has 5 global offices and 10 satellite offices, serving over 39 countries and employs over 500 gifted engineers, scientists and technicians across the globe. With 60 patents for breakthrough innovations, the company is committed to the design, creation and implementation of advanced platform technologies, components, elements, peripherals and applications that help in the creation of safer, stronger, lighter, more sustainable products.

For more information, please visit www.steerworld.com