

## **STEER retains homogeneous structure of thermoplastic polymer using patented Intelligent Processor**

***Compounding Polypropylene with Hydrocarbon made easy***

### **Executive Summary**

Achieving good dispersion in Polymer Applications while compounding Polypropylene (PP) with Hydrocarbon 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 conducting R&D trials at its Application Development Centre, Bengaluru, India. By deploying its patented technology and knowhow, STEER was able to retain the homogeneous structure of thermoplastic polymer.

### **Challenges**

- Achieving an optimum dispersion while compounding PP with Hydrocarbon
- Prevent loss of homogeneous structure of the Application
- Avoid low melt viscosity (easy flow) at high shear rates
- Maintain high quality of the product

### **Objectives**

- Develop standard process parameters, including temperature control, using co-rotating twin screw extruder to effectively compound PP with Hydrocarbon
- Achieve good dispersion of Application in Pellet form



## **Solutions**

- Deployed lab extruder Omega 25 Class L/D:52 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, were evolved and monitored for stability during the trials

## **Results**

- Achieved good dispersion in Application while compounding Polypropylene (PP) with Hydrocarbon
- Standardised process parameters
- Extruder with screw speed of 200 RPM delivered an output of 80kg/hr
- Pellets did not display any non-homogeneous structure
- The final output pellets were uniform in structure
- Intelligent Compounding practices enabled by patented STEER Omega technology helped overcome an industry-level issue

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## **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](http://www.steerworld.com)