

**TECHNICAL EXCELLENCE PROGRAMME**

# **BASICS, INNOVATIONS & LATEST TRENDS IN PLASTICS COMPOUNDING**

**THE PROGRAMME IS ON COMPOUNDING OF THERMOPLASTICS, EXCEPT PVC,  
WITH SPECIAL EMPHASIS ON ENGINEERING PLASTICS**

**POWERED BY**



Prepared & Conducted by

**DR. PRADEEP BAKSHI & Mr. Sanjay Saxena**

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## Schedule

**February 28<sup>th</sup>, 2025**

TIMING : 09:30 – 18:30

 **VENUE:**

**Fortune Select SG Highway, Ahmedabad**

Sarkhej – Gandhinagar Hwy, near Palladium Mall, Shenbhai Nagar, Ahmedabad, Gujarat 380054

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## Technical Excellence Programme Content

### Extruder Design Concepts

- Overview of Extruder Design principles
- Concepts of Free Volume and Specific Torque
- Importance of intermeshing and clearances
- Role of metallurgy in modern Extruder design

### Process Design

- Unit Processes in an Extruder
- Discussion on each Unit Process and how Extruder Design affects the performance of each stage
- Fundamentals of Screw Design and discussion on some practical designs and their applications

### Process Optimization, Tips & Tricks

- Controlling important Process Parameters with detailed discussion on how to optimize the Process to ensure highest possible output while ensuring high quality product. Study of effect of various process parameters on Torque, Specific Energy, Melt Flow Index, etc.
- Various tips on how to control key process parameters and avoiding pit falls. Guidelines to assure a high-quality product at optimum efficiency

## Applications

- Discussion on various applications of Extruders for compounding Masterbatches, Reinforcing with Fibers, Devolatilization, etc. and methods of optimizing the process and quality.

## New Developments

- Showcasing the latest in Twin Screw Extruders. New designs, new Research and new methods to obtain reliable high output and product quality. Two case studies to highlight the role of new research done to compound new materials

## Compounding Engineering Plastics

- Compounding Engineering Plastics has its own set of challenges. This section discusses compounding of PC, PBT, Blends & Alloys, PA6 & PA66 and the unique process characteristics of each type of compound. Some special screw design requirements are highlighted with illustrations of practical screw designs currently used by the Industry to compound new materials

## Testing

- Quality control and Testing of Plastics
- Identification and Characterization of Plastics
- Mechanical Properties
- Thermal Properties
- Performance Properties
- Optical Properties
- Products Testing

# What will you learn?

- Fundamentals of the Compounding Process which are important to understand and control the process efficiently.
- Dispersive and Distributive Mixing within the Extruder
- Concepts of Shear Rate, Torque and Specific Energy
- Basic Design Concepts of Twin Screw Extruders and how they affect the actual Process. Concepts of Free Volume Ratio and Specific Torque
- Detailed discussion of various Processes happening inside the Extruder. Methods of ensuring proper functioning and suggestions to improve them. Illustrations and importance of different types of Screw Elements and their role in process and product quality
- Basics of Screw Design and how it impacts the Process and Quality. Practical illustrations and discussion on how to optimize the design
- Process Optimization examples and discussion on underlying principles. Tips & Tricks to run a stable, predictable process and to ensure Quality of the product.
- Various applications of Twin Screw Extruders for compounding of different types of materials. Focus is on Compounding of Engineering Plastics.
- Examples of Latest Developments in Twin Screw Extruders design and a couple of actual examples of new processes developed to process difficult materials.

# Who should attend?

Professionals working in the various functions of the Plastics Compounding Industry.

- **Researchers & Development Professionals**
- **Quality Control Professionals**
- **Production Managers & Engineers**
- **Materials Engineers**
- **Graduate Students & Researchers**
- **Plastics Blends Companies**
- **Recycling Companies**
- **Manufacturers and Distributors of Additives**
- **Pipe and Film Companies**
- **Extruder Machines Manufacturers**
- **Ancillary Equipment Manufacturers**



**Dr. Pradeep Bakshi**  
Trainer  
Polymerupdate Academy

Dr. Pradeep Bakshi, an expert in plastics compounding, plant management, and new product introduction, has decades of experience leading successful projects, including grassroots initiatives and capacity expansions.

At TIPCO and GE Plastics India, he excelled in project management, plant layout, and process optimization, overseeing greenfield site development, automation, and formulation management. As Vice-President of Technology at GE Plastics India, he led new product introductions, quality systems, and initiatives in Six Sigma and ISO standards. Beyond his professional work, Dr. Bakshi contributes to public service, particularly in emergency communications during natural disasters. With a Ph.D. in Polymer Science and certifications in plastics technology, he continues to inspire with his expertise and leadership.



**Mr. Sanjay Saxena**  
Trainer  
Polymerupdate Academy

Mr. Sanjay Saxena is an accomplished polymer industry professional with over 4 decades of leadership roles at CIPET (Central Institute of Petrochemicals Engineering & Technology), a premier Academic institution under the Government of India. Sanjay's area of specialization includes plastics, rubber testing, quality assurance, and standardization of materials. His expertise also extends globally in providing tailored technical advice and problem-solving strategies to a global clientele spread across India, Thailand, Nepal, Bhutan, Egypt, China, Austria, Dubai and Germany.

Mr. Sanjay has been instrumental in setting up India's first NABL-accredited and BIS-accredited plastics test centers at CIPET Chennai (1978) and Ahmedabad (1988).

Mr. Sanjay holds a Diploma in Plastics Engineering from IERT, Allahabad U.P. Technical Board and LPRI from The Plastics & Rubber Institute, London.

## "Join Some of the Success Stories of Several Individuals from Previous Programs Who Transformed Their Skills."

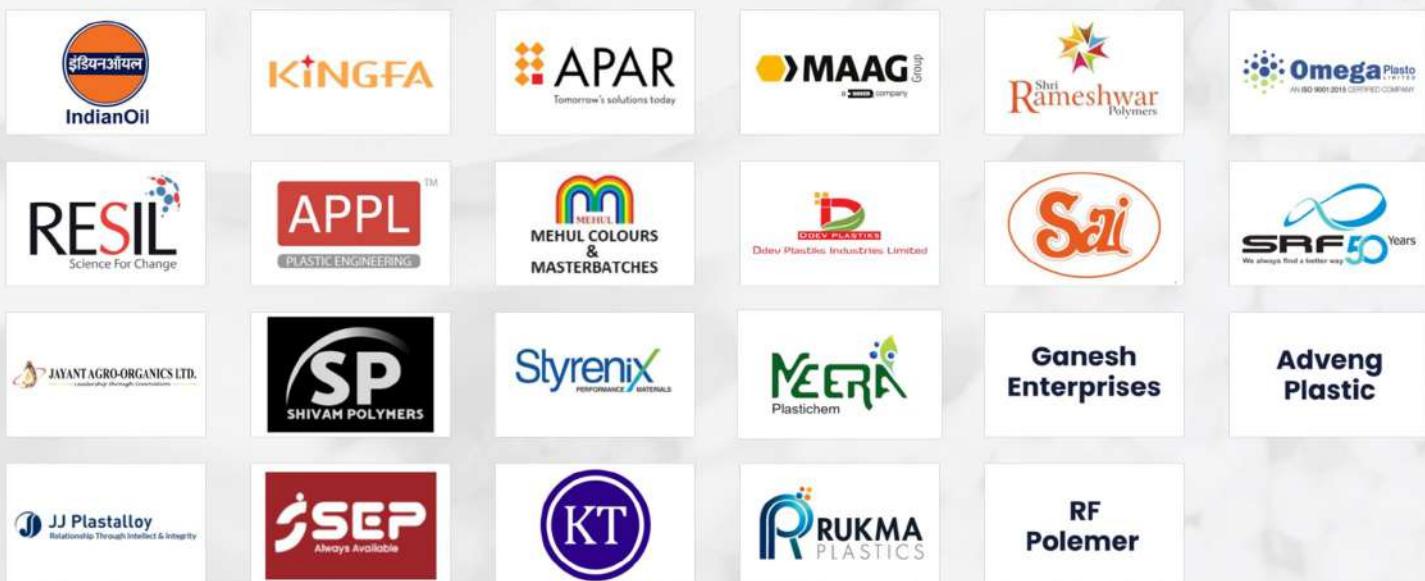
The experience was really nice. The technical session, which was designed for all compounding customers, was very insightful for me.  
**Sagar Chaudhary - Officer-TS IOCL**

The entire seminar was very good and informative. We learned a lot from it.  
**Nilesh Yadav, Plant Head, APAR**

A session was conducted here on compounding operations, design, store design, and processes, and it was very well presented.  
**Patitpaban Nayak, Manager - Production, Styrenix**

This session was a well-delivered presentation by Mr. Pradeep Bakshi, providing valuable knowledge. Overall, it was an informative and beneficial session for us.  
**Vihar Updhyay, Sales engineer, MAAG Group**

## "Leading companies joined past program on Plastics Compounding"



# About **POLYMERUPDATE ACADEMY**

At Polymerupdate Academy, we offer a broad range of courses in the Petrochemical and allied industries, in collaboration with renowned professors from the field of education. The courses address the critical, technical and managerial needs in both the Public and Private sectors and are unique to each individual client.

Learn about the many benefits of cutting-edge, online educational courses for a life-long career in the fields of Polymer Science and Composites. We have ensured that the courses are affordable yet valuable and play a keyrole in upskilling those who sign up for the training. These courses are carefully designed to help professionals manage everyday challenges with greater confidence and expertise.

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