

CIPET: PEWMC, Bengaluru provides one stop solutions to polymer and electronic industries for managing their wastes through latest recycling technologies and training.



VISION

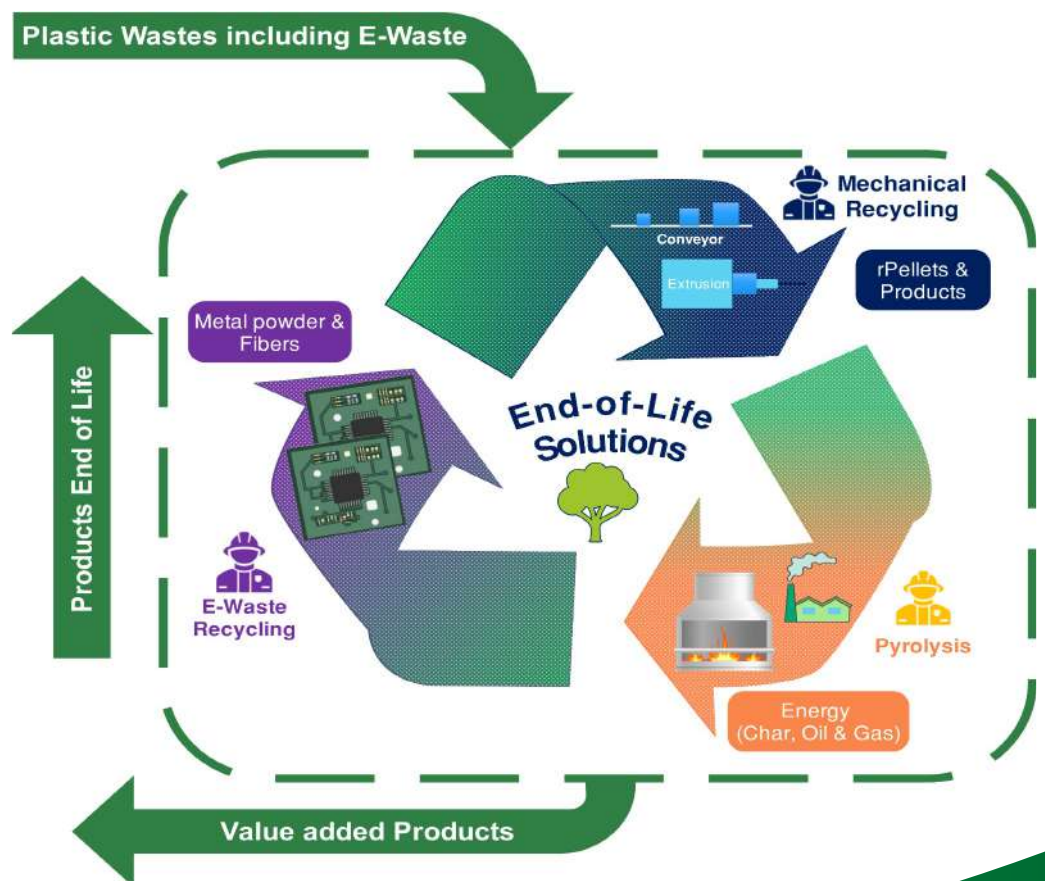
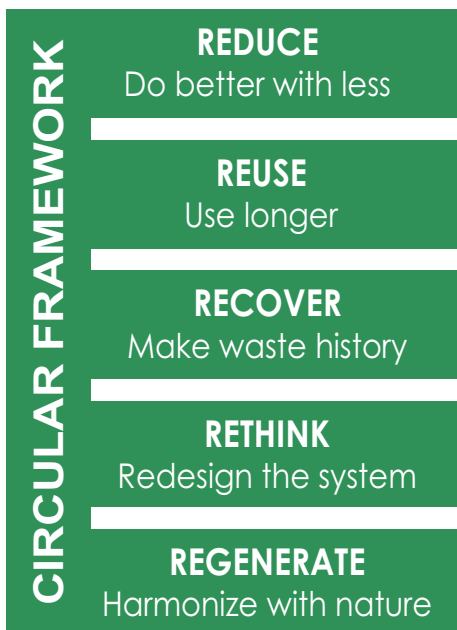
To become an apex Institute of International repute in the field of Plastic Waste Management and ensure sustainable growth

MISSION

- To offer specialized Skill Development Training Programs in the field of Plastic recycling in order to provide qualified Human Resources with entrepreneurship qualities for plastic waste management industries.
- To develop Indigenous Technology, Applications & Hand holding Entrepreneurs by Technology Transfer, Intellectual Property (IP) and Knowledge Base.
- To provide Technical Support and Consultancy Services in the fields of plastics & E-waste recycling, value addition, testing & characterization of recycled materials & products.



Plastic Wastes including E-Waste



About CIPET



Central Institute of Petrochemicals Engineering & Technology (CIPET) [formerly Central Institute of Plastics Engineering & Technology), a Premier National Institution under the Department of Chemicals & Petrochemicals, Ministry of Chemicals & Fertilizers, Govt. of India, has dedicated its services to Skill Development, Technology Support, Academic and Research (STAR) activities in the field of Petrochemicals. CIPET operates from 47 locations spread across the country to cater the needs of the Polymer and allied industries.



School for Advanced Research in Petrochemicals (SARP) - APDDRL, one of the R&D wings of CIPET at Bengaluru. APDDRL, with its state-of-the-art technical infrastructure, is dedicated for Research & Development, Consultancy, Technical Support Services and Specialized training programs. APDDRL works towards developing novel technologies, environmentally friendly sustainable polymers, power storage & energy harvesting devices, polymers for bio-medical & healthcare applications, to keep pace with the global scientific community. The laboratory also caters to the contemporary requirements of the society such as developing material for alternatives to Single Use Plastics, Recyclability Analysis of various products, Biodegradability Studies and development of Bio-based Polymers and Composites.



Plastics & E – Waste Management Centre (PEWMC) is established at KCDC premises, Bengaluru with the support of Ministry of Chemicals & Fertilizers, Govt. of India and Bruhat Bengaluru Mahanagara Palike (BBMP), Govt. of Karnataka. The Centre have State-of-the-Art facilities for recycling of various types of waste plastics & E-waste and provide training to the Stake holders. The aim of PEWMC is to develop skilled manpower for plastic recycling industries, develop recycling technologies, provide technical support services to industries, create awareness in the society to manage plastic wastes. The Centre will also play pivotal role in developing employment opportunities especially for youth, self-employment and entrepreneur development through various skill development training programs.

Know More, Waste Less: Plastic Pollution Solutions

FACILITIES & MACHINARIES

The PEWMC has state-of-the-art facilities for Sorting of waste plastics, Automatic washing line, Lumps Grinder, Extruder with palletiser, Pyrolizer etc. to the recycling of more than 3 tons of various segregated plastics wastes (Category I-Rigid plastics packaging, Category II – flexible plastics packaging & Category III - multilayer plastic packaging) and E-Wastes.



Fully Automated Washing Line, is an adaptable solution for recycling contaminated plastic films / products. A combination of mechanical agitation (grinding and friction washing) and water-based separation (floating tanks) is used to remove contaminants from plastics. It efficiently processes plastic waste, integrating grinding, washing, drying, and densification. Offering high capacity, versatility, and minimal human intervention, this machine ensures thorough cleaning and customizable output formats. The capacity is 150-200 kg/hr

Single Screw Two-Stage Extruder, is recycling plastic waste into high-quality pellets. It combines extrusion, cutting, and compaction in a single, efficient process. Key features include two-stage extrusion for thorough melting and degassing, die face cutting for consistent pellet quality, water ring cooling for optimal pellet properties, a compact design, and versatility in handling different plastic materials. The machine processes plastic waste through a series of steps involving feeding, extrusion, cutting, cooling, and optional drying, resulting in high-quality recycled plastic pellets. The capacity is 150-200 kg/hr .



Film Grabber, Air flow and mechanical separation are used to efficiently separate plastic bags and film materials from other types of plastic waste. It features a powerful air knife blower that effectively separates lightweight materials, a catching drum to collect the separated materials, a conveyor belt for material transportation, an energy-efficient blower fan, and a compact design. The machine processes plastic waste through a series of steps involving feeding, separation, collection, and conveying, resulting in high-purity plastic film fractions. It's primarily applicable to flexible plastic packaging, but can also be used for multilayer plastic packaging with a main film component.

FACILITIES & MACHINARIES

Lump Grinder, is a powerful machine which can efficiently grind large plastic lumps and other materials. Its two-stage grinding process effectively reduces material size and prevents lumping. The machine features a high-speed rotor with special V-type blades for aggressive grinding, ensuring thorough size reduction (12-14 mm pieces). It's versatile, handling a wide range of plastic materials, including pipes, moulded articles, and flakes. The capacity is 150-200 kg/hr .



Ballistic Separator, uses mechanical agitation and gravity to separate materials based on their weight and size. highly efficient in sorting mixed plastic waste into three categories: lightweight, heavyweight, and small pieces. It features oscillating paddles for dynamic material separation, a blower fan for airflow, a feeding conveyor for steady material flow, anti-vibration pads for noise reduction, and VFD control for adjustable settings. The machine processes material through a series of steps involving feeding, separation based on weight and size, and collection, resulting in sorted plastic waste fractions.



Zig Zag Classifier, efficiently uses airflow and gravity to separate materials based on their density. It's ideal for processing ground plastic materials. Key features include a zig-zag air chamber for precise separation, a blower for airflow, a rotary valve for material control, VFD control for adjustable settings, and a compact design. The machine processes material through a series of steps involving feeding, air separation, and collection, resulting in separated materials based on their density.



Pyrolyzer Unit, uses thermal decomposition (heating in the absence of oxygen) to break down plastic into smaller molecules. This cutting-edge technology converts plastic waste into valuable products through the pyrolysis process. It offers high capacity, versatility, efficient conversion, continuous char removal, and the potential for integrated power generation. Key factors influencing product yields include heating rate, temperature, pressure, reactor type, residence time, and the use of catalysts. This technology is applicable to all types of plastic waste, providing a sustainable solution for plastic recycling. The capacity of plant is 1000 kg/day.



SERVICES OFFERED

- Research & Consultancy
- Technical Support Services
- Skill upgradation Training Programs
- Workshops / Seminars

RESEARCH & CONSULTANCY:

- Value addition of recyclates
- Product development with recyclates
- Development of recycling Technology
- Performance Evaluation of recyclates
- Failure analysis of recycled Products

TECHNICAL SUPPORT SERVICES:

- Plastics waste to pellets conversion
- Recycling of different waste plastics
- Testing & Characterization of recycled materials and Products
- EPR credits

Salient Features of Research, Consultancy & Technical Support Services:

- Solutions to industrial problems
- Qualified dedicated manpower
- Affordable & Cost effective solutions
- Quality services
- Quick response



SKILL UPGRADATION TRAINING PROGRAMS:

- Identification, Sorting & Segregation of waste plastics (05 days)
- Plastics Waste Recycling Techniques & Process (05 days)
- Machine Operator - Plastics Recycling (06 months)
- Machine Operator Assistant - Plastics Recycling (3 months)

WORKSHOPS/SEMINARS:

- Plastics Waste Management Rules & guidelines
- Waste to Energy (Battery recycling, Pyrolysis)
- Polymer Materials, Classification & Applications
- E-waste recycling

COURSE CONTENTS:

Plastic recycling- Indian context - Global scenario- Polymer Materials- Classification- Plastics Processing –Testing- Identification of plastics-Plastics Recycling Techniques –Process -Sorting Segregation- Washing – Operations of recycling equipment - Quality control & Characterization of recyclates - Waste to Energy (Pyrolysis)- E-Waste Recycling- Plastic Waste Management Rule, guidelines and EPR.

Salient Features of Training Programs:

- Theory and Practical Sessions
- Lectures, assisted with models and multimedia aids
- Guest lecturers from industrial / Domain experts
- Hands-on practical exposure equipment / machinery
- Training Materials
- Course completion certificate



TARGET BENEFICIARIES: Students, Faculties, industrialists, municipality workers, entrepreneurs, 8th & 10th passed students, etc.

Know More Plastics; No To Single Use Plastics

TRAINING PROGRAMME

Course Title: Identification, Sorting & Segregation of waste plastics

Duration: 40 hrs. / Five days

Proposed dates: Every Month

Contents: Introduction to polymers - Natural & synthetic; Terminology of polymers; Classification of polymers – thermoplastics & thermosets, recyclable, compostable & biodegradable; Different sources of plastics waste; Types of plastics waste; Challenges in plastics waste; Methods of plastics sorting and segregation; Basic plastics identification techniques.

Course Fee: Rs. 10,000/- (Industries/Faculties) & Rs. 2500/- (Students)

Course Title: Plastics Waste Recycling Techniques & Process

Duration: 40 hrs. / Five days

Proposed dates: Every Month

Contents: Introduction to Plastics; Mechanical recycling; Chemical recycling; Biological recycling; Feed stock recycling; Shredding of plastics; Grinding; Instrument related to shredding and grinding; Compounding, Melting and Pelletization Process & its Challenges; Material and product development from waste plastics; Extended producer Responsibility (EPR)

Course Fee: Rs. 10,000/- (Industries/Faculties) & Rs. 2500/- (Students)

Course Title : Machine Operator Assistant – Plastics Recycling

Duration : 480 hrs. / Three months

Course Title : Machine Operator – Plastics Recycling

Duration : 960 hrs. / Six months

Contents: Polymer Materials, Classification & Applications; Plastics Processing Techniques; Identification of plastics; Plastics Waste & its Sources; Sorting and Cleaning of Recyclable Plastic Waste; Plastics Recycling Techniques / Study of Recycling Process; Size reduction methods of Plastics waste; Operation & Working principles of Automatic inline Washing unit & size Reduction Machinery for rigid waste plastics; Municipal Solid Waste (MSW) handling and challenges; Safety Concepts and Practice.

Course Fee: Free of cost (Sponsored program under CSR)

Sl. No.	Workshop/Seminar details	Proposed Date
1	Plastics Waste Management Rules & guidelines	First Week of Every Month
2	Waste to Energy (Battery recycling, Pyrolysis)	Second Week Of Every Month
3	Polymer Materials, Classification & Applications	Third Week of Every Month
4	E-waste recycling	Fourth Week of Every Month

For more details and queries, please contact



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