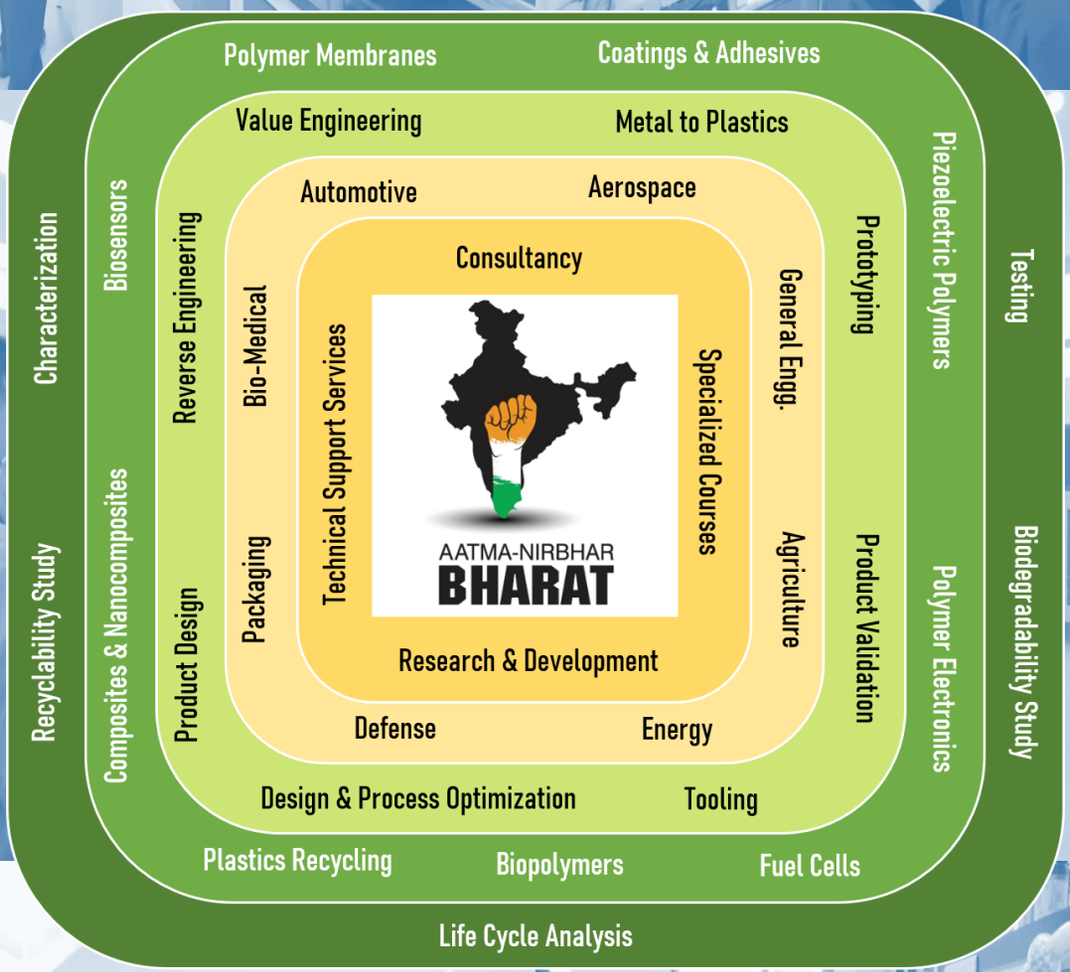
E-Brochure

CIPET : SARP - APDDRL, Bengaluru



सिपेट CIPET

Central Institute of Petrochemicals Engineering and Technology (CIPET)

School for Advanced Research in Petrochemicals (SARP)

Advanced Polymer Design and Development Research Laboratory (APDDRL)

Department of Chemicals and Petrochemicals, Ministry of Chemicals & Fertilizers, Govt. of India

Hi-tech Defense and Aerospace Park, Jalahobli, Devanahalli, Bengaluru North, Karnataka – 562149

Vision & Mission of the Institute

Vision

To become an apex Research & Development Institute of International repute in the field of Petrochemicals Engineering and Technology and ensure sustainable growth.

Mission

To develop Indigenous Technology, Applications & Handholding Entrepreneurs by Technology Transfer, Intellectual Property (IP) and Knowledge Base.

To provide Technology Support & Consultancy Services in the field of Product Design & Optimization, Reverse Engineering, Value Engineering, 3D printing, Materials, Failure Analysis & Testing to the Petrochemical Industries including plastic industries through a Quality Management System.

To provide specialized Training Programs in the field of Petrochemicals Engineering & Technology with entrepreneurship qualities for Petrochemical & Allied Industries.

To keep pace with Advanced Technologies through Knowledge Upgradation, Collaborative Research and Conferences.

UNIQUE CREDENTIALS

Basic & Applied Research in the areas of Biopolymers, Recycling Technologies, Energy, Coatings and Composites

Development of new materials, products

Indigenization of technologies

Life Cycle Analysis – Accelerated Weathering Studies and Interpretation

Fatigue and Torsion Studies for Plastics, FRPs & Metals

Additive Manufacturing, Design Optimization & Prototype Development

INDUSTRY SUPPORT & TIE-UPS

RESEARCH & DEVELOPMENT

PRODUCT & TECHNOLOGY VALIDATION

Material & Product Testing – PVC / HDPE Pipes, Profiles, Tarpaulins, Geomembranes, Packaging and others

Product Failure Analysis, Material Analysis & Reverse Engineering, Biodegradability Certification, Recyclability Analysis

Incubation Programmes for Start-ups & Entrepreneurs

Facilitating laboratory and office infrastructure for viability studies and initial developmental activities

Mentorship for material / technology development

Customized Modules for Industries – Basic to Applied Training

Skill Development & Upgradation Programmes for Industrialists, Academicians, Scholars Students & School Drop-outs

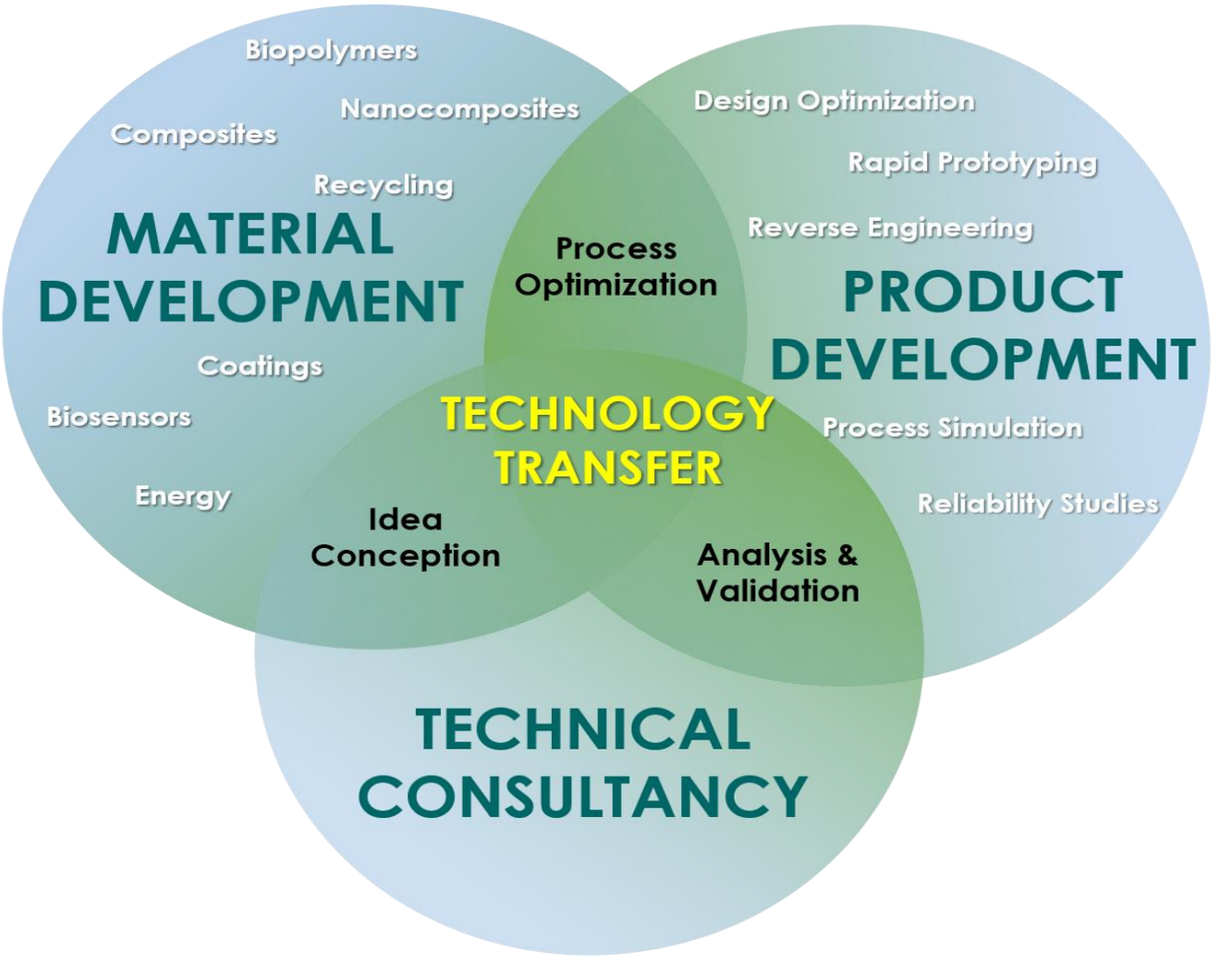
Industry – oriented Internship Programmes

PROMOTING ENTREPRENEURSHIP

CUSTOMIZED INDUSTRIAL TRAINING

RESEARCH ACTIVITIES

Core Areas of Research



Major Achievements

RESEARCH ACTIVITIES

Lab Facilities

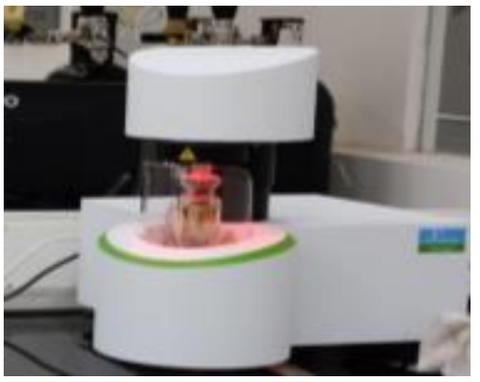
Central Research

Spectroscopic Analysis, Physico-mechanical Studies, Thermal Characterization, Electrical Characterization, Morphology Analysis, Physico-Mechanical Studies, Nanofiber Synthesis, Viscometric Studies, Contaminant Determination, Electrochemical Characterization

FT-RAMAN

FTIR SPECTROMETER

Rotational Rheometer



TGA

XRD

GC-MS

FE-SEM with EDS

Particle Size Analyzer

Weatherometer (UV & Xenon-Arc)

RESEARCH ACTIVITIES

Lab Facilities

Central Research

Automatic Viscometer

Electrospinning Unit

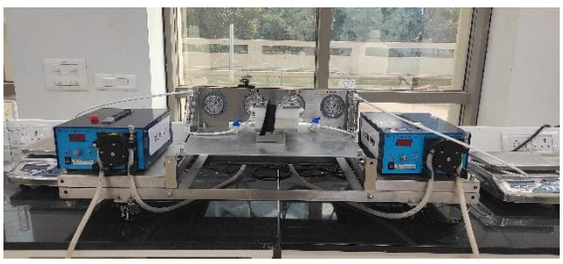
Dynamic Mechanical Analyzer

Total Organic Carbon Analyzer

Atomic Absorption Spectrophotometer

Electrochemical Workstation

Membrane Technology



Membrane Test Skid – Reverse Osmosis

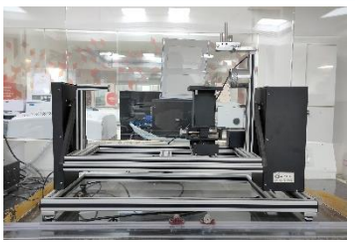
Membrane Test Skid – Forward Osmosis

Hollow Fiber Spinning Unit

RESEARCH ACTIVITIES

Lab Facilities

Coatings & Adhesives



Goniometer

Spin Coater

Volume & Surface Resistivity

Coefficient of friction tester

Lap Shear

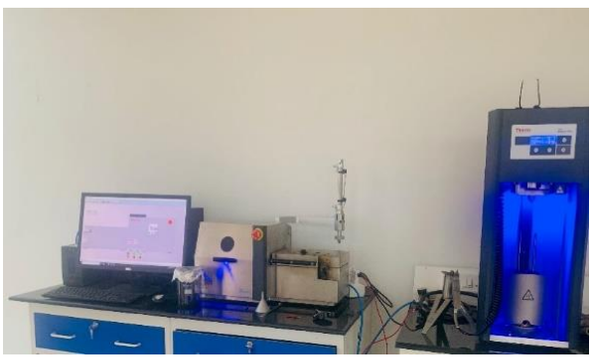
Processing & Compounding

Injection Moulding

Compression Moulding

Contour Cutter

Twin Screw Compounder



Microcompunder & Microinjection Moulding

Torque Rheometer

RESEARCH ACTIVITIES

Lab Facilities

Product Validation

Axial-Torsion Fatigue Tester (100kN-1kNm)

Universal testing machine (100kN-1kNm)

Vibration Analyzer

Pin-on-Disk Tribometer

Biodegradability / Compostability Analysis

RESEARCH ACTIVITIES

Lab Facilities

Product Design and Development

CAD/CAM/CAE Software

NX | SOLIDWORKS | Moldex3D MOLDING INNOVATION | Ansys

Reverse Engineering

Geomagic

3D Printer- FDM

Make/Model	M/s Stratasys, USA / 450
Build Volume	355 x 355 x 355 mm^3
Layer Thickness	0.127 mm, 0.178 mm, 0.254 mm
Materials	Thermoplastic Materials :ABS, PC, PC-ABS, Nylon-CF, Polyetherimide (ULTEM 9085) etc.

Vacuum Casting

Make/Model	M/s Renishaw Germany / 5/04
Max. Mold Volume	750 × 900 × 750 mm^3
Materials	PU Based – Like PP, ABS, PC etc. Flexible (Hardness Shore A 20-90),
Other Materials	Nylon and Wax

RESEARCH ACTIVITIES

Innovex Lab

Following industries/start-ups were engaged with CIPET:SARP-APDDRL for product development:

Sl. No.	Name of the Company/Start-up	Product/Technology
1.	M/s. Nordische Technologies, Bengaluru	• Aluminum ion graphene battery pouch cell • Microbial fuel cell • Sea water mining for lithium extraction & hydrogen production
2.	M/s. Honney Pack, Bengaluru	Biodegradable packaging material
3.	M/s. Lakshmi Designers, Bengaluru	Value added recycled material

Technology Transfer

Aluminium Ion-Graphene Pouch Cell
In association with
M/s Nordische Technologies Pvt. Ltd., Bengaluru

Starch based Biodegradable Films
In association with
M/s Honneypack Agro-solutions Pvt. Ltd., Bengaluru

Biomedical Plastic Waste Recycling
In association with
M/s Re Sustainability Ltd., Hyderabad

TECHNOLOGY SUPPORT SERVICES

- Testing as per ISO/IS/ASTM/DIN/JIS Standards
  (Accredited by NABL as per ISO:IEC 17025:2017)

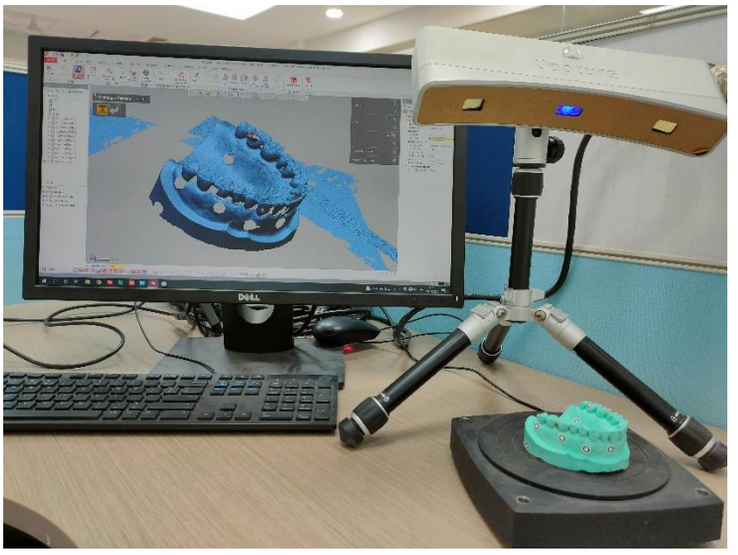
Mechanical Testing
Life cycle analysis
Morphological analysis
Specialized analysis
Thermal Analysis
Electrical Testing
Spectroscopic Studies

PRODUCT TESTING
PVC/PE Pipes and fittings
Water Container,
Films, Sheets and sachets
Woven sacks
Sprinklers
Coir & Foams
Geo membrane
Tarpaulins
Composites
Wires & Cables
Agro-Textiles & Shade nets
Ply
Other Plastics Products

TC-9321

NABCB
IB004

- Pre Delivery Inspection
- Biodegradability / Compostability Testing
- Recyclability Analysis
- Product Design
- Design and Process validation
- Reverse Engineering
- 3D Printing and Vacuum Casting



TECHNOLOGY SUPPORT SERVICES

Testing Facilities

Hydrostatic Pressure Tester

Hot Water Bath

Hydrostatic Pressure Tester for Emitting pipes and Emitters

Melt Flow Index

Hardness Tester

Dart Impact Tester

Falling Weight Impact Tester

TECHNOLOGY SUPPORT SERVICES

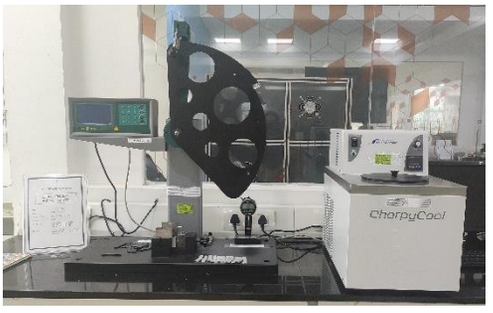
Testing Facilities

Comparative Tracking Index

Dry Arc Resistance

Dielectric Constant

Dielectric Strength Tester



Impact Tester

Opacity Tester

CHNSO Analyzer

Gas Permeability Tester

Autoclave

TECHNOLOGY SUPPORT SERVICES

Testing Facilities

Water Vapour Permeability Tester

Optical Microscope

Rotational Rheometer

Solar Simulator

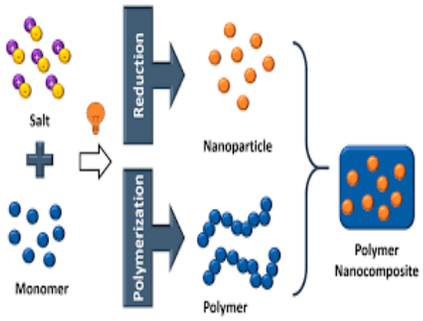
ESCR Tester

Glove Box

Environmental Chamber

Flammability Tester

SPECIALIZED TRAINING PROGRAMME



SARP – APDDRL offers Specialized Tailor-made programmes in the area of Polymeric Materials and Petrochemicals to cater the need of Polymer and allied industries.

- Functional Materials & Applications
- Biomaterials & Biodegradability
- Waste Management & Recyclability
- Single Use Plastics: Alternatives & Challenges
- High Performance Materials for Energy
- Product Design & Development
- Renewable Resources: Opportunities & Applications
- Specialized Coatings & Adhesives
- Membranes for Water Purification & Gas Separation
- Conductive Polymers & Composites
- Process Engineering: Additives & Compounding

- Computer Aided Design (CAD)
- Computer Aided Manufacturing (CAM)
- Computer Aided Engineering (CAE)
- Vacuum Casting
- Mould & Die Design
- Additive Manufacturing
- Reverse Engineering
- Integrated Product Development

Special Features

- Customized modules to meet the specific requirements of Industries and Organizations
- Practical exposure to in-house facilities
- Internships, Industrial visits and Residential training programmes for Students
- Discount for B.Tech/M.Sc/M.Tech students depending upon the batch size

Beneficiaries

Business Entrepreneurs, Industrialists, Managers, Research Professionals, Quality Engineers Faculty & Students

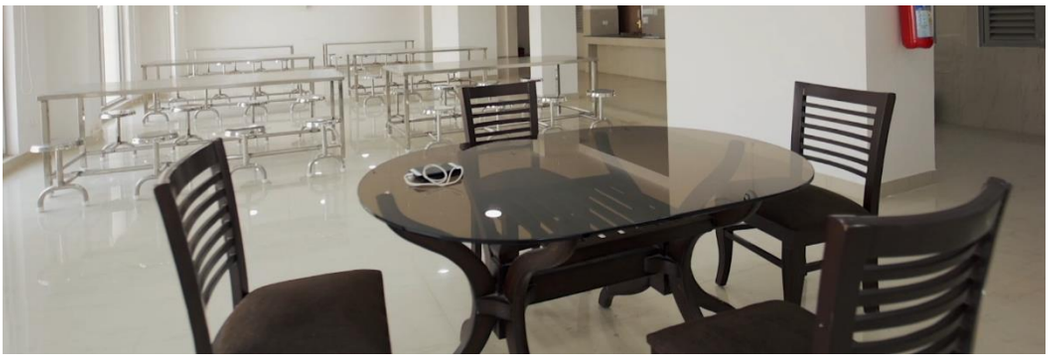
ELITE CUSTOMERS

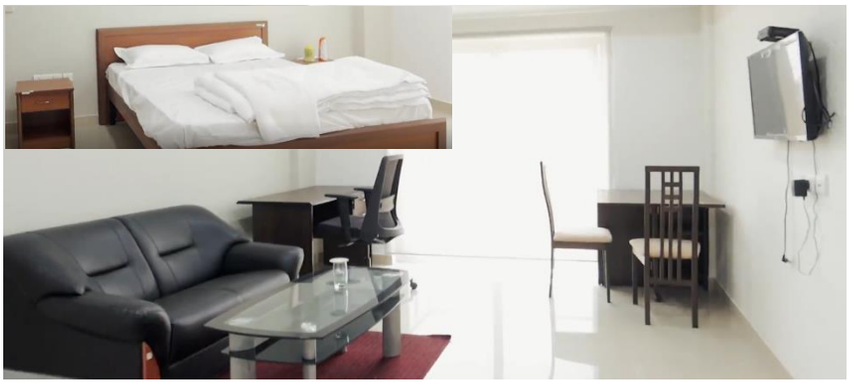
Industry & Institute Tie-ups

OTHER FACILITIES

Guest House / Hostel / Gym / Canteen / Library





Reach us

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E-mail: aapddrl@cipet.gov.in;/
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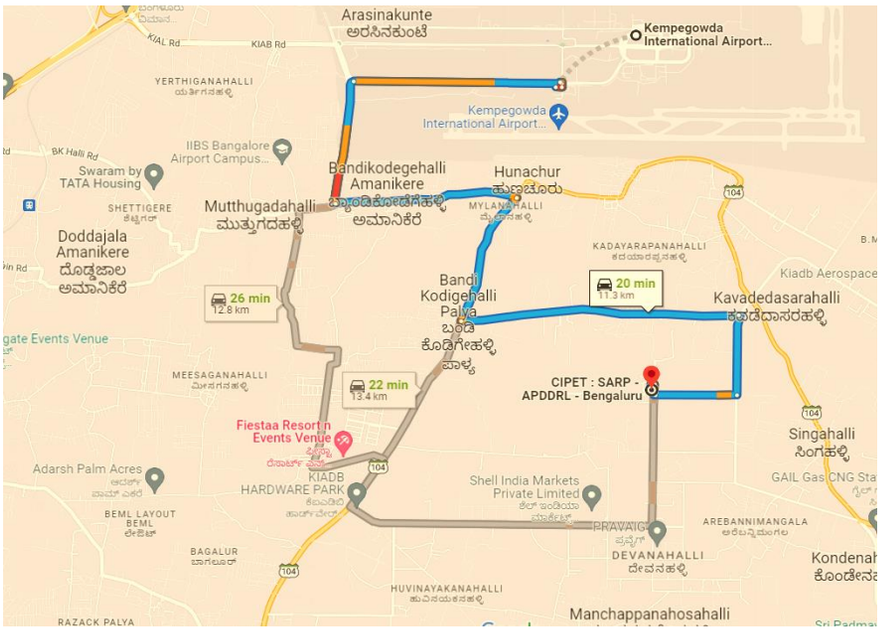
Website: www.cipet.gov.in



Contact Details

Bio-based Polymers & Composites

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Dr. Manoranjan Biswal	Sr. Scientist	9090968453	apddrl@cipet.gov.in

Coatings And Adhesives

Name	Designation	Mobile No.	E-Mail ID
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Energy Research & Device Fabrication

Name	Designation	Mobile No.	E-Mail ID
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Compounding & Plastics Waste Management

Name	Designation	Mobile No.	E-Mail ID
Dr. Wasim Feroze G. S	Jr. Scientist	7666355661	apddrl@cipet.gov.in

Testing & Characterization

Name	Designation	Mobile No.	E-Mail ID
Sasmita Mishra	Technical Officer	9692029433	apddrl@cipet.gov.in

Product Design and Development

Name	Designation	Mobile No.	E-Mail ID
Dr. R. Joseph Bensingh	Senior Scientist	9840376907	apddrl@cipet.gov.in

CIPET's presence across the country

CSTS (30)

AHMEDABAD
AGARTALA
AURANGABAD
AMRITSAR
BHUBANESWAR
BADDI
BALASORE
BHOPAL
CHANDRAPUR
CHENNAI
DEHRADUN
GWALIOR
GUWAHATI
PWMC- GUWAHATI
HAJIPUR
HALDIA
HYDERABAD
IMPHAL
JAIPUR
KOCHI
KORBA
LUCKNOW
MADURAI
MURTHAL
MYSORE
NAVSARI
RAIPUR
RANCHI
VIJAYAWADA
VARANASI

HEAD OFFICE
CHENNAI

LIAISON OFFICE
NEW DELHI

IPT (08)

AHMEDABAD
BHUBANESWAR
CHENNAI
KOCHI
LUCKNOW
MURTHAL
RAIPUR
JAIPUR

Sub Centres (03)

PALAKKAD (IPT – KOCHI)
TAMOT (CSTS – BHOPAL)
PARADEEP (CSTS – BBSR)

SARP (03)

ARSTPS - CHENNAI
LARPM – BHUBANESWAR
APDDRL - BENGALURU

IPT: Institute of Petrochemicals Technology | SARP: School for Advanced Research in Petrochemicals | CSTS: Centre for Skilling & Technical Support