SHRIRAM

Shriram Institute for Industrial Research

Where Science Is A Passion

FOUNDER

Sir Shriram (1884-1963)

SRI was founded over 70 years ago by Sir Shriram, a leading industrialist of his time dedicated to the development and progress of Indian Industry, who valued human resources as the core of any successful venture.

SRI commenced its activities in 1950 and has over the years built an enviable reputation as a leading Institute of its kind.

VISION

- To maintain its stature as an independent premier Research Institute for product and process development
- To orient its research towards progress of Industries and Society
- To provide its services using state-of-the-art facilities
- To offer best analytical and R&D services to assist industry attain highest standards of product quality
- To provide technical support to Industry for conserving natural resources and for environment protection

SRI is committed to

- Uncompromising commitment to excellence
- Adhering to the highest standards of scientific work
- Maintaining the highest level of integrity, reliability and ethical practices

ABOUT US

Shriram Institute for Industrial Research (or SRI) is one of the most respected institutions of its kind in India, engaged in a wide range of R&D, analytical and related activities, covering material sciences, life sciences and bio sciences. Over the last six decades of its existence, SRI has built a formidable reputation for quality and reliability, and is a well known name across industries.

Key Services Offered by SRI :-

- **R&D :** SRI has been active in innovations in various areas of research including product/process development and process upscaling, as well as modification of materials (e.g. polymers through radiation).
- **QC / QA :** SRI provides services for quality control and quality assurances conforming to latest relevant national and international guidelines, maintaining stringent norms.
- **Analytical Services :** Complete chemical, physical and metallurgical studies and analytical work in the fields of plastics, rubber, composites, textiles, adhesives, paper, leather, paints & inks, inorganic chemicals, infrastructure, fuel / petroleum products, metals & minerals, electrical items, food items, drugs and pharmaceuticals, agro chemicals, contaminants, etc.
- **Toxicological Studies :** To establish safety levels for chemicals, agro chemicals, cosmetics and herbal products.
- **Microbiological Studies :** For assessment of key pathogens in food, water, cosmetics, herbal products, drugs and pharmaceuticals and analysis of pesticide residues in food, textile and consumer products. Work is also undertaken for assessing packaging compatibility and shelf life.
- **Environment Protection :** Generation of primary data, supplemented with professional analysis, scientific interpretation and modeling for impact analysis and prediction and preparing Management plans for offsetting / minimising negative impact and enhancing positive impact.
- **Calibration / Validation :** Of instruments and equipment.
- **Gamma Irradiation Processing :** Such as sterilization of medical products, disinfestation of spices and herbal products, shelf life enhancement of fruits and vegetables.
- **Technology Business Incubator :** Equipments and services are offered for incubating ideas of entrepreneurship into successful business ventures in areas of plastics, rubbers, speciality chemicals and waste management.
- **Other Services :** Conducting seminars, conferences and training programmes.

Besides state-of-the-art equipment for research and analytical work, SRI's core strength is a large pool of well qualified and experienced personnel that number over three hundred.


MSD
R&D
Contract Research
Rubber & Plastics
Textiles & Paper
Surface Coatings
BIO
Toxicology
Microbiology
Molecular Biology
Drugs & Pharmaceuticals
Food & Farm
Agrochemicals
ASD
Infrastructure & Soil
Metals & Minerals
Petroleum & Fuels
Electrical
Calibration
EPD
Effluent
Energy
Air
Water
Radiation
SARC
Gamma Irradiation
Sterilization
Research
SRI-TBI
Infrastructural Support
Project Detailing
Prototype Development
Fund Liaisoning
SHRIRAM
Industry • Regulatory Agency • Consumer

Material Research
Trouble-shooting
Materials Characterized
Consultancy
R&D
Contract Research
Rubber & Plastics
Major Thrust Areas
Textiles & Paper
Surface Coatings
Core Competency
Compositional Analysis
Multi-layer Films
Chemical Analysis

MSD

Material Science Division

Material Science Division (MSD) undertakes Research & Development activities for processes, products & devices. Apart from development of materials with tailor-made properties, MSD also has state-of-the-art pilot plant for paints, rubber & polymers viz. compression molding, injection molding, extruder, reactors, mixers, 3-roll mill, ball mill, bead mill etc. Sri Ram Institute for industrial Research is registerd as SIRO under DSIR, Govt. of India

Main Activities

- Material Research
- Synthesis
- Product Development
- Opinion Report
- Consultancy
- Scale-up Studies
- Process Validation & Optimization
- Trouble-shooting
- Technology Commercialization

Research Areas

- Green Technologies
- Radiation Processing
- Waste Utilization
- Nanotechnology
- Adhesives & Coatings
- Formulations
- Fluoropolymers
- Healthcare Products
- Optical Polymers

Rubber & Plastics, Textiles, Paper and Paint sections are a part of Material Science Division of the Institute. The main activities of these sections is to provide technical services in characterization of raw materials, semi processed products and finished products.

Major Thrust Areas

- Compositional Analysis
- Failure Analysis
- Product Identification
- Product Differentiation
- Contaminant Identification
- Materials Compatibility

Core Competency

- Chemical Analysis
- Weathering/ Ageing Studies
- Fire/Flammability Studies
- Physico-Mechanical Studies
- Reverse Engineering
- Thermal/Optical Studies

Materials Characterized

- Composites & Blends
- Rubbers
- Specialty Polymers
- Multi -layer Films
- Textiles, Paper & Allied Products
- Thermosets & Thermoplastics
- High Performance Polymers
- Water-proofing Materials
- Paints & Coatings
- Adhesives & Sealants
- Geomembranes & Geogrids
- Cable Insulation

BIO

Bio Science Division

Agrochemicals & Petrochemicals Inspection and Certification Toxicology Microbiology Drugs & Pharmaceuticals Food & Farm Herbal Formulations & Ayurvedic Drugs Agrochemicals Shelf-life Efficacy & Bio-safety Quality Evaluation & Certification Molecular Biology

Toxicology

A wide range of toxicological studies are being undertaken as per National and International guidelines. The Laborory is GLP certified.

Studies Undertaken

- Agrochemicals & Petrochemicals
- Drugs and Pharmaceuticals
- Herbal Formulations & Ayurvedic Drugs
- Cosmetics & Personal Care Products
- Packaging Materials
- Medical Devices & Contraceptives
- Dyes and Dye Intermediates

Drugs & Pharmaceuticals

Studies Undertaken

- Quality evaluation, identification & analysis of materials
- Microbial contamination & Preclinical studies
- Analytical Method development & validation
- Validation of reference materials
- Shelf life/stability studies

Food & Farm

Studies Undertaken

- Quality Evaluation of Raw & Processed Food Products, Food Additives & Packaging
- Method Development and Validation
- Microbial Contamination Studies
- Shelf life / Stability Studies
- Inspection and Certification

Pesticides

Studies Undertaken

- Quality Evaluation & Certification
- Process Development & Validation
- Profiling & Identification of Impurities for Five-Batch Analysis
- Efficacy & Bio-Safety
- Shelf-Life Studies

Residue Analysis

Residue analysis is undertaken in a well equipped laboratory with state-of-the-art instruments like GC-MS, GC with thermal desorption, GC-MS/MS, LC-MS/MS, ICP-MS etc. for analysis of various contaminants, adulterants, toxicants, elements and nutrients present in trace amounts e.g. residues of pesticides, drugs, toxic metals, mycotoxins, environmental pollutants, vitamins, macro as well as micro-nutrients etc.

Studies Undertaken

- Hydrophilic and Lipophilic Balance of Organic Molecule
- Suitability Study of Packaging Material
- REACH, RoHS parameters/ VOCs Estimation
- Physico-Chemical Parameters of Refrigerants
- Identification of Unknown Chemicals

Calibration Glass & Ceramics Metal & Alloys
Infrastructure & Soil Metals & Minerals
Petroleum & Fuels Electrical Calibration
Method Development Inorganic & Fertilizers
Physico Concrete Mix Designs. Thermo

ASD

Analytical Science Division

The Analytical Science Division provides support to Industry for analysis and evaluation of quality and product improvement in various sectors.

- Infrastructure
- Soil
- Metal & Alloys
- Glass & Ceramics
- Abrasives & Refractories
- Fertilizers & Inorganic Chemicals
- Petroleum & Fuels
- Electricals
- Calibration

Studies Undertaken

- Compositional Analysis of Mineral & Ores and Glass & Ceramics.
- Characterization of Raw Materials, Semi Processed Products and Finished Products.
- Product Identification, Product Differentiation and Material Compatibility.
- Physico-Chemical Characterization of Abrasives & Refractories.
- Thermo-Mechanical Properties of Insulating Materials.
- Characterization of Various Chemicals, Fertilizers & Construction Materials (Soil, Building and Road Works)
- Compositional analysis of Scale/Depositions.
- Method Development.
- Failure Analysis & Corrosion Studies.
- Concrete Mix Designs.
- Non-Destructive Evaluation
- Studies on Liquid Fuels, Fuel Additives, Engine Oil, Insulating and Industrial Oil, Bituminous Oil, etc.
- Electrical Testing for Wires & Cables, Luminaries & Lamps, Domestic Appliances, Insulating Materials, Batteries, etc.
- Calibration Services in Thermal, Electro-Technical, Fluid Flow and Mechanical Fields Including on-site Calibration.
- Chemical, Physico-Mechanical, Mettalographic Studies of Metals and Alloys.
- Coating Thickness Studies

EPD

Environment Protection Division

Environment Consultancy
Air & Emission Studies
Water & Waste Water
Effluent
Energy Air
Climate Change
Water
Radiation
Micro-materiology & Modeling
Soil
Solid Waste Management
Environment & Policy Research

The Environment Protection Division (EPD) provides services to Industries, Regulators, Health Sector etc. in multi-disciplinary areas. EPD generates primary data with high accuracy and reliability supplemented by professional data analysis, scientific interpretation, modeling for impact analysis, and prediction together with development of a management plan for off-setting/ minimizing negative impacts and ameliorating positive impacts. The institute is ISO-45001, ISO-14001 certified and approved by MOEF-CC



Studies Undertaken

- **Environmental Consultancy:** EIA Studies & Development of EMP, Risk Assessment & Development of DMP and Environmental Audits.
- **Process Control Studies:** Process Control Audit of STPs, CETPs, Validation of Green Buildings and Adequacy Studies of Pollution Control Devices.
- **Environmental & Policy Research:** Bio-Magnifications of Pollutants, River Ecology, GIS Mapping of Contaminants, Flue Gas Emissions at High Temperatures and Impacts of Fuel Additives for Performance of Engines.
- **Climate Change:** Carbon Footprints, GHG Assessment at Municipal Solid Waste Dumping Sites, Climate Vulnerability Mapping, Waste Flue Gases for Energy Recovery and Energy Audits at STPs.
- **Rural Water Technologies:** Evaluation of Water Quality Field Test Kits, Water Purification Technologies, Fluorosis Control Programmes and Information Education & Communication (IEC).

State-of–the-art Facilities for

- **Air & Emission Studies**
  - Toxic Gas Analyzer & Potable Multi Gas Monitor
  - Noise & Vibration Monitoring Systems
  - THM Analyzer & HC Leak Detectors
  - Online CO Analyzer
  - Particulate Monitor (PM10 & PM2.5)
  - Ozone Analyzer
- **Water & Waste Water**
  - UV/Visible Spectrophotometer
  - Specific Ion Meter
  - Nephelometer
  - Global Positioning Systems & Laser Distometers
  - Ultrasonic Flow Meter (Doppler)
  - Current Meters
- **Micro-Materiology & Modeling**
  - Automatic Ultrasonic Weather Stations
  - Windrose Software
  - Rain Gauze
  - ISCST Model for Pollutant Dispersion



Medicines Granules Metallic Products Surgical Disposable
Gamma Irradiation Sterilisation Implants
Raw Material Ayurvedic/Herbal Research
Pharmaceuticals Needles Aluminium Caps
Containers Surgical Blades

SARC

Shriram Applied Radiation Centre

Shriram Applied Radiation Centre (SARC) was established in collaboration with Bhabha Atomic Research Centre (BARC), Board of Radiation & Isotope Technology (BRIT) and Department of Atomic Energy (DAE), Govt. of India, with the following objectives :

- To Develop, Demonstrate and Promote Gamma Radiation Processing Technology and its Diverse Applications Through Applied Research.
- For Gamma Irradiation of Surgical, Medical and Pharmaceutical Products for Sterilization.
- For Reduction of Microbial Load of Herbal/ Ayurvedic Medicines and their Ingredients.
- For Detection and Certification of Radiation Contamination of Various Commodities.

Services Available

- Sterilization of Surgical, Medical and Pharmaceutical Products.
- Irradiation of Ayurvedic Ingredients/Medicines to Reduce Bioburden.
- Irradiation of Precious and Semiprecious Stones for Enhancement of Aesthetics and Color.
- Irradiation of Various Products for Research Studies.
- Testing and Certification of Residual Radiation in Commodities.

All these services are undertaken strictly adhering to regulatory norms.

Products Commonly Processed with Gamma Radiation

Almost all medical products that are covered by the relevant drug and cosmetic regulations are commonly sterilized by gamma radiation.

- **Surgical Products:** Bandages, Dressings, Gauze Pads, Nappies, Delivery Kits etc. which are made of Cotton, Wool and Gauze. Sterilization of Surgical Sutures.
- **Metallic Products:** Surgical Blades, Needles, Implants, Aluminium Caps, Containers etc.
- **Plastic and Rubber Items:** Petri-dish, Centrifuge Tube, Blood Collection Sets, Scalp Vein Sets, Shunt Valves, Rubber Gloves, Contraceptive Devices, Gowns, Wraps, Covers, Sheets, etc.
- **Pharma Products:** Silver Sulphadiazene Cream, Gelatin Capsule, Bentonite, Charcoal, Ergot Powder, Absorbable Gelatin, Ophthalmic preparations in Paraffin Base and Oil Base, Skin Ointment in Polyethylene Glycol Base and API.
- **Ayurvedic/Herbal:** Raw Material, Medicines, Granules, Spices and Condiments.
- **Gem Stones:** Precious and Semi-precious Stones for Colour and Aesthetic Enhancement.

SRI-TBI

Shriram Institute – Technology Business Incubator

Innovation Viability Competitiveness
Infrastrcutural Support Project Detailing
Prototype Development Fund Liaisoning
Specification Finalization Patentability
Process Development

Shriram Institute-Technology Business Incubator (SRI-TBI) has been promoted by the Department of Science & Technology (DST), Ministry of Science & Technology, Government of India to provide multi-dimensional services to entrepreneurs in the fields of Rubber & Plastics Processing, Manufacturing of Specialty Chemicals and Waste Utilization for making value added products.

SRI-TBI offers services by facilitating the process of converting knowledge-based and technology-driven innovative ideas of startup entrepreneurs into business through incubation. All types of technical assistance are provided to the incubatees during the incubation period for capability and capacity building in their areas of interest. Besides assisting new entrepreneurs, existing industries are also supported for improving their competitiveness in respect of product quality, price, output, energy input and process waste utilization.

SRI-TBI facility is equipped with state-of-the-art polymer processing equipment & analytical instruments. The services provided to the Incubatees are summarized below:

Technology Scrutiny

- Viability
- Innovation
- Competitiveness
- Patentability

Project Detailing

- Process Development.
- Specification Finalization.
- Designing and Identification of Plant and Machinery.
- Validation of Product/Process.
- Process/Product Optimization.

Prototype Development for Market Feedback

- Providing a Platform for Launching the product in the Market.
- Facilitating and Promoting the Product Through Liaisoning with Potential Buyers.
- Match Making or Facilitating Tie-ups with Prospective Partners.

Facilitating Project Funding by

- Ministry of Micro, Small & Medium Enterprises (MoMSME)
- Technology Information, Forecasting and Assessment Council (TIFAC)
- Department of Science & Technology (DST)
- Private/Public financial Institutions and Angel Investors

Infrastructural Support

- Fully Furnished Office with Dedicated Internet Facilities.
- Shared Resources like Discussion Room, Conferencing Facility, Engineering Workshop etc.
- Business Networking Support.
- Telecommunication.
- Administrative and Secretarial Support.
- Access to Pilot Scale Machinery/Equipment.

Shriram Institute for Industrial Research

BENGALURU
14-15, Sadarmangla Industrial Area Whitefield Road, Bengaluru-560048, India
Tel.: 080-35000500, +91-80-28410165/72 | Fax.: +91-80-28410189
E-mail: info@shriraminstitute-blr.org

DELHI
19, University Road, Delhi-110007, India
Tel.: +91-11-27667267, 27667860, 27667983
Fax.: +91-11-27667676, 27667207
E-mail: customercare@shriraminstitute.org

GURGAON
76 D&E, Sector-18, Gurgaon-122015, India
Tel.: +91-124-2347485
Fax.: +91-124-2341128
E-mail: customercare@shriraminstitute.org

ACCREDITATIONS

ISO/IEC 17025
NABET/QCI

CERTIFICATIONS

ISO : 9001
ISO : 13485
ISO : 11137
ISO : 14001
ISO : 45001

www.**shriraminstitute**.org