



# Shriram Institute for Industrial Research

Delhi Campus: 19, University Road, Delhi -110007; Email: [customercare@shriraminstitute.org](mailto:customercare@shriraminstitute.org)

Bengaluru Campus: 14-15, Sadarmangla Indl. Area, Whitefield Road, Bengaluru - 560048

## SIIR developed new industrial applications with advanced radiation technology for various Industries & Start-ups

Radiation Processing using Gamma rays is a unique environment-friendly technique with a large no of applications which include sterilization of Health care products, packaging material, Cosmetic product and Pharma Product, Development and modification of polymers , Shelf-life enhancement of Spices, Ayurvedic / Herbal products, food and Food products, Fruits and vegetables, Decontamination of various items, surface curing ,environmental remediation, phytosanitary treatment, Colouration of Gem stones etc.

### Gamma Radiation Processing Plant

Shriram Applied Radiation Centre (SARC) of Shriram Institute for Industrial Research is considered to be the Centre of Excellence in the field of Gamma Radiation Sterilization of Health care Products. SARC was



established in 1990 in collaboration with the Board of Radiation and Isotope Technology, Department of Atomic Energy, Govt of India with the objective to Develop, demonstrate and promote radiation processing Technology and its diverse applications by conducting applied research. Gamma irradiator at SARC is a fully automatic computerized plant set up as per the design and norms of BRIT/AERB for round the clock fail safe operations.

Design capacity of SARC for storage of Co-60 source is 800kCi. Unique plant design of SARC gives very low over dose ratio which is best suitable for radiation sterilization of Health care products including Medical Devices.



### Accreditations/Approvals

SARC irradiator is licensed for operation by Atomic Energy Regulatory Board (AERB), Govt. of India. SARC is approved by Central Drugs Standard Control Organization (CDSCO), Govt. of India and Drugs Control Department Govt. of Delhi with regard to radiation sterilization of Medical Devices covered under MDR 2017. SARC is accredited for ISO 11137 and ISO 13485 with regard to radiation sterilization and validation of Healthcare Products using Co-60 source. SARC is also accredited for ISO 9001 for QMS, ISO 4501 for OH&SM and ISO 14001 for EMS.

**SARC** also has NABL accreditations with regard to radioactive contamination tests in various commodities.

**SARC** is also registered with USFDA for sterilization of Medical Devices

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## Advantages of Gamma Radiation Sterilization for Exporters

Industrial scale sterilization can be done by several techniques such as dry heating, autoclaving (steam sterilization) gas sterilization (e.g. Ethylene oxide sterilization) etc., besides sterilization using gamma rays. Sterilization using gamma rays has the following advantages:-

Unlike heat sterilization or steam sterilization, Gamma ray sterilization does not increase the temperature of the products and therefore can be used to sterilize safely even the heat sensitive materials as well as materials in frozen condition.

Unlike Ethylene oxide sterilization, Gamma ray sterilization does not leave any harmful residue. At the normally used dose level, there is no danger of radioactivity or toxicity. Radiation processed products do not become radioactive-just as our body does not start emitting X-rays after being X-rayed.

Gamma sterilization is performed after packaging the products in the final containers and does not involve any aseptic handling. Product sterility is retained indefinitely, as long as the packaging is intact. Sterilization of products of any shape can be achieved due to the high penetration ability of gamma rays.

Gamma ray sterilization is a non-polluting, environment friendly process, and since it is a continuous process, the results are more uniform than gas or high temperature sterilization, which are essentially batch processes.

## Facility available for radiation sterilization for following products:

**Surgical Disposable:** Bandages, Dressings, Gauge pads, Nappies, Delivery/PPE Kits, Face masks, Wipes etc.

**Metallic Products:** Surgical blades, Needles, Implants, Aluminium caps, Containers.

**Plastic and Rubber Items:** Petri-dish, Centrifuge Tube, Blood Collection Tube, Rubber gloves, Contraceptive Devices, Gowns, Wraps Covers, Sheets, Syringes, Eye Droppers, Urine container, Tubing, VTM Tubes, Filters and Various disposable items.

**Pharmaceuticals:** Silver Sulphadiazene Cream, Gelatin Capsule, Bentonite Charcoal, Ergot Powder, Absorbable gelatine, Ophthalmic preparations, Cosmetic products, MCHA, Antibiotics and API

**Ayurvedic/Herbal/Veterinary Products:** Raw material, Medicines, Granules, Henna Powder, Surgical Sutures.

## Coloration of GemStones.



SARC also undertakes the following activities .Undertake studies with regard to optimization of radiation dose for various types of products .Undertake the validation studies on medical devices as per ISO 11137 and ISO 13485.Undertake testing and certification of residual radiation in commodities.

**Important: SIIR is working on many research projects related to Irradiation technology in India with wider application.**

**You may also join us as a research partner in the area of your work. Please feel free to contact or visit SIIR and discuss the issues related to the facility for radiation sterilization.**

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