

BRIT PROFILE

The application of radioisotopes in healthcare, industry, agriculture and research is one of the most wide-spread peaceful uses of the nuclear sciences, next to nuclear power production. Realizing the importance of the use of the radioisotopes for social benefits and national development, the Department of Atomic Energy has, over the years, built up adequate infrastructure facilities for the production and applications of radioisotopes. Radioisotopes produced in the research reactors Dhurva and CIRUS at BARC, Trombay are formulated into a variety of radiochemicals, radiopharmaceuticals, sealed sources, radiation sources, labelled compounds and other allied products in the laboratories of BRIT and supplied to nearly 2000 institutions for use in medicine, industry, agriculture and supporting research in life sciences and bio-sciences.

In the healthcare sector, radioisotopes have contributed significantly to the development of new methods for diagnosis of diseases and cancer treatment using primarily sealed sources of ^{60}Co . A number of Radioimmunoassay (RIA) kits are produced and supplied to a large number of hospitals and RIA laboratories all over the country. Radiochemicals, reference sources, labelled fertilizers, ^{14}C as well as ^3H labelled compounds are supplied by BRIT to many research laboratories, universities, educational institutions and agricultural institutions. BRIT also supplies ^{32}P and ^{33}P labelled nucleotides as well as ^{35}S labelled methionine and cysteine products for use in molecular biology research.

High intensity ^{60}Co teletherapy sources and brachytherapy sources of ^{192}Ir and ^{137}Cs for cancer therapy and Blood irradiators for irradiation of cellular blood components to reduce the risk of Graft-Versus-Host Disease (GVHD) are supplied by BRIT to many hospitals. Laboratory scale research irradiators called "Gamma Chambers" supplied by BRIT are very much useful for research studies on radiation chemistry, radiobiology, food preservation, mutation, breeding, radiation hygienization etc. The use of medical products sterilized by gamma radiation greatly helps to improve the quality of healthcare and BRIT has contributed significantly for the establishment of radiation technology as an economically viable and superior method for sterilization of medical disposables.

Radiation hygienization of spices and other food products extends their shelf life, reduces microbial load and losses due to spoilage without affecting the appearance, colour, aroma and flavour. BRIT has set up state of the art radiation processing facility for the hygienization of spices and other related products at Vashi, Navi Mumbai. BRIT offers total solution to the technology needs of radiation processing plant including supply of kiloCuries of ^{60}Co sources used in such plants.

In the industrial sector, BRIT is supplying industrial gamma radiography equipment and ^{192}Ir and ^{60}Co radioisotope sources for use in NDT examination and quality control of industrial components. BRIT along with BARC provides professional services for trouble shooting particularly in oil and chemical industry.