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Gamma Sterilization

New build, modernizations, services and Co-60 supply

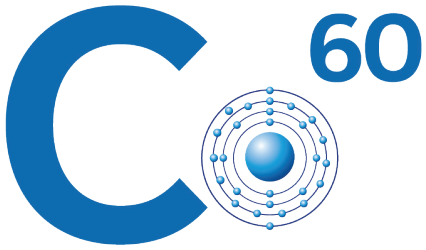
Tailored solutions for facility owners to improve operating efficiency, strenghten nuclear safety, and help secure Co-60 supply for growing global healthcare needs.

Challenge

The demand for sterile healthcare products continues to grow. However, irradiation facility capacity remains constrained by reduced confidence in Co-60 supply and the aging of existing plants.

At the same time, the expansion of E-beam and X-ray sterilization technologies — supported by highly efficient automation, mechanical systems, and service infrastructure — is creating strong competitive pressure on older gamma sterilization facilities. These facilities are increasingly challenged by rising maintenance costs, declining spare parts availability, and evolving regulatory requirements.

Co-60 sterilization, widely recognized as the most cost-effective technology, is constrained by reliance on a limited and insufficiently diversified Co-60 supply chain, hindering the significant market share growth needed to support the healthcare sector with competitively priced sterilization services.





Solution

Drawing on our extensive experience in nuclear technologies and safety-critical infrastructure, we provide complete gamma sterilization facility solutions through a single customer interface.

Our offering is built on deep expertise in engineering and regulatory approval processes. It spans from rad-hard conveyor systems designed for radiation environments with innovative components (e.g. pneumatic cylinders or limit switches) to safety automation solutions that ensure efficient operations while meeting both machine and nuclear safety requirements. These technologies can be implemented as standalone modules in existing facilities, as part of modernization projects, or within new gamma sterilization facilities.

Our services are designed to support operating teams in maintenance and Co-60 integration. We also assist customers in securing external Co-60 supply and are actively working to establish a sovereign supply chain through the existing nuclear power plant fleet, which we manage as part of our core business.

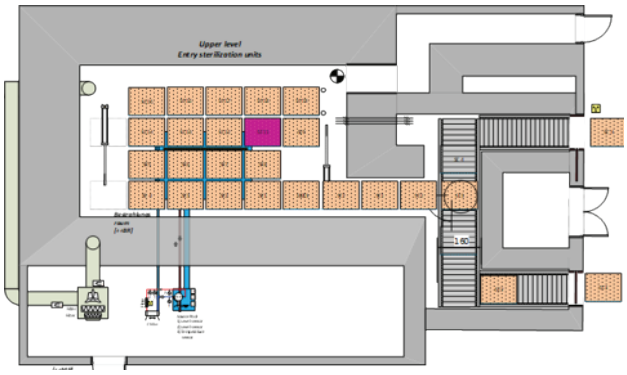
Customer benefits

- Fast and flexible on-site support provided by experienced radiation specialists
- Customized solutions designed to meet the specific requirements and operating conditions of the existing plant
- Increased throughput enabled by process optimization and innovative technology
- Enhanced equipment availability through the use of robust and radiation-resistant components
- Support in licensing processes

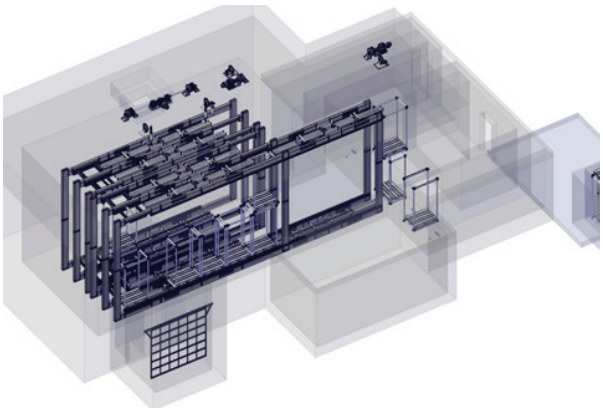
Our Expertise in Gamma Sterilization Facilities

As specialists in nuclear energy and plant engineering, we provide comprehensive expertise for the design, optimization, modernization, and safe operation of gamma sterilization facilities. Our capabilities include:

- **Dose distribution and process validation**
  Dose mapping and simulation to ensure product sterilization, optimize dose uniformity and support facility and source-loading design.
- **Automation technology**
  Reliable components, robust instrumentation and advanced control systems designed for radiation-exposed environments.
- **Conveyor technology**
  Robust conveyor systems designed for reliable operation in radiation environments, featuring radiation-resistant sensors and actuators to maximize plant availability.
- **Safety engineering**
  Radiation protection and shielding calculations, source handling and integration, as well as machine, site, and nuclear safety systems.
- **Training and compliance support**
  Staff training, guidance, and documentation in accordance with ISO 11137, GMP, and regulatory requirements.
- **Co-60 services**
  On-site source implementation and support related to external Co-60 supply.
- **In-house engineering**
  End-to-end engineering expertise from concept development to implementation.



Framatome New Build Facility Design, Mechanical Arrangement



Framatome New Build Facility Design, Flow of Products

Scan the QR code to watch our video

References

Modernization of Gamma Irradiation Facilities in Europe

- Concept design, replacement of the automation and conveyor technology, documentation and dose rate calculation
- Technology studies for several facilities: machinery safety, conveyor upgrade, automation modernization

Source installation and facility services

- Implementation of Cobalt-60 sources, including radiation measurements, positioning tracing and transport handling
- Yearly machinery inspections and product lifetime maintenance

Healthcare Solutions backed up by Nuclear Experience

- Isotope Production for the Healthcare industry in several international research and power reactors
- Modernization and design of Research Reactors

Contact: IC@framatome.com | www.framatome.com

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