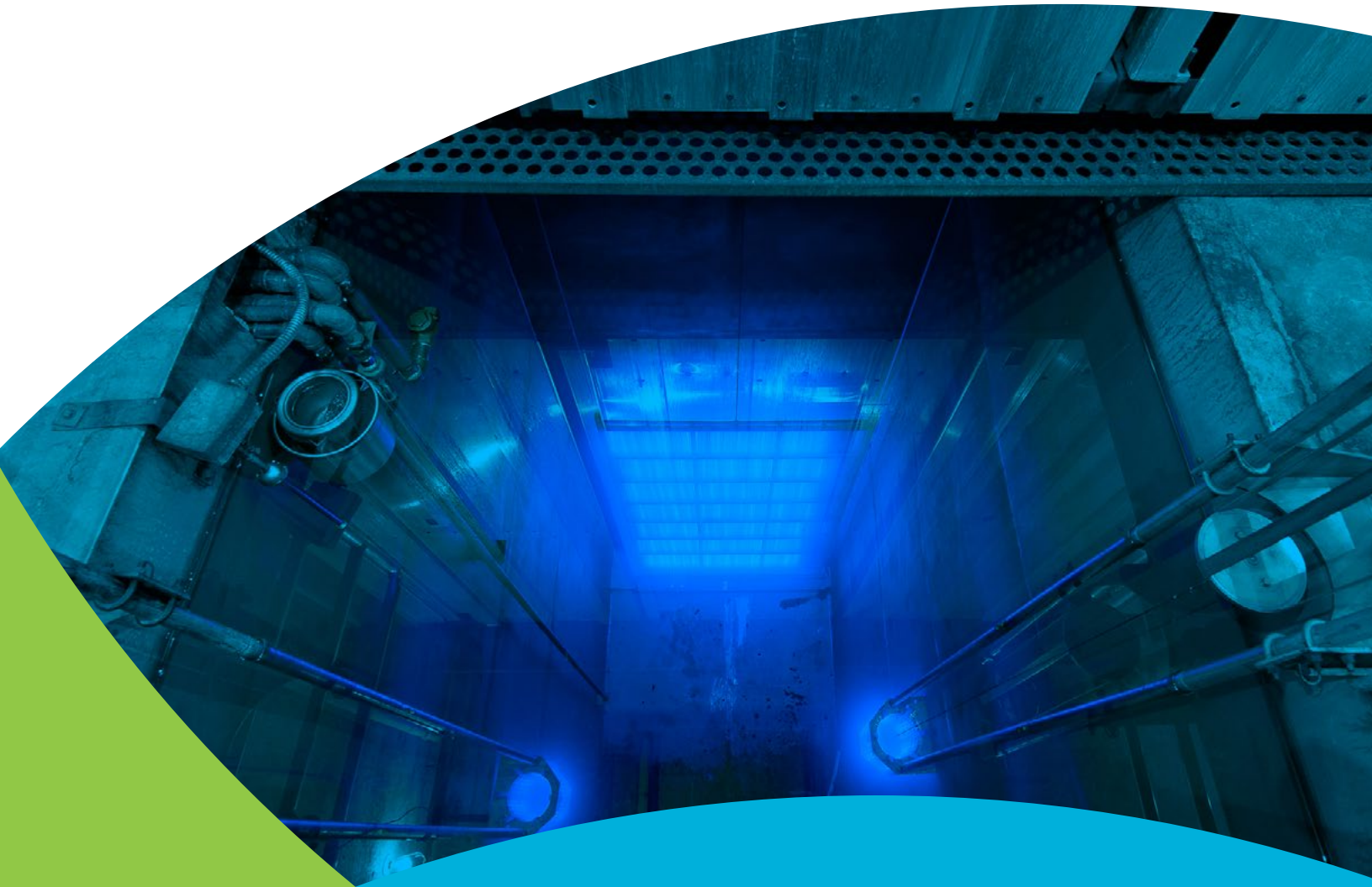
Nordion®
A Sotera Health company

Modelling Services



Efficiency. Predictability. Customization.

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Modelling as a Validation Tool Performance

Are you using the best resources available for validation and planning of your gamma system operations?

Nordion gamma systems are designed today using sophisticated modelling software that has been validated with more than 20 years of irradiator designs and qualification data. This same software can be used to design new irradiators and model non-Nordion designs, optimize source loading configurations, evaluate changes to irradiator designs and shielding and even predict the dose distribution within specific products.

Not sure if modelling is right for you?

- Do you want to ensure the equivalency of your irradiator operation before and after a cobalt loading?
- Do you want to save time in performance qualification for products with challenging dose requirements?

If you answered "yes" to either question, you may benefit from modelling software services. Nordion offers modelling as a value added service to our cobalt-60 and irradiator customers, to help optimize the performance of your gamma irradiation system.

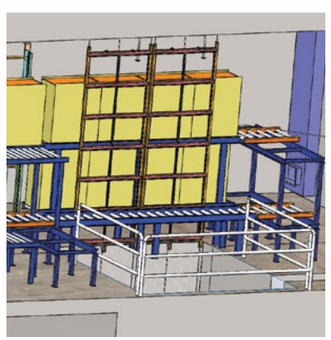
Creating a Model to Predict Irradiator Performance

As the designer of the majority of gamma irradiators in use today, Nordion has access to original engineering schematics to create the most accurate models of existing irradiators, validated against actual qualification dosimetry data.

The same modelling software can be used to create or import new irradiator designs to produce performance results which are tailored to the requirements of a specific customer.

Model outputs include:

- Throughput performance based on volume or weight of product and number of Curies
- Dose uniformity ratio, maximum dose and minimum dose
- Individual dosimeter predictions for dose mapping exercises



Loading Optimization: Customize Performance to Customer Requirement

When source loadings are designed for equivalence, modelling can be used as an extra quality control check to make sure that there are no unanticipated changes to irradiator performance which could potentially lead to expensive amounts of requalification work for the products that you process.

Alternately, if you are looking to optimize your source distribution for a specific product mix, Nordion can model a new distribution to meet your requirements.

Optimization can be used to:

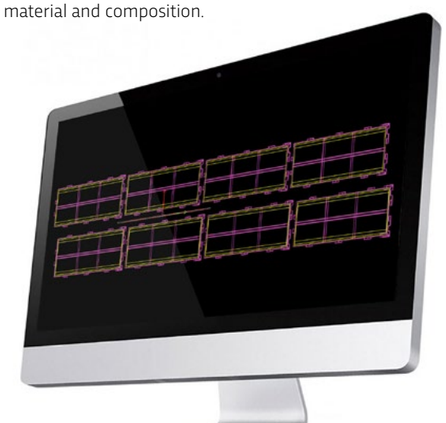
- Change or maintain minimum and maximum dose locations
- Improve throughput efficiency at a given product density
- Improve dose uniformity ratio at a given product density

Modelling to Save Time and Resources

Performance Qualification for Challenging Products

Some products have tight minimum and maximum dose constraints which can only be achieved by using special processing configurations such as center loading. Other products need to be irradiated with dry ice in order to maintain frozen temperatures.

Instead of using an educated guess combined with a trial and error approach to find a configuration that works, iterations can be done with models to determine a configuration you are confident in before starting your performance qualification. This can save valuable processing time in your irradiator and in measuring and analyzing the dose to product. Nordion can also use other advanced modelling tools to predict doses to unusually shaped products or any material and composition.



Dosimetry and Qualification Procedures

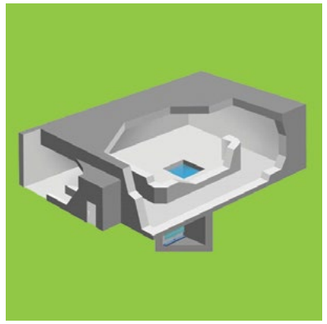
Modelling is a predictive tool but always needs to be confirmed with proper dosimetry following international standards for validating a radiation process.

Modelling helps to reduce the amount of dosimetry required, but it is not a replacement. Nordion can work with you to develop qualification procedures that appropriately capture performance based on model outputs and your existing data.

Shielding Design

Looking to increase the license capacity of your irradiator? Do you plan to build a new irradiator with a unique footprint?

Nordion has tools to predict the performance of biological shields to ensure that local regulatory requirements are met and maintained.



Nordion's products and services are used throughout the world to prevent, diagnose and treat disease. Our applied research and innovation play an integral part in improving global healthcare.

Nordion is guided by a core purpose of making a distinctive contribution to the health and wellbeing of people. We are a leader in protecting the health and safety of our employees, our neighbours and the environment. We have a sound environmental management system and certified operating practices that meet stringent international standards for environmental sustainability. Nordion and our employees take an active role in building healthy, strong, happy communities, both at home and abroad.

About Nordion

Nordion, a Sotera Health company, is a leading provider of medical isotopes and gamma technologies used for the prevention, diagnosis and treatment of disease and infection. Nordion's products are used daily by pharmaceutical and biotechnology companies, medical-device manufacturers, hospitals, clinics and research laboratories. Nordion supplies products to more than 40 countries around the world, and is committed to their mission, Safeguarding Global Health™ with every critical isotope they supply.

About Sotera Health LLC

Sotera Health LLC—parent company of Nordion, Nelson Labs, Sterigenics—is the world's leading, fully integrated protector of global health. With over 500 combined years of industry-recognized scientific and technological expertise, Sotera Health ensures the safety of global health by providing mission-critical services to the medical, pharmaceutical, tissue and food industries.

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NORDION (CANADA) INC. 447 March Road, Ottawa, ON, Canada K2K 1X8
Tel: +1 613 592 2790 Fax: +1 613 592 6937 **nordion.com**