

CERTIFICATE OF COMPLIANCE FOR RADIOACTIVE MATERIAL PACKAGES

1.	a. CERTIFICATE NUMBER	b. REVISION NUMBER	c. DOCKET NUMBER	d. PACKAGE IDENTIFICATION NUMBER	PAGE	PAGES
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2. PREAMBLE

- a. This certificate is issued to certify that the package (packaging and contents) described in Item 5 below meets the applicable safety standards set forth in Title 10, Code of Federal Regulations, Part 71, "Packaging and Transportation of Radioactive Material."
- b. This certificate does not relieve the consignor from compliance with any requirement of the regulations of the U.S. Department of Transportation or other applicable regulatory agencies, including the government of any country through or into which the package will be transported.

3. THIS CERTIFICATE IS ISSUED ON THE BASIS OF A SAFETY ANALYSIS REPORT OF THE PACKAGE DESIGN OR APPLICATION

- a. ISSUED TO (*Name and Address*)
- b. TITLE AND IDENTIFICATION OF REPORT OR APPLICATION

Best Theratronics
413 March Road
Ottawa, Ontario
Canada K2K 0E4

MDS Nordion application dated
November 29, 2006, as supplemented.

4. CONDITIONS

This certificate is conditional upon fulfilling the requirements of 10 CFR Part 71, as applicable, and the conditions specified below.

5.

(a) Packaging

- (1) Model No.: F-423
- (2) Description

A double-walled welded stainless steel overpack for shipping sealed sources within the Gammacell 220 (GC220) gamma irradiator. The packaging consists of concentric box-like stainless steel shells separated by an annulus of rigid polyurethane foam. The overall overpack wall thickness is eight inches on the sides, twelve inches on the front and rear, and four inches on the base. The overpack lid is constructed of a sheet of 1/2-inch thick stainless steel on top, a sheet of 1/4-inch thick cold-rolled steel on the bottom, and 4-inches of polyurethane foam in between. The package is closed by bolting the lid to the body with 40 one-inch diameter bolts.

The GC220 irradiator is positioned inside the cavity formed by the inner stainless steel shell, along with an inner steel frame and a rigid polyurethane foam bonnet and lower crush pad. Shielding is provided by the GC220 irradiator, which is a welded steel lead-filled device. The GC220 is a lead-filled shielding head mounted on a steel stand. The GC220 shielding head consists of inner and outer steel shells with lead in between. The nominal lead thickness is 10 inches. The GC220 has an irregular shape, however, the base is 60-inches long by 40-inches wide. In its shipping configuration, the GC220 is 58-inches high. The GC220 shielding plug is welded from 304 stainless steel and lead filled. The GC220 drawer is welded from 304 stainless steel and is lead filled.

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5(a) (2) (continued)

The maximum package weight (including contents) is 21,000 lbs (9,524 kgs). The approximate package component dimensions and weights are as follows:

Component	Weight (lbs / kg)	Nominal Dimensions (L x W x H inches)
Overpack Lid	1,036 / 470	67.50 x 55.00 x 4.75
Inner Frame	1,257 / 570	60.50 x 48.00 x 54.13
Bonnet	871 / 395	52.00 x 41.50 x 36.75
GC220	8,576 / 3.890	60.00 x 40.00 x 58.00
Overpack Body	8,708 / 3.950	86.50 x 66.00 x 80.37
Lower Crush Pad	386 / 175	47.00 x 31.00 x 7.00

(3) Drawings

The packaging is constructed in accordance with MDS Nordion Drawing No. F642301-001, Sheet 1, Revision G, and Sheet 2, Revision D.

(b) Contents

(1) Type and form of material

- Cobalt-60 as sealed sources that meet the requirements of special form radioactive material.
- Cobalt-60 as sealed sources described in Condition No. 6 below.

(2) Maximum quantity of material per package

26,000 curies, a maximum of 48 sources per package, and a maximum of 5,000 curies per source.

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6. Sealed sources limited to MDS Nordion sealed source capsules manufactured before February 19, 1973: C-166, C-167, C-185 and C-198. In addition, these sources must meet the following:
- (a) Sources must conform to the specifications identified in the application in Figure 4.2 for the C-166 source, Figure 4.3 for the C-167 source, Figure 4.4 for the C-185 source and Figure 4.5 for the C-198 source;
 - (b) Sources must be shown to not be leaking within six months prior to shipment; and
 - (c) Sources must not have been damaged during their service life.
7. In addition to the requirements of Subpart G of 10 CFR Part 71:
- (a) The package must be prepared for shipment and operated in accordance with the Operating Procedures in Chapter 7 of the application.
 - (b) Each packaging must be acceptance tested and maintained in accordance with the Acceptance Tests and Maintenance Program in Chapter 8 of the application.
8. The package authorized by this certificate is hereby approved for use under the general license provisions of 10 CFR 71.17.
9. Transport by air of fissile material is not authorized.
10. Fabrication of new packages is not authorized.
11. Expiration date: March 31, 2027

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REFERENCES

MDS Nordion application dated November, 29, 2006

Supplement dated: February 8, 2007; February 27 (Best Theratronics), March 31 (MDS Nordion), 2009, October 7, 2011, November 8, 2016 and January 24, 2022.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION



White, Bernard signing on behalf
of Diaz-Sanabria, Yaira
on 03/08/22

Yaira K Diaz-Sanabria, Chief
Storage and Transportation Licensing Branch
Division of Fuel Management
Office of Nuclear Material Safety
and Safeguards

Date: March 8, 2022





**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION REPORT

Docket No. 71-9299
Model No. F-423
Certificate of Compliance No. 9299
Revision No. 7

SUMMARY

By application dated January 24, 2022, Best Theratronics requested renewal of Certificate of Compliance No. 9299 for the Model No. F-423 shipping package. Best Theratronics did not request any changes to the package design or authorized contents. The certificate has been renewed for a five year term.

CONCLUSION

By application dated January 24, 2022, Best Theratronics requested renewal of Certificate of Compliance No. 9299 for the Model No. F-423 shipping package. Best Theratronics did not request any changes to the package design or authorized contents. The staff reviewed the documents referenced in the certificate and determined that the documentation was available and complete. The staff also reviewed the operating and maintenance procedures for the package and found them to be adequate. Staff modified Condition 6 and Condition 6a to specifically identify C-198 special form capsules as authorized content. Staff did this to provide clarity about the authorized contents for the package. Staff added a new Condition 10 stating that new packages may not be fabricated because the package design was approved prior to implementation of the 1996 regulatory requirements. Staff also renumbered subsequent conditions. In addition, the certificate of compliance is revised to update the revision number, remove unnecessary change bars, and make editorial changes.

The certificate has been renewed for a five year term that expires on March 31, 2027. This change does not affect the ability of the package to meet the requirements of 10 CFR Part 71.

Issued with Certificate of Compliance No. 9299, Revision No. 7.